



Request for Proposal #201502034

Communications, Marketing and Public Relations Plan for the Maine Department of Inland Fisheries and Wildlife

- **Inland Fisheries & Wildlife Mission Statement**
- **Fishing in Maine in 2013:** A statewide and regional analysis of participation and economic contributions, prepared by Southwick Associates
- **Hunting in Maine in 2013:** A statewide and regional analysis of participation and economic contributions, prepared by Southwick Associates
- **Report on the Resolve to Establish a Task Force to Examine the Decline in the Number of Non-Resident Hunters**
- **Maine Inland Fisheries Management Program Review 2002,** prepared by The Management Assistance Team
- **Maine Department of Inland Fisheries and Wildlife 2003/2004 Review ,** prepared by The Management Assistance Team
- **MDIFW Vision Statement from 2000**
- **Maine Citizen Survey** conducted by Market Decisions

Mission Statement

In 1880 the Legislature made the two Maine Fisheries Commissioners responsible for enforcing the laws that had been enacted to control the taking of important game species. The uncontrolled taking of moose, caribou, and deer during the 1800s had contributed to a serious depletion of big game populations. This early enforcement effort represented the beginning of the Department of Inland Fisheries and Wildlife. At the time, game wardens were appointed to patrol the State's woods and waters and bring poaching under control. They did not receive a salary, but instead received half the amount of the fines paid by violators they apprehended.

The mission of the Department was soon expanded to include the propagation of game fish. Thousands of trout, salmon, and bass were stocked annually across the state to support a rapidly growing tourist industry. Through the early 1900's, many new hunting and fishing laws were enacted to conserve fish and wildlife. Hunting and fishing licenses were established to pay for fish and wildlife conservation programs. Detailed studies of the status and needs of wildlife began in the 1940's to guide the management of these resources. Statewide fisheries management programs were initiated in the 1950's. Today, the Department carries out a wide variety of fish and wildlife conservation programs. These programs focus on maintaining abundant game resources, as well as managing non-game wildlife and restoring endangered species, such as the bald eagle. The Department's mission has also been significantly broadened with responsibilities for white-water rafting; registration of watercraft; snowmobiles; ATVs; hunter, trapper and recreational vehicle safety; conservation education; and other matters.

Although the Department's mission has been steadily expanded, it remains focused on the protection and enhancement of the state's inland fisheries and wildlife, while at the same time providing for the wise use of these resources. Assuring the conservation and use of these resources is vital to the state's economy. Fish and wildlife continue to be highly valued by Maine people and hundreds of thousands of people who come to Maine each year. Direct economic impacts directly attributable to the use of these resources amount to over 1/2 billion dollars annually. These expenditures play a major role in the State's economy.

The Department is dedicated to assuring these highly valued resources are available for the use and enjoyment of future generations.

Vision & Values

A Department Vision and Values statement was developed through the TQM process and incorporated into the Strategic Plan specifying that Maine should offer all people the opportunity to enjoy a unique diversity of fish and wildlife resources. The Vision is of an IF&W that:

- conserves, protects, and enhances the inland fisheries and wildlife resources;
- increases opportunities for the use of these resources by all people;
- responds to the needs of the people by providing services of the highest quality;
- fosters public awareness and involvement;
- merits public confidence, respect, and support; and
- promotes efficiency in program management through employee involvement, initiative, innovation, and teamwork.

Specific values were set forth as follows: We in the Department of Inland Fisheries and Wildlife Value:

- **Stewardship.** We take pride in providing the highest level of stewardship for our fish and wildlife resources.
- **Pride in Work.** We will make every effort to provide the highest level of customer service and satisfaction.
- **Quality in Our Service.** We hold our work to the highest standards of quality.
- **Personal Responsibility.** We take responsibility for personal integrity, individual contribution and the highest level of performance in our service.
- **Continuous Improvement.** We vigorously strive for excellence, and continuously seek to improve our performance.
- **Diversity.** We encourage mutual respect and recognize the contributions diversity brings to job performance and creativity.
- **Empowerment.** We will participate fully in decisions and explore innovative solutions.
- **Teamwork.** We promote teamwork by providing a cooperative work environment that fosters open and honest communication, personal and professional growth, and the best use of our resources.

Fishing in Maine in 2013:

A statewide and regional analysis of participation
and economic contributions

For:

Maine Office of Tourism &

Maine Department of Inland Fisheries and Wildlife

January 2014



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A S S O C I A T E S

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This document is the second installment in a three-part series examining the economic contributions of hunting and fishing in Maine and the market potential for increased participation. The first report focuses on hunting in Maine. This report focuses on fishing. The third report is a market analysis that looks at the preferences and amenities that attract sportsmen to hunting and fishing destinations.

Executive Summary

Recreational fishing can be a powerful contributor to state and local communities across the country, bringing in outside dollars that generate additional spending, supporting and creating jobs, and building future investments in open spaces and recreational areas.

The Maine Office of Tourism and Maine Department of Inland Fisheries and Wildlife (DIF&W) commissioned a study of the state's sporting population to examine statewide and regional fishing activity as well as the characteristics of fishing trips including the duration, purpose, destination, lodging and amenities associated with resident and visiting anglers. Drawing from license sales records and survey-based information, this report focuses on the economic contributions associated with spending in Maine by freshwater anglers. The study quantifies the total economic contributions generated by freshwater angler spending in each of the state's eight tourism regions across all freshwater anglers and separately for anglers who fish open water and those who fish through the ice in winter.

Table E1. Participation and spending by freshwater anglers in Maine in 2013.

Activity	Anglers*	Total Annual Spending**
All freshwater fishing	258,774	\$208,808,028
Open water fishing	237,406	\$160,528,549
Ice fishing	68,475	\$48,279,479

. *Derived from Maine DIF&W's fishing license sales database and the percent of respondents reporting they freshwater fished. The estimated number of anglers includes all residents and nonresidents who purchased a fishing privilege in 2013. The numbers do not include anglers who held a lifetime license that was purchased prior to 2013 if they did not purchase an additional fishing permit in 2013.

**Includes spending only when the primary purpose of a trip was fishing.

Maine's freshwater fisheries draw thousands of resident and non-resident sportsmen to take a trip to fish each year (Table E1). These freshwater anglers spend \$208.8 million on fishing-related goods and services (Table E1).¹ Collectively, that spending supports 3,330 full- and part-time jobs providing more than \$104.8 million in income (Table E2). The direct spending by sportsmen who freshwater fish and the multiplier effects of that spending in Maine contribute \$176.0 million to the state's gross state product and a total economic output of \$319.2 million.

Table E2. Total economic contributions of recreational freshwater fishing on Maine's economy in 2013

	Employment	Labor Income	Value Added (State GDP)	Total Output
All fishing	3,330	\$104,792,016	\$175,954,478	\$319,178,335
Open water fishing	2,542	\$81,651,188	\$134,386,165	\$245,555,584
Ice fishing	788	\$23,140,828	\$41,568,313	\$73,622,751

¹ This estimate includes only spending when the primary purpose of the trip was fishing.

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Introduction

In January 2012, the Task Force to Examine the Decline in the Number of Nonresident Hunters issued a final report laying out their findings and several recommendations to strengthen the state's nonresident sportsmen population. Recommendations within the Task Force's report included the implementation of a survey to explore the characteristics, behaviors, and spending patterns of Maine's current and lapsed nonresident hunter populations. The Task Force then recommends using research findings to develop direct marketing strategies and tools to promote Maine as a destination state for hunting.

The survey effort was expanded beyond Maine's nonresident hunting population to include all hunters, all anglers, as well as a general population survey of those who had traveled to the state to hunt or fish. The first effort investigated Maine's hunting population. This second report is an extension of that work and examines Maine's angling population. Specifically, this study quantifies recreational freshwater angling activity and associated spending in Maine in 2013. Economic contributions attributable to freshwater fishing-related spending are estimated for the state and eight tourism regions (Figure 1). Two sub-categories of recreational angling based upon water type are also analyzed to determine their individual share of the total economic contribution of recreational freshwater fishing.

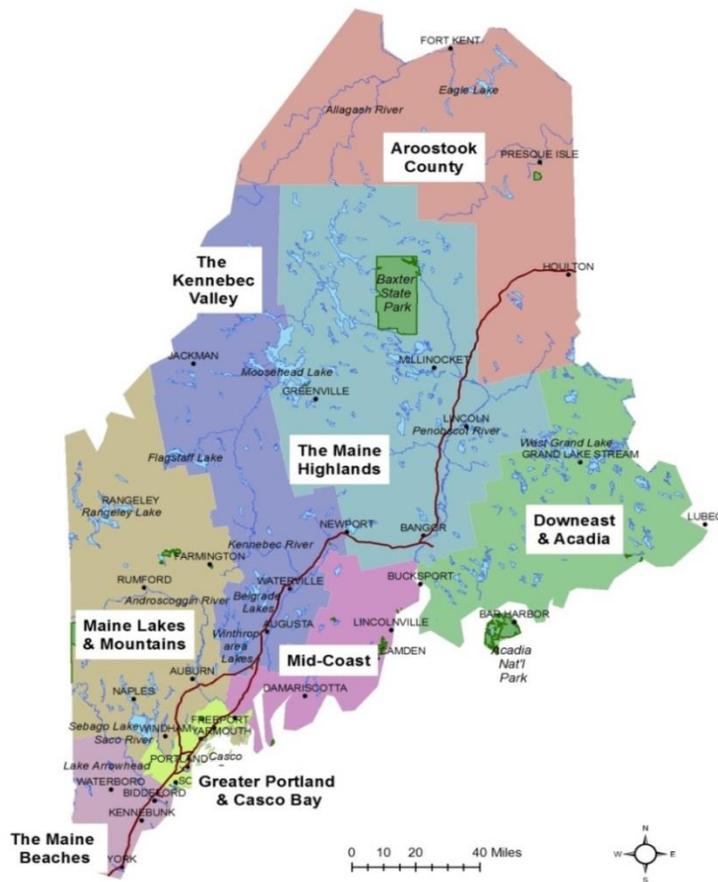


Figure 1. Map of Maine highlighting tourism regions, landmarks, and major waterways

The goal of the study is to determine the amount of spending by sportsmen and their associated contributions to the state’s economy. The results will help inform discussions among Legislators, Agency personnel, and other stakeholders to assist with strategic decision making associated with wildlife resources. The economic contributions associated with recreational freshwater angling can be a powerful economic engine for communities across Maine, generating additional spending, supporting and creating jobs, and building future investments in open spaces and wildlife areas.

Data collection

An online survey was conducted in August of 2014. The target audience for the survey was developed using historical license sales data provided by Maine’s Department of Inland Fisheries and Wildlife (DIF&W). The primary audience for this research effort was recreational fishing and included all persons who purchased a fishing or combination hunting/fishing license between 2009 and 2013. The sampling frame was narrowed to fishing license records that included an email address (Table 1).² Included within the final sample are anglers who fished freshwater or saltwater.

The survey was conducted by inviting anglers via an email message to click on a hyperlink in the message that would connect them to the online questionnaire. The first email invitation was sent on August 20, 2014. Each person in the sample received up to two additional reminders if they did not complete a questionnaire.

The email invitations and follow-up reminders were sent by the DIF&W. The survey generated an average response rate of 15% across all anglers.

Table 1. Target audience size and response rate

	Nonresidents	Residents	Total
Original email list	52,044	62,793	114,837
Undeliverable addresses	4,311	8,923	13,234
Net mailout	47,733	53,870	101,603
Responses	8,181	6,827	15,008
<i>Response rate</i>	<i>17%</i>	<i>13%</i>	<i>15%</i>

The raw survey data were cleaned to eliminate outliers and out-of-range responses. Survey respondents are more avid than the average angler (based on the number of years fished from 2009 to 2013) and were older than the average angler (Table 2). To adjust for this, survey data were weighted to represent the population of Maine’s licensed anglers based on demographic and participation information generated from the license database. A rake weighting procedure was used to adjust for all differences across the dimensions shown in Table 2. With the calculated weights applied to the analysis, the final sample mirrored the population of sportsmen on the relevant demographic measures.

² Maine DIF&W license sales records include email addresses for approximately one-half of sportsmen who purchased a license in the past five years.

Table 2. Population of Maine anglers vs. survey respondents

Demographic	Resident Population		Resident Respondents		Nonresident Population		Nonresident Respondents	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Gender:								
Male	237,342	72%	5,277	79%	173,870	83%	7,349	92%
Female	93,930	28%	1,434	21%	34,490	17%	673	8%
<i>Total</i>	<i>331,272</i>	<i>100%</i>	<i>6,711</i>	<i>100%</i>	<i>208,360</i>	<i>100%</i>	<i>8,022</i>	<i>100%</i>
Age Group:								
Under 18	1,352	0%	20	0%	9,897	5%	42	1%
18 to 24	37,457	11%	230	3%	23,028	11%	111	1%
25 to 34	65,615	19%	920	14%	31,124	15%	666	8%
35 to 44	63,664	19%	1,165	17%	31,892	15%	1,082	14%
45 to 54	75,155	22%	1,688	25%	43,450	21%	1,795	22%
55 to 64	65,486	19%	1,772	26%	37,897	18%	2,230	28%
65 and Over	33,624	10%	916	14%	32,764	16%	2,096	26%
<i>Total</i>	<i>342,353</i>	<i>100%</i>	<i>6,711</i>	<i>100%</i>	<i>210,052</i>	<i>100%</i>	<i>8,022</i>	<i>100%</i>
Avidity:								
Every year	77,058	23%	5,666	84%	13,610	6%	5,095	64%
Every other year	82,065	24%	500	8%	26,369	13%	1,159	14%
Every 3 to 5 years (or less)	183,231	54%	545	8%	170,079	81%	1,768	22%
<i>Total</i>	<i>342,354</i>	<i>100%</i>	<i>6,711</i>	<i>100%</i>	<i>210,058</i>	<i>100%</i>	<i>8,022</i>	<i>100%</i>

Methodology

The focus of this research effort was on recreational freshwater fishing. Some information regarding saltwater anglers was gathered through the screening question process and is included in this report. The bulk of the survey was structured to gather general angling information plus detailed spending and participation information by freshwater fishing type (open water fishing or ice fishing) and tourism region. To avoid respondent fatigue from repeating detailed questions for both water types, the survey was designed to dynamically adjust to ask detailed questions of each respondent about only one water type that they fished. Procedures were in place to ensure adequate sample sizes for each type of freshwater angler from which to build participation and spending estimates.

Maine's eight tourism regions include:

- Aroostook County
- Downeast and Acadia
- Greater Portland and Casco Bay
- The Kennebec Valley
- Maine's Lakes and Mountains
- Mid-Coast
- The Maine Beaches
- The Maine Highlands (Bangor-Katahdin-Moosehead Lake)

Three measures (participation, spending, and estimated economic contribution) for each water type and tourism region structure the methodological approach.

Participation

The fishing license data for Maine resident and nonresident adult anglers is the source for the overall number of anglers in 2013. Survey respondents were asked to report their participation or level of activity for every tourism region in which they fished or made expenditures in 2013, as well as the type of water visited when fishing. The survey was also set up to query respondents as to the number of days they fished in each tourism region and whether those days were a one-day trip or an overnight trip as well as the primary purpose for their trip.

Spending

Expenditure questions were used to build spending profiles for the average angler of each type of fishing (detailed spending profiles are included in Appendix D). In broad terms, the expenditure questions in the survey mirror the categories included in the U.S. Fish and Wildlife Service's National Survey of Fishing, Hunting and Wildlife-Associated Recreation. Questions solicited three types of expenses:

- Trip-related expenses, which include primarily consumables such as fuel, food, and lodging.
- Fishing-specific expenses, which include special purpose items and services such as rods, reels, lines, lures, tackle boxes, depth finders, taxidermy and mounting, etc.
- Fishing-related equipment includes ATVs, campers or camping equipment, vehicles, and property purchased specifically for the purpose of fishing. In the case of special equipment (vehicles, property, etc.), respondents were asked to report the percentage for which the item is used specifically for fishing in Maine.

Regional estimates of spending are based on specific information provided by respondents. Rather than rely on residence or places where fishing occurred, respondents were asked directly to report where they made expenditures for their different types of spending (e.g., trip-related spending, equipment purchases, etc.). Total spending by expenditure category was first estimated at the statewide level. The total statewide estimate was then allocated to each tourism region based on the proportion of each category spending that took place in each region.

Angling activity and its associated spending can be the primary or a secondary purpose of a trip to or within Maine. The analysis in this report focuses on only that spending and its associated economic contributions which occur when fishing is the primary purpose of a trip. Given the information provided by respondents, fishing-related spending that occurred as a secondary activity is estimated to be \$50.2 million (not including transportation, food or lodging expenses incurred on those trips). Total spending (including transportation, food and lodging expenses) when fishing was a secondary activity is estimated to be \$95.4 million. This fishing-related activity and the associated spending are not included in the estimates included in the remainder of the report because they are identified as a secondary purpose of a trip. The argument for exclusion being that this spending would not have occurred in the absence of the primary purpose of the trip. And, their inclusion would overstate future estimates of annual economic contributions attributable to angling activity based off of these findings.

Economic contributions

There are three types of economic contributions that anglers provide to Maine's economy: direct, indirect and induced. A direct contribution is defined as the economic contribution of the initial purchase made by the consumer (the original retail sale). Indirect contributions are the secondary effects generated from direct expenditures, such as the retailer buying additional inventory, and the wholesaler and manufacturers buying additional materials. Indirect contributions affect the industries that supply the first industry and so on down the supply chain. An induced contribution results from the salaries and wages paid by the directly and indirectly effected industries. The employees of these industries spend their income on various goods and services. These expenditures, in turn, create a continual cycle of indirect and induced effects.

The direct, indirect and induced contribution effects sum together to provide the overall economic contribution of the activity under study. As the original retail purchase (direct contribution) goes through round after round of indirect and induced effects, the economic contribution of the original purchase is multiplied, benefiting many industries and individuals.

An IMPLAN input-output model of the Maine economy was created for this analysis. Regional economic contributions are calculated based upon the statewide model and the reported percentage of spending in each region. Thus, regional estimates reflect each region's contribution to the statewide economy.

Four types of economic activity are measured and reported for each activity and target species:

Employment: The number of full- and part-time jobs created or supported as a result of the economic activity.

Labor income: Total payroll, including salaries, wages and benefits paid to employees and business proprietors

State GDP: This represents the total "value added" contribution of economic output made by the industries impacted by angler spending.

Output: The number reports the value of total economic activity associated with angler spending.

Throughout this report, the term "economic contributions" is used rather than "economic impact." Technically, economic impacts refer to the effect of new money being introduced into a market. In this case, the state of Maine is the "market". Because this study examines expenditures by Maine residents made within Maine, the total economic activity associate with angler spending cannot be considered as an economic impact. However, nonresident expenditures within the state do represent an economic impact as new money is brought into the state by this user group.

Additional discussions about economic contribution concepts are provided in Appendix C. Details of the economic contribution methodology are presented in Appendix B.

The remainder of this report is structured in sections based around the size of the angler population, their visits to or in Maine, their spending, and the economic contributions associated with their spending.

Findings

Angler participation

The composition of Maine's resident anglers who fished the past five years consists of a diversity of backgrounds when it comes to fishing experience in the state. Twenty-two percent of anglers began fishing in the state on a regular basis before 1970. Between 16% and 18% percent of anglers indicate they began fishing in the state during each of the decades between 1970 and 2000 (Figure 2). The state experienced slightly smaller growth in the angling population between 2000 and 2010 when only 10% indicated they started fishing during that time. Seventeen percent of resident anglers started fishing since 2010.

Conversely, a substantial proportion of recent nonresident anglers do not have a long history of fishing in Maine. The greatest percent of nonresident anglers report that they began fishing in Maine within the last five years (Figure 2). Increasingly fewer nonresident anglers began fishing in the state in each of the decades prior to the current period, ranging between 6% and 9%.

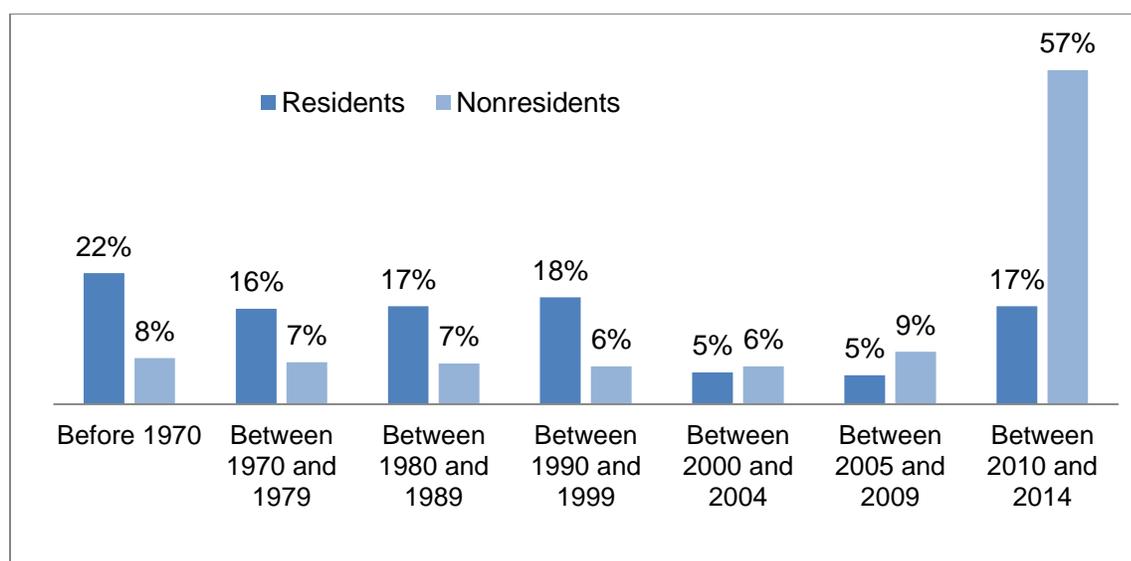


Figure 2. Decade when anglers first began fishing in Maine on a regular basis

Forty seven percent of resident anglers fish in the state every year or every other year (Figure 3).³ The largest percent of resident and nonresident anglers fish about once every three to five years, 37% and 43% respectively. The results suggest that more than three quarters of resident anglers let their fishing license lapse for a year or more.

³ The fishing frequency results in Figure 3 are derived from the purchasing histories constructed for each angler using the DIF&W license database. Survey respondents were more avid than Maine's average angler population

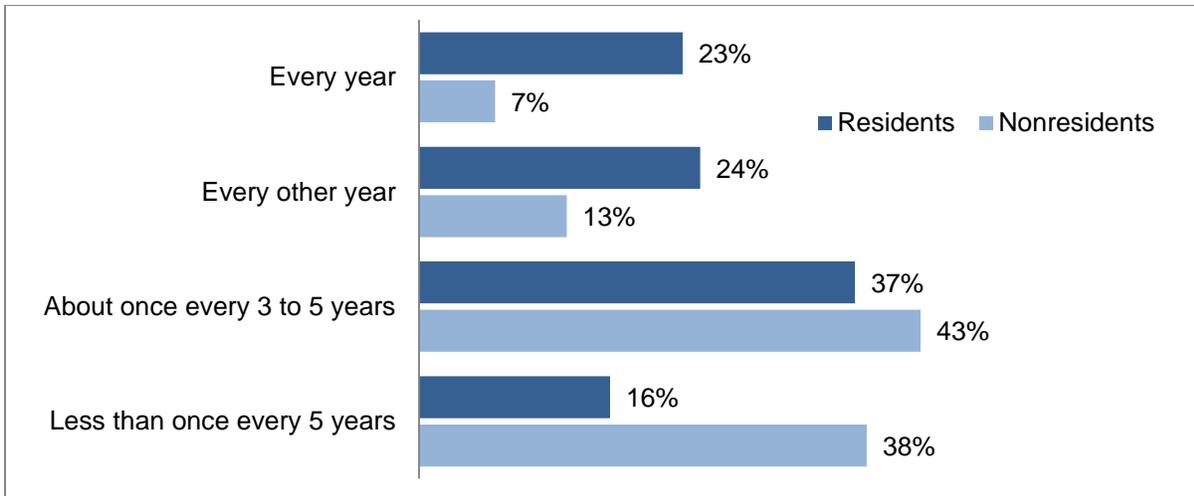


Figure 3. Angling frequency in Maine

Maine offers a variety of fishing opportunities to residents and visitors throughout the state where anglers are able to pursue a variety of different species of freshwater and saltwater game fish. Ninety six percent of resident and nonresident anglers pursue freshwater species (Figure 4). One quarter of Maine residents and 9% of nonresidents pursue saltwater species.

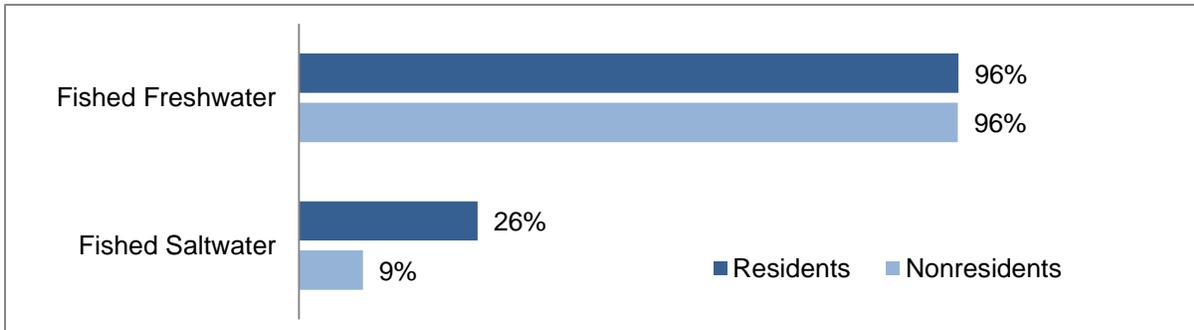


Figure 4. Freshwater or saltwater fishing among Maine's anglers.

Among those anglers pursuing freshwater fish, 95% or more of residents and nonresidents fished in open waters (Figure 5). Thirty six percent of resident anglers also ice fished. While only 6% of nonresidents went ice fishing.

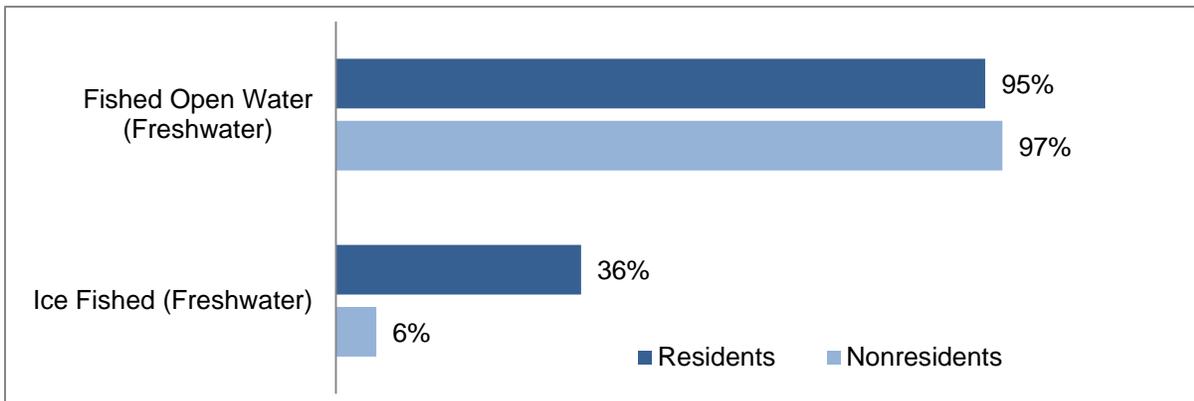


Figure 5. Open water or ice fishing among freshwater anglers

Brook trout, smallmouth bass, and landlocked salmon are the three most commonly pursued species among both resident and nonresident anglers who freshwater fish on open water (Table 3). Thirty one percent of resident anglers report that they pursue “any species” when fishing open water. Only 7% of nonresident anglers who fish open water indicate that they pursue “any species”, and as a result are more likely than resident anglers to be targeting specific species while fishing.

Resident anglers who ice fish most commonly fish for lake trout, brook trout, or landlocked salmon. Nonresident anglers who ice fish most commonly fish for lake trout, brown trout, and brook trout. Roughly one quarter to one third of all anglers who ice fish share they don’t fish for any one particular species.

Table 3. Freshwater species pursued by residency and water type.

Species Pursued	Open water fishing in freshwater		Ice fishing	
	Residents	Nonresidents	Residents	Nonresidents
Brook trout	60%	47%	49%	27%
Smallmouth bass	44%	47%	19%	15%
Landlocked salmon	35%	38%	38%	22%
Largemouth bass	34%	35%	22%	24%
Anything	31%	7%	38%	23%
Lake trout (togue)	28%	17%	52%	43%
Brown trout	27%	24%	32%	27%
Rainbow trout	24%	23%	20%	19%
White perch	16%	7%	17%	8%
Pickrel	14%	12%	18%	17%
Yellow perch	8%	4%	10%	9%
Northern pike	6%	7%	17%	17%
Black crappie	5%	1%	5%	3%
Splake	4%	1%	9%	1%
Smelt	3%	0%	8%	3%
Hornpout	3%	1%	1%	1%
Muskellunge	2%	3%	0%	1%
Other	2%	2%	1%	7%
Cusk	2%	0%	14%	12%
Arctic charr (blueback trout)	1%	3%	1%	4%
Whitefish	1%	1%	5%	6%

* Table is sorted base on open water resident species pursued. Values in bold reflect the top three species pursued by residents and nonresidents by water type.

NOTE: The remainder of this report focuses on only those anglers who report fishing in freshwater.

Purpose, destination, and duration of fishing trip

A freshwater fishing trip can be for one day in which the angler leaves home and returns the same day, or it can be a multi-day trip including an overnight stay away from home. The differences are generally associated with the anglers' place of residence (in-state or out-of-state) and type of water where anglers fish.

Single-day trips: In general, residents are more likely to take a one-day fishing trip compared to nonresident anglers. For example, 85% of resident anglers who go freshwater fishing on open water take one-day fishing trips (Table 4). While, only 10% of nonresident anglers who went freshwater fishing on an open body of water took a one-day trip.

Table 4. Freshwater anglers who took a one-day trip in 2013 where the primary purpose was to fish.

	Resident anglers	Nonresident anglers
Open water fishing	85%	10%
Ice fishing	89%	28%

The regional distribution of fishing trips, especially one-day trips, is a function of where resident anglers live and where the major waterways are located. Maine's Lakes and Mountains followed by The Kennebec Valley and The Maine Highlands regions are the locations where the largest proportions of one-day freshwater fishing trips occur among resident anglers (Table 5).

Among nonresidents, Maine's Lakes and Mountains and The Maine Beaches regions are the locations where the largest proportions of one-day fresh water fishing trips occur (Table 5).

Table 5. One-day trips taken by anglers in 2013 by species and region as a proportion of statewide total.

	Open water fishing in freshwater	Ice fishing
<u>Residents</u>		
Aroostook County	7%	8%
Downeast & Acadia	8%	8%
Greater Portland & Casco Bay	8%	7%
The Kennebec Valley	18%	22%
Maine's Lakes & Mountains	20%	19%
Mid Coast	10%	10%
The Maine Beaches	13%	10%
The Maine Highlands	17%	15%
<i>State Total</i>	<i>100%</i>	<i>100%</i>

Table 5 (cont.). One-day trips taken by anglers in 2013 by species and region as a proportion of statewide total.

	Open water fishing in freshwater	Ice fishing
Nonresidents		
Aroostook County	11%	11%
Downeast & Acadia	5%	3%
Greater Portland & Casco Bay	3%	8%
The Kennebec Valley	12%	6%
Maine's Lakes & Mountains	35%	34%
Mid Coast	5%	5%
The Maine Beaches	19%	28%
The Maine Highlands	11%	5%
<i>State Total</i>	<i>100%</i>	<i>100%</i>

Multiple-day trips: Many freshwater anglers take overnight trips to go fishing over multiple days. In general, nonresidents are more likely to make overnight trips compared to residents. Eighty-eight percent of nonresident anglers who fish open water make it an overnight trip (Table 6). Seventy eight percent of nonresident anglers who ice fish take an overnight trip compared to 37% of residents.

Table 6. Anglers who took a multi-day trip in 2013 where the primary purpose was to fish

	Resident anglers	Nonresident anglers
Open water fishing	55%	88%
Ice fishing	37%	78%

The Maine Highlands and Maine's Lakes and Mountains regions are the locations with the largest proportion of overnight open water and ice fishing trips occur among resident anglers. Aroostook County is also one of the more popular regions to go ice fishing among resident anglers. Among nonresidents, the results are very similar. The Maine's Lakes and Mountains and The Maine Highlands regions are the locations where the greatest percent of nonresident open water and ice fishing trips occur (Table 7).

Table 7. Overnight trips taken by anglers in 2013 by species and region as a proportion of statewide total.

	Open water fishing in freshwater	Ice fishing
<u>Residents</u>		
Aroostook County	9%	16%
Downeast & Acadia	8%	7%
Greater Portland & Casco Bay	2%	4%
The Kennebec Valley	15%	13%
Maine's Lakes & Mountains	20%	16%
Mid Coast	5%	3%
The Maine Beaches	12%	13%
The Maine Highlands	28%	28%
<i>State Total</i>	<i>100%</i>	<i>100%</i>
<u>Nonresidents</u>		
Aroostook County	8%	14%
Downeast & Acadia	9%	5%
Greater Portland & Casco Bay	3%	6%
The Kennebec Valley	16%	14%
Maine's Lakes & Mountains	26%	24%
Mid Coast	3%	2%
The Maine Beaches	5%	12%
The Maine Highlands	30%	22%
<i>State Total</i>	<i>100%</i>	<i>100%</i>

For those anglers who do take part in a multi-day freshwater fishing trip that involves an overnight away from home, Table 8 shows the types of accommodations utilized by residents and nonresidents. Regardless of the region visited, the primary overnight accommodation for residents is a relative's or associate's lodging. For nonresidents visiting Aroostook County, the most commonly utilized accommodation is a sporting or wilderness camp or lodge. The greatest percent of nonresident anglers visiting southern and western Maine stay at a relative or associate's lodging. Nonresident anglers visiting areas more centrally located in Maine (The Kennebec Valley, The Maine Highlands, and Downeast and Acadia) most commonly stay at a rented lodge or campground/RV park. The proportion of overnight-respondents who indicate that they utilize one form of unpaid accommodations (owned, lodging, relatives lodging, free campground, or other) relative to the proportion who utilize paid accommodations is noteworthy. Determining the degree to which this is comparable to the general overnight traveler is beyond the scope of this report. However, these findings present valuable information for future direct marketing campaigns.

Table 8. Accommodation type used by overnight anglers, by region and residency

	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
Residents								
<i>Paid accommodations</i>								
Hotel, motel, resort	6%	3%	6%	4%	4%	9%	3%	6%
Inn or bed and breakfast	6%	5%	0%	0%	1%	2%	1%	2%
Rented lodging**	24%	26%	6%	13%	21%	18%	19%	24%
Campground or RV park	5%	5%	9%	11%	20%	14%	8%	14%
Sporting or wilderness camp or lodge	12%	14%	2%	7%	8%	2%	1%	12%
Other paid accommodation	1%	0%	1%	1%	1%	0%	2%	1%
<i>Unpaid accommodations</i>								
Lodging owned by respondent**	18%	15%	18%	11%	14%	11%	14%	11%
Relative or associate's lodging**	29%	25%	28%	25%	26%	37%	48%	27%
A free campground or campsite	7%	15%	7%	38%	11%	7%	8%	12%
Other unpaid accommodation	4%	6%	60%	9%	12%	18%	16%	6%
Nonresidents								
<i>Paid accommodations</i>								
Hotel, motel, resort	9%	12%	14%	9%	12%	12%	5%	7%
Inn or bed and breakfast	5%	5%	0%	3%	0%	0%	0%	1%
Rented lodging**	17%	23%	23%	36%	20%	36%	30%	23%
Campground or RV park	7%	12%	8%	17%	17%	5%	5%	28%
Sporting or wilderness camp or lodge	38%	21%	1%	16%	21%	1%	0%	19%
Other paid accommodation	0%	0%	0%	0%	0%	0%	1%	0%
<i>Unpaid accommodations</i>								
Lodging owned by respondent*	3%	7%	3%	5%	6%	8%	6%	3%
Relative or associate's lodging**	24%	19%	59%	17%	26%	41%	54%	18%
A free campground or campsite	10%	4%	0%	3%	2%	0%	1%	7%
Other unpaid accommodation	2%	8%	3%	1%	2%	1%	2%	1%

Note: Total is greater than 100% since some respondents reported staying at more than one type of lodging.

* Includes cabin, cottage, condo, and vacation home.

**Proportion is an imprecise estimate of the actual number of anglers given the low number of responses in this category.

Residents typically take one month or less to plan for a freshwater fishing trip (Table 9). Nonresidents can take anywhere between one month to one year to plan for a fishing trip. The planning duration for nonresidents appears to be somewhat influenced by the type of water where fishing will occur. Ice fishing trips, in general, have a slightly shorter planning period relative to open water fishing trips.

Table 9. Advance planning timeframe for overnight fishing trips.

	Open water fishing in freshwater	Ice fishing
Residents		
Less than a week	48%	51%
2 to 4 weeks	35%	27%
1 to 6 months	15%	16%
6 to 12 months	2%	5%
More than a year	0%	1%
<i>Total</i>	<i>100%</i>	<i>100%</i>
Nonresidents		
Less than a week	13%	5%
2 to 4 weeks	37%	16%
1 to 6 months	34%	53%
6 to 12 months	13%	24%
More than a year	2%	2%
<i>Total</i>	<i>100%</i>	<i>100%</i>

Angler spending

In broad terms, the expenditure questions in the survey mirror the categories included in the U.S. Fish and Wildlife Service's *National Survey of Fishing, Hunting and Wildlife-Associated Recreation*. Trip-related spending includes primarily consumables such as fuel, food, and lodging. Fishing equipment includes special-purpose items such as rods, reels, line, lures, tackle box, and depth finders. Auxiliary, special, and other equipment includes purchases for clothing, ATVs, campers or camping equipment, vehicles, and property purchased specifically for the purpose of fishing. In the case of special equipment (vehicles, property, etc.), respondents were asked to report the percentage for which the item is used specifically for fishing purposes.

Anglers, on average, spend \$1,154 per year on items purchased to take a trip where the primary purpose is freshwater fishing (Table 10). Open water anglers collectively spend an average of \$1,013 per year. Anglers going ice fishing collectively spend an average of \$806 per year. In general, nonresidents spend more on travel related items, particularly to fish on open water, and less on special equipment.

Table 10. Average annual spending per angler by water type in 2013

	Resident	Nonresident	All anglers
All freshwater fishing*			
Trip expenditures	\$463	\$736	\$516
Fishing equipment	\$247	\$220	\$242
Auxiliary, special, and other equipment	\$467	\$87	\$395
Total	\$1,177	\$1,043	\$1,154
Open water fishing			
Trip expenditures	\$407	\$780	\$480
Fishing equipment	\$205	\$238	\$212
Auxiliary, special, and other equipment	\$381	\$76	\$321
Total	\$993	\$1,094	\$1,013
Ice fishing			
Trip expenditures	\$285	\$359	\$289
Fishing equipment	\$179	\$60	\$172
Auxiliary, special, and other equipment	\$354	\$197	\$345
Total	\$818	\$617	\$806

*Average spending for all freshwater fishing includes individual anglers who participate in both open water and ice fishing and the respective expenditures on both types of fishing.

Table 11 shows total direct retail spending at the statewide level across all anglers and by water type for resident and nonresident anglers where the primary purpose of the trip was to fish. Total spending by all anglers regardless of water type is estimated at \$208.8 million per year.⁴ Freshwater anglers fishing on open water spend a total of \$160.5 million per year and anglers who go ice fishing spend a total of \$48.3 million per year.

Table 11. Total spending among Maine anglers by water type in 2013

	Resident	Nonresident	Total
All freshwater fishing			
Trip expenditures	\$68,861,156	\$23,888,041	\$92,749,197
Fishing equipment	\$36,695,903	\$7,147,096	\$43,842,999
Auxiliary, special, and other equipment	\$69,396,435	\$2,819,397	\$72,215,832
Total	\$174,953,494	\$33,854,533	\$208,808,028
Open water fishing			
Trip expenditures	\$52,687,787	\$22,783,509	\$75,471,297
Fishing equipment	\$26,552,028	\$6,963,973	\$33,516,001
Auxiliary, special, and other equipment	\$49,328,641	\$2,212,610	\$51,541,252
Total	\$128,568,456	\$31,960,093	\$160,528,549
Ice fishing			
Trip expenditures	\$16,173,369	\$1,104,531	\$17,277,901
Fishing equipment	\$10,143,875	\$183,123	\$10,326,998
Auxiliary, special, and other equipment	\$20,067,794	\$606,786	\$20,674,580
Total	\$46,385,038	\$1,894,441	\$48,279,479

⁴ This estimate includes only spending when the primary purpose of the trip was fishing.

Respondents were asked to report the tourism region in which their spending occurred (see Figure 1 for location of each region). Spending associated with all aspects of fishing occur both close to home and close to the destination, regardless of the water type. As a result, retail expenditures impact the economy of all tourism regions, even in those areas where relatively little fishing activity is likely to take place. For example, the Greater Portland & Casco Bay Area experiences \$17.9 million of angler spending due to its large total population base and spending (primarily equipment) that occurs close to home (Table 12). Detailed expenditure tables for both residents and nonresidents cross-tabulated by both water type and tourism region are provided in Appendix A.

Table 12. Resident and nonresident total annual spending in 2013-statewide and by destination county

Region	Open water fishing	Ice fishing	All freshwater fishing
Statewide	\$160,528,549	\$48,279,479	\$208,808,028
Aroostook County	\$10,686,768	\$4,387,361	\$15,074,129
Downeast & Acadia	\$11,359,157	\$6,219,742	\$17,578,899
Greater Portland & Casco Bay	\$13,836,304	\$4,085,195	\$17,921,498
The Kennebec Valley	\$28,648,879	\$7,910,845	\$36,559,724
Maine's Lakes & Mountains	\$30,190,620	\$6,686,564	\$36,877,184
Mid Coast	\$15,581,147	\$5,992,050	\$21,573,197
The Maine Beaches	\$19,502,831	\$4,759,968	\$24,262,799
The Maine Highlands	\$30,722,843	\$8,237,754	\$38,960,597

Economic contributions associated with angler spending

Tables 13, 14, and 15 show the economic contribution of total direct spending for resident and nonresident freshwater anglers by water type. Detailed economic contribution tables for both residents and nonresidents cross-tabulated by both water type and tourism region are provided in Appendix A.

A brief discussion of the results below focuses on Table 15 which shows the economic contributions of spending by all anglers for open water and ice fishing. Interpretations of the economic contributions associated with resident and nonresident are similar when using their individual tables, Table 13 and Table 14, respectively.

Collectively, spending by sportsmen who fish in Maine supports more than 3,300 full- and part-time jobs in the state, providing \$104.8 million in labor income (Table 15). Anglers' purchases contribute \$176.0 million to the gross state product and generate total economic activity of \$319.2 million.

Table 13. **Resident** angler economic contributions in 2013 by water type

	Economic Contribution		
	Direct Effect	Multiplier Effect	Total Effect
All freshwater fishing			
Employment	1,846	887	2,733
Labor Income	\$51,395,772	\$35,077,871	\$86,473,643
Value added (State GDP)	\$86,172,616	\$59,560,030	\$145,732,646
Total output	\$163,800,544	\$100,627,087	\$264,427,631
Open freshwater fishing			
Employment	1,322	655	1,977
Labor Income	\$38,272,705	\$25,981,614	\$64,254,320
Value added (State GDP)	\$61,726,777	\$44,102,191	\$105,828,968
Total output	\$119,228,085	\$74,486,208	\$193,714,293
Ice fishing			
Employment	525	231	756
Labor Income	\$13,123,066	\$9,096,257	\$22,219,323
Value added (State GDP)	\$24,445,839	\$15,457,839	\$39,903,678
Total output	\$44,572,458	\$26,140,880	\$70,713,338

Table 14. **Nonresident** angler economic contributions in 2013 by water type

	Economic Contribution		
	Direct Effect	Multiplier Effect	Total Effect
All freshwater fishing			
Employment	403	194	597
Labor Income	\$10,632,353	\$7,686,020	\$18,318,373
Value added (State GDP)	\$17,311,141	\$12,910,690	\$30,221,832
Total output	\$32,922,978	\$21,827,727	\$54,750,704
Open freshwater fishing			
Employment	380	185	565
Labor Income	\$10,086,637	\$7,310,231	\$17,396,868
Value added (State GDP)	\$16,281,616	\$12,275,580	\$28,557,197
Total output	\$31,089,483	\$20,751,808	\$51,841,291
Ice fishing			
Employment	22	9	32
Labor Income	\$545,716	\$375,789	\$921,505
Value added (State GDP)	\$1,029,525	\$635,110	\$1,664,635
Total output	\$1,833,495	\$1,075,918	\$2,909,413

Table 15. **All** angler economic contributions in 2013 by water type

	Economic Contribution		
	Direct Effect	Multiplier Effect	Total Effect
All freshwater fishing			
Employment	2,249	1,081	3,330
Labor Income	\$62,028,125	\$42,763,891	\$104,792,016
Value added (State GDP)	\$103,483,758	\$72,470,720	\$175,954,478
Total output	\$196,723,521	\$122,454,814	\$319,178,335
Open freshwater fishing			
Employment	1,702	840	2,542
Labor Income	\$48,359,343	\$33,291,845	\$81,651,188
Value added (State GDP)	\$78,008,393	\$56,377,771	\$134,386,165
Total output	\$150,317,568	\$95,238,016	\$245,555,584
Ice fishing			
Employment	547	241	788
Labor Income	\$13,668,782	\$9,472,046	\$23,140,828
Value added (State GDP)	\$25,475,364	\$16,092,949	\$41,568,313
Total output	\$46,405,953	\$27,216,798	\$73,622,751

Summary

One of the goals of this study was to provide insight about jobs, labor income and other economic contributions that result from recreational freshwater angling that occurs in Maine at a statewide and tourism region level. Maine's fishery resources draw thousands of resident and non-resident sportsmen to take a trip to fish every year (Table 16).

Maine's resident angler population is a blend of anglers who have been fishing since before 1970 to newer anglers just starting within the last five years. Resident anglers typically go fishing every year or every other year. The majority, 56%, of nonresident anglers first began fishing in Maine on a regular basis within the last decade. And, they are most likely to go fishing every three to five years.

Table 16. Participation and spending by Maine's anglers 2013

Activity	Anglers		Total Annual Spending	
	Resident	Nonresident	Resident	Nonresident
All freshwater anglers*	188,126	70,648	\$174,953,494	\$33,854,533
Open freshwater anglers	171,209	66,197	\$128,568,456	\$31,960,093
Ice water anglers	64,432	4,043	\$46,385,038	\$1,894,441

* Reflects the proportion of license holders with the privilege to fish from the Maine DIF&W based upon survey results.

Anglers spend \$208.8 million on fishing-related activities. The spending associated with these activities leads to significant economic contributions to the Maine economy. Included in this spending are expenditures on trip-related items such as meals, fuel, and lodging. Resident

anglers are more likely than nonresident anglers to take a day trip to go fishing, whereas, nonresidents are more likely to take an overnight trip to go fishing. A notable proportion of all anglers who do take an overnight trip utilize unpaid accommodation, such as a relative's or associate's lodging.

Collectively, recreational freshwater fishing supports more than 3,300 full- and part-time jobs (2,733 associated with resident spending and 597 associated with nonresident spending) providing more than \$104 million in labor income (Table 17). The direct spending by sportsmen who freshwater fish and multiplier effects of that spending in Maine contribute \$176.0 million (\$145.7 million associated with resident spending and \$30.2 associated with nonresident spending) to the state's gross domestic product and a total economic contribution of \$319.2 million.

Table 17. Total economic effects of fishing on Maine's economy in 2013

	Employment	Labor Income	Value Added (State GDP)	Total Output
<u>Residents</u>				
All freshwater anglers	2,733	\$86,473,643	\$145,732,646	\$264,427,631
Open freshwater anglers	1,977	\$64,254,320	\$105,828,968	\$193,714,293
Ice water anglers	756	\$22,219,323	\$39,903,678	\$70,713,338
<u>Nonresidents</u>				
All freshwater anglers	597	\$18,318,373	\$30,221,832	\$54,750,704
Open freshwater anglers	565	\$17,396,868	\$28,557,197	\$51,841,291
Ice water anglers	32	\$921,505	\$1,664,635	\$2,909,413

The study shows that the economic contributions of sportsmen occur across the eight travel regions within the state. The difference stems, in large part, from the opportunities to fish within a region's boundary. However, it is important to remember that spending associated with sportsmen's activities occurs both close to home and close to their fishing destination. As a result, economic contributions are felt from fishing activities, regardless of water type, all across the state.

Appendices

Appendix A: Angling by tourism region

Appendix B: Methodology for estimating economic contributions

Appendix C: Explanation of economic contribution

Appendix D: Angler spending profiles by water type

Appendix A: Angling by water type and by tourism region

Appendix A presents detailed economic measures (participation, spending and economic contributions by activity) for each of the tourism regions.

Table A 1. Total annual spending in 2013 by **resident** anglers by water type and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All freshwater anglers								
Trip Expenditure	\$5,910,186	\$5,154,112	\$3,979,304	\$15,756,482	\$13,824,849	\$5,344,575	\$5,910,186	\$5,154,112
Fishing equipment	\$2,476,702	\$2,197,295	\$5,323,073	\$5,337,653	\$6,965,936	\$4,038,697	\$2,476,702	\$2,197,295
Auxiliary, special and other equipment	\$2,163,650	\$6,737,078	\$7,300,766	\$10,370,323	\$8,501,161	\$11,144,037	\$2,163,650	\$6,737,078
Total Fishing Expenditure	\$10,550,538	\$14,088,485	\$16,603,143	\$31,464,458	\$29,291,946	\$20,527,308	\$10,550,538	\$14,088,485
Open water anglers								
Trip Expenditure	\$4,033,406	\$3,676,204	\$3,330,554	\$13,319,592	\$10,667,329	\$4,192,573	\$4,485,997	\$8,982,133
Fishing equipment	\$1,571,526	\$1,593,076	\$3,657,371	\$3,643,035	\$5,088,254	\$3,080,485	\$4,199,092	\$3,719,190
Auxiliary, special and other equipment	\$1,010,034	\$2,750,693	\$5,669,058	\$6,802,629	\$7,159,334	\$7,306,967	\$7,907,374	\$10,722,552
Total Fishing Expenditure	\$6,614,966	\$8,019,973	\$12,656,984	\$23,765,255	\$22,914,916	\$14,580,024	\$16,592,463	\$23,423,875
Ice water anglers								
Trip Expenditure	\$1,876,780	\$1,477,909	\$648,750	\$2,436,890	\$3,157,521	\$1,152,002	\$1,514,826	\$3,908,693
Fishing equipment	\$905,176	\$604,218	\$1,665,701	\$1,694,618	\$1,877,682	\$958,213	\$1,043,554	\$1,394,712
Auxiliary, special and other equipment	\$1,153,616	\$3,986,386	\$1,631,708	\$3,567,694	\$1,341,827	\$3,837,069	\$1,948,340	\$2,601,154
Total Fishing Expenditure	\$3,935,572	\$6,068,513	\$3,946,159	\$7,699,203	\$6,377,030	\$5,947,284	\$4,506,719	\$7,904,559

Table A 2. Total annual spending in 2013 for **nonresident** anglers by water type and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All freshwater anglers								
Trip Expenditure	\$3,390,998	\$2,600,204	\$877,560	\$3,894,803	\$5,248,797	\$776,628	\$1,959,013	\$5,140,038
Fishing equipment	\$818,030	\$559,558	\$308,867	\$966,486	\$1,551,874	\$198,390	\$724,849	\$2,019,041
Auxiliary, special and other equipment	\$314,563	\$330,651	\$131,929	\$233,977	\$784,567	\$70,870	\$479,754	\$473,084
Total Fishing Expenditure	\$4,523,591	\$3,490,413	\$1,318,355	\$5,095,266	\$7,585,238	\$1,045,889	\$3,163,617	\$7,632,163
Open water anglers								
Trip Expenditure	\$3,085,970	\$2,556,476	\$785,531	\$3,790,354	\$5,077,640	\$741,199	\$1,839,475	\$4,906,864
Fishing equipment	\$765,748	\$555,478	\$300,394	\$951,118	\$1,527,658	\$191,425	\$682,295	\$1,989,857
Auxiliary, special and other equipment	\$220,084	\$227,230	\$93,395	\$142,152	\$670,406	\$68,499	\$388,598	\$402,247
Total Fishing Expenditure	\$4,071,802	\$3,339,184	\$1,179,320	\$4,883,624	\$7,275,704	\$1,001,123	\$2,910,368	\$7,298,968
Ice water anglers								
Trip Expenditure	\$305,028	\$43,727	\$92,029	\$104,449	\$171,157	\$35,429	\$119,539	\$233,174
Fishing equipment	\$52,282	\$4,080	\$8,472	\$15,368	\$24,216	\$6,965	\$42,554	\$29,184
Auxiliary, special and other equipment	\$94,479	\$103,422	\$38,534	\$91,825	\$114,161	\$2,372	\$91,156	\$70,837
Total Fishing Expenditure	\$451,789	\$151,229	\$139,036	\$211,642	\$309,534	\$44,766	\$253,249	\$333,196

Table A 3. Total annual spending in 2013 for **all** anglers by water type and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All freshwater anglers								
Trip Expenditure	\$9,301,184	\$7,754,316	\$4,856,864	\$19,651,284	\$19,073,646	\$6,121,202	\$7,959,836	\$18,030,864
Fishing equipment	\$3,294,732	\$2,756,853	\$5,631,939	\$6,304,139	\$8,517,809	\$4,237,088	\$5,967,495	\$7,132,943
Auxiliary, special and other equipment	\$2,478,214	\$7,067,730	\$7,432,695	\$10,604,301	\$9,285,728	\$11,214,907	\$10,335,468	\$13,796,790
Total Fishing Expenditure	\$15,074,129	\$17,578,899	\$17,921,498	\$36,559,724	\$36,877,184	\$21,573,197	\$24,262,799	\$38,960,597
Open water anglers								
Trip Expenditure	\$7,119,376	\$6,232,680	\$4,116,085	\$17,109,946	\$15,744,969	\$4,933,772	\$6,325,472	\$13,888,997
Fishing equipment	\$2,337,273	\$2,148,555	\$3,957,766	\$4,594,152	\$6,615,911	\$3,271,910	\$4,881,387	\$5,709,046
Auxiliary, special and other equipment	\$1,230,118	\$2,977,922	\$5,762,453	\$6,944,781	\$7,829,740	\$7,375,466	\$8,295,972	\$11,124,799
Total Fishing Expenditure	\$10,686,768	\$11,359,157	\$13,836,304	\$28,648,879	\$30,190,620	\$15,581,147	\$19,502,831	\$30,722,843
Ice water anglers								
Trip Expenditure	\$2,181,808	\$1,521,636	\$740,779	\$2,541,339	\$3,328,678	\$1,187,431	\$1,634,364	\$4,141,867
Fishing equipment	\$957,458	\$608,298	\$1,674,174	\$1,709,987	\$1,901,898	\$965,178	\$1,086,108	\$1,423,897
Auxiliary, special and other equipment	\$1,248,095	\$4,089,807	\$1,670,242	\$3,659,519	\$1,455,988	\$3,839,441	\$2,039,496	\$2,671,991
Total Fishing Expenditure	\$4,387,361	\$6,219,742	\$4,085,195	\$7,910,845	\$6,686,564	\$5,992,050	\$4,759,968	\$8,237,754

Table A 4. Total economic contributions in 2013 for **resident** anglers by water type and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All freshwater angling								
Employment	165	220	259	491	458	321	330	489
Labor Income	\$5,214,777	\$6,963,466	\$8,206,377	\$15,551,826	\$14,478,026	\$10,145,960	\$10,428,618	\$15,484,594
Value Added (State GDP)	\$8,788,380	\$11,735,417	\$13,830,075	\$26,209,243	\$24,399,585	\$17,098,824	\$17,575,183	\$26,095,938
Total Output	\$15,946,259	\$21,293,572	\$25,094,267	\$47,555,907	\$44,272,335	\$31,025,317	\$31,889,656	\$47,350,318
Open water angling								
Employment	102	123	195	365	352	224	255	360
Labor Income	\$3,305,944	\$4,008,121	\$6,325,548	\$11,877,099	\$11,452,127	\$7,286,620	\$8,292,372	\$11,706,489
Value Added (State GDP)	\$5,444,998	\$6,601,506	\$10,418,384	\$19,561,971	\$18,862,029	\$12,001,303	\$13,657,808	\$19,280,970
Total Output	\$9,966,779	\$12,083,706	\$19,070,297	\$35,807,147	\$34,525,939	\$21,967,745	\$24,999,890	\$35,292,789
Ice water angling								
Employment	64	99	64	125	104	97	73	129
Labor Income	\$1,885,215	\$2,906,934	\$1,890,286	\$3,688,066	\$3,054,720	\$2,848,863	\$2,158,805	\$3,786,435
Value Added (State GDP)	\$3,385,657	\$5,220,562	\$3,394,764	\$6,623,396	\$5,485,970	\$5,116,273	\$3,876,997	\$6,800,058
Total Output	\$5,999,725	\$9,251,362	\$6,015,864	\$11,737,326	\$9,721,692	\$9,066,551	\$6,870,430	\$12,050,388

Table A 5. Total economic contributions in 2013 for **nonresident** anglers by water type and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All freshwater angling								
Employment	80	62	23	90	134	18	56	135
Labor Income	\$2,447,673	\$1,888,630.30	\$713,350	\$2,757,001	\$4,104,302	\$565,921	\$1,711,804	\$4,129,693
Value Added (State GDP)	\$4,038,195	\$3,115,881	\$1,176,892	\$4,548,528	\$6,771,317	\$933,661	\$2,824,150	\$6,813,207
Total Output	\$7,315,706	\$5,644,816	\$2,132,089	\$8,240,238	\$12,267,105	\$1,691,447	\$5,116,309	\$12,342,994
Open water angling								
Employment	72	59	21	86	129	18	51	129
Labor Income	\$2,216,408	\$1,817,621.51	\$641,940	\$2,658,308	\$3,960,391	\$544,942	\$1,584,203	\$3,973,054
Value Added (State GDP)	\$3,638,264	\$2,983,650	\$1,053,754	\$4,363,648	\$6,501,036	\$894,530	\$2,600,492	\$6,521,823
Total Output	\$6,604,721	\$5,416,368	\$1,912,931	\$7,921,547	\$11,801,652	\$1,623,884	\$4,720,801	\$11,839,387
Ice water angling								
Employment	8	3	2	4	5	1	4	6
Labor Income	\$219,762	\$73,561.73	\$67,631	\$102,948	\$150,565	\$21,775	\$123,187	\$162,075
Value Added (State GDP)	\$396,985	\$132,884	\$122,170	\$185,969	\$271,986	\$39,336	\$222,528	\$292,777
Total Output	\$693,841	\$232,252	\$213,526	\$325,032	\$475,371	\$68,750	\$388,930	\$511,710

Table A 6. Total economic contributions in 2013 for **all** anglers by water type and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All freshwater angling								
Employment	245	282	283	581	591	339	385	624
Labor Income	\$7,662,450	\$8,852,096	\$8,919,726	\$18,308,827	\$18,582,328	\$10,711,881	\$12,140,422	\$19,614,287
Value Added (State GDP)	\$12,826,575	\$14,851,298	\$15,006,967	\$30,757,771	\$31,170,903	\$18,032,485	\$20,399,333	\$32,909,146
Total Output	\$23,261,965	\$26,938,388	\$27,226,357	\$55,796,144	\$56,539,441	\$32,716,763	\$37,005,965	\$59,693,312
Open water angling								
Employment	174	182	215	452	481	242	307	489
Labor Income	\$5,522,352	\$5,825,742	\$6,967,488	\$14,535,407	\$15,412,518	\$7,831,563	\$9,876,575	\$15,679,543
Value Added (State GDP)	\$9,083,262	\$9,585,157	\$11,472,138	\$23,925,620	\$25,363,065	\$12,895,832	\$16,258,299	\$25,802,793
Total Output	\$16,571,499	\$17,500,074	\$20,983,228	\$43,728,694	\$46,327,591	\$23,591,630	\$29,720,691	\$47,132,176
Ice water angling								
Employment	72	101	67	129	109	98	78	134
Labor Income	\$2,104,977	\$2,980,496	\$1,957,917	\$3,791,014	\$3,205,285	\$2,870,639	\$2,281,992	\$3,948,510
Value Added (State GDP)	\$3,782,641	\$5,353,446	\$3,516,934	\$6,809,365	\$5,757,956	\$5,155,608	\$4,099,526	\$7,092,836
Total Output	\$6,693,566	\$9,483,614	\$6,229,390	\$12,062,358	\$10,197,063	\$9,135,301	\$7,259,360	\$12,562,098

Appendix B: Methodology for estimating economic contributions

The extent of the economic contributions associated with spending for outdoor recreation can be estimated in two ways:

- **Direct effects:** These include the jobs, income and tax revenues that are tied directly to the spending by outdoor recreationists without including multiplier effects.
- **Total effects:** These include the jobs, income and tax revenues that are tied directly to the spending by outdoor recreationists plus the jobs, income and tax revenues that result from the multiplier effects of outdoor recreation spending. The multiplier effect occurs when a direct purchase from a business leads to increased demand for goods and services from other businesses along their supply chain. Also included is economic activity associated with household spending of incomes earned in the affected businesses.

The economic contributions from outdoor recreation, both direct effects and total effects, were estimated with an IMPLAN input-output model for the state and regional economies of Maine, and the county economies for fishing economic contributions. The IMPLAN model was developed by MIG, Inc. originally for use by the U.S. Forest Service. Inherent in each IMPLAN model is the relationship between the economic output of each industry (i.e. sales) and the jobs, income and taxes associated with a given level of output. Through those models, it is possible to determine the jobs, income and taxes supported directly by wildlife-based recreationists with and without the multiplier effects.

Input-output models describe how sales in one industry affect other industries. For example, once a consumer makes a purchase, the retailer buys more merchandise from wholesalers, who buy more from manufacturers, who, in turn, purchase new inputs and supplies. In addition, the salaries and wages paid by these businesses stimulate more benefits. Simply, the first purchase creates numerous rounds of purchasing. Input-output analysis tracks the flow of dollars from the consumer through all of the businesses that are affected, either directly or indirectly.

To apply the IMPLAN model, each specific expenditure for outdoor recreation activities was matched to the appropriate industry sector affected by the initial purchase. The spending was estimated with models of the Maine economy, therefore all of the resulting contributions represent salaries and wages, total economic effects, jobs and tax revenues that occur within the state of Maine. Likewise, models based on specific regions or counties represent the economic effects within the selected region or county. The results do not include any economic activity or indirect contributions that leak out of the state, region, or county of interest. As a result of this leakage, economic contributions at the state level are larger than the sum of corresponding regional or county contributions. This occurs because a portion spending in a particular region (or county) leaks to other regions (or counties) within the state, and this within-state leakage is captured in the Maine model.

Appendix C: Explanation of economic contribution

Estimations of **economic benefits** can be calculated through two types of measures: economic contributions and economic values. An **economic contribution** addresses the business and financial activity resulting from the use of a resource. **Economic value**, on the other hand, is a non-business measure that estimates the value people receive from an activity after subtracting for their costs and expenditures. This concept is also known as consumer surplus.

There are three types of economic contribution: direct, indirect and induced. A **direct contribution** is defined as the economic contribution of the initial purchase made by the consumer (the original retail sale). **Indirect contributions** are the secondary effects generated from a direct contribution, such as the retailer buying additional inventory, and the wholesaler and manufacturers buying additional materials. Indirect contributions affect not only the industry being studied, but also the industries that supply the first industry. An **induced contribution** results from the salaries and wages paid by the directly and indirectly effected industries. The employees of these industries spend their income on various goods and services. These expenditures are induced contributions, which, in turn, create a continual cycle of indirect and induced effects.

The direct, indirect and induced contribution effects sum together to provide the overall economic contribution of the activity under study. As the original retail purchase (direct contribution) goes through round after round of indirect and induced effects, the economic contribution of the original purchase is multiplied, benefiting many industries and individuals. Likewise, the reverse is true. If a particular item or industry is removed from the economy, the economic loss is greater than the original lost retail sale. Once the original retail purchase is made, each successive round of spending is smaller than the previous round. When the economic benefits are no longer measurable, the economic examination ends.

This study presents several important measures:

Retail Sales – these include expenditures made by outdoor recreationists for equipment, travel expenses and services related to their outdoor activities over the course of the year. These combined initial retail sales represent the “direct output”.

Total Economic Effect – also known as “total output” or “total multiplier effect,” this measure reports the sum of the direct, indirect and induced contributions resulting from the original retail sale. This figure explains the total activity in the economy generated by a retail sale. Another way to look at this figure is, if the activity in question were to disappear and participants did not spend their money elsewhere, the economy would contract by this amount.

Salaries & Wages – this figure reports the total salaries and wages paid in all sectors of the economy as a result of the activity under study. These are not just the paychecks of those employees directly serving recreationists or manufacturing their goods, it also includes portions of the paychecks of, for example, the truck driver who delivers food to the restaurants serving recreationists and the accountants who manage the books for companies down the supply chain, etc. This figure is based on the direct, indirect and induced effects, and is essentially a portion of the total economic effect figure reported in this study.

Jobs – much like Salaries and Wages, this figure reports the total jobs in all sectors of the economy as a result of the activity under study. These are not just the employees directly serving recreationists or manufacturing their goods, they also include, for example, the truck driver who delivers food to the restaurants serving recreationists and

the accountants who manage the books for companies down the supply chain, etc. This figure is based on direct, indirect and induced effects.

GDP Contribution – this represents the total “value added” contribution of economic output made by the industries involved in the production of outdoor recreation goods and services. For a given industry, value added equals the difference between gross output (sales and other income) and intermediate inputs (goods and services imported or purchased from other industries). It represents the contribution to GDP in a given industry for production related to outdoor recreation.

Appendix D: Angler spending profiles

Table D 1. Per angler spending profile of **all freshwater** anglers

Type of Spending	Resident Anglers	Nonresident Anglers	All Anglers
Commercial transportation (airline, bus, car rental, train)	\$9.43	\$75.36	\$22.05
Other transportation costs (gas or oil for car, truck, boat, ATV, etc.)	\$155.10	\$120.89	\$148.80
Groceries	\$110.03	\$104.02	\$109.10
Restaurants and bars	\$44.20	\$81.19	\$51.33
Lodging (cabin, motel, lodge, rental, campground, etc.)	\$39.59	\$235.38	\$76.99
Equipment rental (canoe, motor boat, etc.)	\$6.00	\$15.62	\$7.85
Fees (highway tolls, land access fees)	\$6.63	\$13.37	\$7.93
Guide fees	\$10.09	\$43.66	\$16.50
Baits, lures, scents	\$44.62	\$21.79	\$40.36
Other day-to-day items (heating/cooking fuel, ice, etc.)	\$37.65	\$24.46	\$35.22
Fishing gear (rods, reels, rod holders, landing nets, depth finder, fish finder, down rigger bait bucket, minnow traps, ice auger, ice house, etc.)	\$131.72	\$157.10	\$136.68
Fishing tackle (lures, lines, leaders, sinkers, tackles box, etc.)	\$67.61	\$23.23	\$59.39
Maps	\$12.95	\$3.28	\$11.20
Repair of fishing equipment	\$5.21	\$7.65	\$5.68
Taxidermy and mounting	\$4.41	\$3.88	\$4.33
Clothing used only for fishing (waders, fishing vest, etc.)	\$20.10	\$17.06	\$19.52
Other equipment related items	\$4.91	\$7.92	\$5.49
Boat, motor, trailer, accessories (MAINE)	\$75.75	\$8.98	\$62.98
ATV, snowmobile (ice only), trailer, accessories (MAINE)	\$69.09	\$6.85	\$57.58
Travel trailer, tent trailer (pop-up), pickup camper, motor home (MAINE)	\$30.86	\$1.62	\$25.27
Vehicle purchased to use for fishing (MAINE)	\$129.99	\$5.12	\$106.33
Recreational property purchase (MAINE)	\$61.00	\$11.56	\$51.89
Recreational property utilities and maintenance (MAINE)	\$14.92	\$30.54	\$17.92
Camping equipment (tent, sleeping bag, stove, compass, etc.) (MAINE)	\$26.10	\$4.76	\$22.07
Binoculars, camera (MAINE)	\$9.67	\$0.48	\$7.94
Other fishing-related equipment (MAINE)	\$49.56	\$16.93	\$43.46
Total	\$1,177.17	\$1,042.69	\$1,153.84

Table D 2. Per angler spending profile of **open water** anglers

Type of Spending	Resident Anglers	Nonresident Anglers	All Anglers
Commercial transportation (airline, bus, car rental, train)	\$6.23	\$76.98	\$20.09
Other transportation costs (gas or oil for car, truck, boat, ATV, etc.)	\$141.34	\$125.99	\$138.33
Groceries	\$93.10	\$108.76	\$96.16
Restaurants and bars	\$39.83	\$84.75	\$48.63
Lodging (cabin, motel, lodge, rental, campground, etc.)	\$37.83	\$258.56	\$81.08
Equipment rental (canoe, motor boat, etc.)	\$5.59	\$17.23	\$7.87
Fees (highway tolls, land access fees)	\$6.29	\$13.88	\$7.78
Guide fees	\$10.28	\$48.06	\$17.68
Baits, lures, scents	\$35.49	\$22.05	\$32.86
Other day-to-day items (heating/cooking fuel, ice, etc.)	\$31.13	\$23.78	\$29.69
Fishing gear (rods, reels, rod holders, landing nets, depth finder, fish finder, down rigger bait bucket, minnow traps, etc.)	\$128.73	\$172.10	\$137.23
Fishing tackle (lures, lines, leaders, sinkers, tackle box, etc.)	\$41.30	\$24.41	\$37.99
Maps	\$2.56	\$2.16	\$2.48
Repair of fishing equipment	\$5.37	\$8.43	\$5.97
Taxidermy and mounting	\$1.60	\$4.22	\$2.12
Clothing used only for fishing (waders, fishing vests, etc.)	\$21.28	\$18.95	\$20.83
Other equipment related items	\$4.32	\$8.15	\$5.07
Boat, motor, trailer, accessories (MAINE)	\$86.98	\$9.98	\$71.90
ATV, trailer, accessories (MAINE)	\$28.02	\$0.58	\$22.64
Travel trailer, tent trailer (pop-up), pickup camper, motor home (MAINE)	\$35.44	\$1.80	\$28.85
Vehicle purchased to use for fishing (MAINE)	\$121.68	\$4.59	\$98.74
Recreational property purchase (MAINE)	\$26.68	\$3.54	\$22.15
Recreational property utilities and maintenance (MAINE)	\$13.75	\$32.57	\$17.44
Camping equipment (tent, sleeping bag, stove, compass, etc.) (MAINE)	\$23.02	\$4.84	\$19.46
Binoculars, camera (MAINE)	\$8.35	\$0.48	\$6.81
Other fishing-related equipment (MAINE)	\$37.22	\$17.38	\$33.33
Total	\$993.39	\$1,094.21	\$1,013.14

Table D 3. Per angler spending profile of **ice fishing** anglers

Type of Spending	Resident Anglers	Nonresident Anglers	All Anglers
Commercial transportation (airline, bus, car rental, train)	\$10.50	\$64.56	\$13.49
Other transportation costs (gas or oil for car, truck, boat, ATV, etc.)	\$83.87	\$79.70	\$83.64
Groceries	\$75.85	\$65.26	\$75.27
Restaurants and bars	\$24.93	\$52.26	\$26.44
Lodging (cabin, motel, lodge, rental, campground, etc.)	\$17.40	\$29.40	\$18.06
Equipment rental (canoe, motor boat, etc.)	\$2.97	\$1.37	\$2.88
Fees (highway tolls, land access fees)	\$3.02	\$9.34	\$3.37
Guide fees	\$2.99	\$4.54	\$3.07
Baits, lures, scents	\$35.92	\$20.59	\$35.07
Other day-to-day items (heating/cooking fuel, ice, etc.)	\$27.61	\$32.47	\$27.88
Fishing gear (rods, reels, rod holders, landing nets, fish finder, bait bucket, ice auger, ice house, etc.)	\$51.39	\$24.06	\$49.88
Fishing tackle (lures, lines, leaders, sinkers, tackles box, etc.)	\$82.90	\$13.48	\$79.07
Maps	\$28.09	\$14.20	\$27.33
Repair of fishing equipment	\$1.41	\$0.71	\$1.37
Taxidermy and mounting	\$7.89	\$0.83	\$7.50
Clothing used only for fishing (waders, fishing vests, etc.)	\$4.09	\$0.11	\$3.87
Other equipment related items	\$3.02	\$6.20	\$3.19
Boat, motor, trailer, accessories (MAINE)	\$0.00	\$0.00	\$0.00
ATV, snowmobile, trailer, accessories (MAINE)	\$117.06	\$66.86	\$114.28
Travel trailer, tent trailer (pop-up), pickup camper, motor home (MAINE)	\$0.00	\$0.00	\$0.00
Vehicle purchased to use for fishing (MAINE)	\$62.95	\$10.39	\$60.05
Recreational property purchase (MAINE)	\$98.94	\$88.55	\$98.36
Recreational property utilities and maintenance (MAINE)	\$7.70	\$13.11	\$8.00
Camping equipment (tent, sleeping bag, stove, compass, etc.) (MAINE)	\$15.85	\$4.35	\$15.22
Binoculars, camera (MAINE)	\$6.29	\$0.52	\$5.97
Other fishing-related equipment (MAINE)	\$44.92	\$13.71	\$43.20
Total	\$817.56	\$616.56	\$806.46

Hunting in Maine in 2013:

A statewide and regional analysis of participation
and economic contributions

For:

Maine Office of Tourism &

Maine Department of Inland Fisheries and Wildlife

September 30, 2014



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This document is the first installment in a three-part series examining the economic contributions of hunting and fishing in Maine and the market potential for increased participation. This first report focuses on hunting in Maine. A second report focuses on fishing. The third report is a market analysis that looks at the preferences and amenities that attract sportsmen to hunting and fishing destinations.

Executive Summary

Recreational hunting is a powerful economic engine for rural communities across the country, bringing in outside dollars that generate additional spending, supporting and creating jobs, and building future investments in open spaces and recreational areas.

The Maine Office of Tourism and the Department of Inland Fisheries and Wildlife (DIF&W) commissioned a study of the state's sporting population to examine statewide and regional hunting activity and the characteristics of hunting trips including the duration, purpose, destination, lodging and amenities associated with resident and visiting hunters. Drawing from license sales records and survey-based information, this report examines the economic contributions associated with hunting in Maine. The study quantifies the total economic contributions to the state economy generated by hunter spending in each of the eight tourism regions and for selected game species.

Table E1. Participation and spending by hunters in Maine, 2013.

Activity	Hunters ^{1*}	Total Annual Expenditures**
Hunting:		
Deer	136,796	\$68,178,813
Upland game birds	81,766	\$47,260,061
Turkey	37,375	\$15,050,248
Migratory waterfowl	21,656	\$17,324,004
Bear	21,153	\$35,376,590
Moose	13,033	\$15,793,765
Small game	50,007	\$32,639,766
Hunting Total	162,075	\$231,623,247

**Column sum is greater than the total number of hunters because hunters may target more than one species. May include hunters who may have participated in a hunt (e.g. moose) but did not hold the species-specific permit.*

***Includes spending only when the primary purpose of a trip was hunting.*

Maine's wildlife draws thousands of resident and non-resident sportsmen to take a trip to hunt every year (Table E1). These hunters spend \$231 million on hunting related activities (Table E1). Collectively, recreational hunting supports more than 3,400 full- and part-time jobs providing more than \$115 million in income (Table E2). The direct spending by sportsmen who hunt and the multiplier effects of that spending in Maine contribute \$191 million to the state's gross state product and a total economic output of \$338.7 million.

Table E2. Total economic contributions of hunting to Maine's economy in 2013

	Employment	Labor Income	Value Added (State GDP)	Total Output
Hunting Total	3,430	\$115,625,414	\$191,649,185	\$338,730,639
<i>Hunting by species</i>				
Deer	1,010	\$34,854,181	\$57,528,437	\$101,419,052
Upland game birds	652	\$22,132,514	\$36,788,549	\$65,856,609
Turkey	230	\$8,003,631	\$13,192,120	\$23,311,818
Migratory waterfowl	253	\$8,550,034	\$14,129,855	\$25,172,112
Bear	565	\$18,028,415	\$29,902,911	\$52,675,653
Moose	225	\$7,120,109	\$12,121,467	\$20,851,393
Small game	496	\$16,936,529	\$27,985,845	\$49,444,001

¹ The estimated numbers of hunters include all residents and nonresidents who purchased a hunting privilege in 2013. The numbers do not include hunters who held a lifetime license that was purchased prior to 2013 if they did not purchase a species-specific permit in 2013.

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a powerful economic engine for communities across Maine, generating additional spending, supporting and creating jobs, and building future investments in open spaces and wildlife areas.

Data collection

An online survey was conducted in August of 2014. The target audience for the survey was developed from license sales records provided by Maine’s Department of Inland Fisheries and Wildlife (DIF&W). The sampling frame included all persons who purchased a hunting or combination hunting/fishing license, or special hunting permit between 2009 and 2013 and who provided a valid email address³ (Table 1). Hunters were invited to participate in the survey via email containing a hyperlink to the online questionnaire. The first email invitations were sent on August 7, 2014. Each person in the sample received up to two additional reminders if they did not complete a questionnaire. Emails and reminders were managed through an automated system as part of the online survey software licensed to Southwick Associates.

Subsequent to the initial survey mailing, a high percentage of email addresses included in the sample were determined to be no longer in service or otherwise invalid. Due to the high number of undeliverables — referred to as a bounce rate — the sample was submitted to an email cleaning service for removal of addresses that were not clearly valid. The process resulted in a significant reduction in sample size. The overall survey response rate is 19.0%.

Table 1. Target audience size and response rate

	Nonresidents	Residents	Total
Original email list	24,351	42,858	67,209
Undeliverable addresses	8,740	10,880	19,620
Net mailout	15,611	31,978	47,589
Completed surveys	3,530	5,496	9,026
<i>Complete response rate</i>	<i>22.6%</i>	<i>17.2%</i>	<i>19.0%</i>

The raw survey data were cleaned to eliminate outliers and out-of-range responses. While the data were generally representative of the hunting population, survey respondents were more avid than the average hunter (based on the number of years hunted from 2009 to 2013). To adjust for this, survey data were weighted to represent the population of Maine’s licensed hunters based on demographic and participation information generated from the license records (Table 2). A rake weighting procedure was used adjust for all differences across the characteristics shown in Table 2. With the calculated weights applied to the analysis, the final sample mirrored the population of sportsmen on the relevant demographic measures.

³ Maine DIF&W license sales records include email addresses for approximately 43% of sportsmen and women who purchased a license in the past five years.

Table 2. Population of Maine hunters compared to unweighted survey respondents

Demographic	Residents				Nonresidents			
	Population		Respondents		Population		Respondents	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Gender:								
Male	180,042	80.0%	4,795	87.3%	65,135	95.9%	3,442	97.5%
Female	36,475	16.2%	537	9.8%	2,073	3.1%	66	1.9%
Unknown	8,436	3.8%	163	3.0%	745	1.1%	21	0.6%
<i>Total</i>	224,953	100.0%	5,495	100.0%	67,953	100.0%	3,529	100.0%
Age Group:								
Under 18	19,692	8.8%	169	3.1%	1,629	2.4%	17	0.5%
18 to 24	25,292	11.2%	297	5.4%	3,496	5.1%	41	1.2%
25 to 34	34,974	15.5%	940	17.1%	7,786	11.5%	290	8.2%
35 to 44	35,753	15.9%	941	17.1%	10,163	15.0%	482	13.7%
45 to 54	46,076	20.5%	1,226	22.3%	15,856	23.3%	890	25.2%
55 to 64	41,251	18.3%	1,379	25.1%	15,002	22.1%	963	27.3%
65 and Over	21,913	9.7%	543	9.9%	14,018	20.6%	846	24.0%
<i>Total</i>	224,951	100.0%	5,495	100.0%	67,950	100.0%	3,529	100.0%
Number of years hunted:								
1 year	49,647	22.1%	488	8.9%	33,753	49.7%	1,202	34.1%
2 years	29,635	13.2%	514	9.4%	10,004	14.7%	535	15.2%
3 years	24,412	10.9%	493	9.0%	5,882	8.7%	383	10.9%
4 years	25,857	11.5%	654	12.0%	5,145	7.6%	432	12.2%
5 years	77,742	34.6%	3,270	59.9%	8,692	12.8%	933	26.4%
Unknown**	17,660	7.9%	44	0.8%	4,477	6.6%	44	1.2%
<i>Total</i>	224,953	100.0%	5,463	100.0%	67,953	100.0%	3,529	100.0%
Household income*:								
\$10,000 - \$24,999	4,079	1.8%	61	1.1%	474	0.7%	24	0.7%
\$25,000 - \$49,999	144,253	64.3%	3,023	55.1%	18,471	27.6%	806	23.2%
\$50,000 - \$74,999	69,831	31.1%	2,130	38.8%	26,010	38.9%	1,409	40.6%
\$75,000 - \$99,999	4,588	2.0%	190	3.5%	13,454	20.1%	743	21.4%
\$100,000+	1,594	0.7%	84	1.5%	8,478	12.7%	491	14.1%
<i>Total</i>	224,345	100.0%	5,488	100.0%	66,888	100.0%	3,473	100.0%

*Household income estimated from ESRI Tapestry™ based on mailing address included in the license sales records

** At the time of sample development, permit data was not linked to the license records. Therefore, the number of years could not be determined for some hunters.

Methodology

The questionnaire was structured to gather general hunting information from each respondent plus detailed spending and participation information for individual game species by tourism region. To avoid respondent fatigue from repeating detailed questions for every species pursued by an individual hunter, the survey was designed to ask detailed questions of each respondent

about only one species that they hunted. The questionnaire contained specific questions regarding hunting of:

- Deer
- Upland game birds (ruffed grouse (partridge), woodcock, pheasant)
- Turkey
- Migratory waterfowl (ducks and geese)
- Small game (rabbit, bobcat, coyote, raccoon, red fox, squirrel, crow, other small game)
- Bear
- Moose

Maine's seven tourism regions include:

- Aroostook County
- Downeast and Acadia
- Greater Portland and Casco Bay
- The Kennebec Valley
- Maine's Lakes and Mountains
- Mid-Coast
- The Maine Beaches
- The Maine Highlands (Bangor-Katahdin-Moosehead Lake)

License records were analyzed to: 1) identify the types of activities in which individual hunters took part based on license type purchased, 2) identify the type of game pursued based on license or permit type purchased by the hunter and 3) determine availability of an email address on record with DIF&W. Based on the distribution of the target audience across activity type, game categories, and species pursued, a prioritization structure was developed to ensure adequate sample sizes for hunters of each species to draw reliable spending and participation estimates. This was done by assigning a higher priority to species which draw smaller numbers of hunters. The structure then worked in conjunction with survey questions to dynamically tailor the survey each respondent saw based upon their self-reported activities. In this way, the largest possible sample of hunters was obtained for each species. While the total numbers of hunters are based on actual license sales in 2013, estimates of hunting activity for specific species and related spending are based on self-reported measures by survey respondents.

Three measures (participation, spending, and estimated economic contribution) for each species and tourism region structure the methodological approach.

Participation

The hunting license data for Maine resident and non-resident adult hunters is the source for the overall number of resident and nonresident hunters in 2013. Survey respondents were asked to report their participation or level of activity for every tourism region in which they hunted or made expenditures in 2013, as well as the type of species pursued when hunting.

The species-based prioritization matrix and survey structure adjusted dynamically to tailor questions based upon respondent selections. The targeted species include: deer, upland game

birds, turkey, migratory waterfowl, bear, moose, and small game. The survey was set up to query respondents as to the number of days hunted and trip length per tourism region. .

Spending

Expenditure questions were used to build spending profiles for the average hunter of each target game species (detailed spending profiles are included in Appendix D). In broad terms, the expenditure questions in the survey mirror the categories included in the U.S. Fish and Wildlife Service's *National Survey of Fishing, Hunting and Wildlife-Associated Recreation*. Questions solicited three types of expenses:

- Trip-related expenses, which include primarily consumables such as fuel, food, and lodging.
- Hunting-specific expenses, which includes special purpose items and services such as firearms, ammunition, sights, and calls, scouting expenses, repair of hunting equipment, meat cutting, taxidermy and mounting, etc.
- Hunting-related equipment includes ATVs, campers or camping equipment, vehicles, and property purchased specifically for the purpose of hunting. In the case of special equipment (vehicles, property, etc.), respondents were asked to report the percentage for which the item is used specifically for hunting in Maine.

For each category, respondents were asked to report the tourism region in which expenses were made.

Unsurprisingly, many hunters reported hunting more than one species in 2013. For example, 95% of bear hunters also reported hunting deer at some time during the 2013 hunting season. Some multiple-species hunts may have occurred during the same outing; other hunters necessarily target different species on different hunts (e.g., there is no overlap between deer season and some moose seasons). To account for multiple-species hunting and avoid double-counting of expenditures by hunters who target more than one species, total spending was allocated based on the weighted average distribution of hunting effort across all of the species.

Regional estimates of spending are based on specific information provided respondents. Rather than rely on residence or places where hunting occurred, respondents were asked directly to report where they made expenditures for their different types of spending (e.g., trip-related spending, equipment purchases, etc.). Total spending, by expenditure category and for each individual species, was first estimated at the statewide level. The total statewide estimate was then allocated to each tourism region based on the proportion of each category spending that took place in each region.

Economic contributions

There are three types of economic contributions that hunters provide to Maine's economy: direct, indirect and induced. A **direct contribution** is defined as the economic contribution of the initial purchase made by the consumer (the original retail sale). **Indirect contributions** are the secondary effects generated from direct expenditures, such as the retailer buying additional inventory, and the wholesaler and manufacturers buying additional materials. Indirect contributions affect the industries that supply the first industry and so on down the supply chain. An **induced contribution** results from the salaries and wages paid by the directly and indirectly

affected industries. The employees of these industries spend their income on various goods and services. These expenditures, in turn, create a continual cycle of indirect and induced effects.

The direct, indirect and induced contribution effects sum together to provide the overall economic contribution of the activity under study. As the original retail purchase (direct contribution) goes through round after round of indirect and induced effects, the economic contribution of the original purchase is multiplied, benefiting many industries and individuals.

An IMPLAN input-output model of the Maine economy was created for this analysis. Regional economic contributions are calculated based upon the statewide model and the reported percentage of spending in each region. Thus, regional estimates reflect each region's contribution to the statewide economy.

Four types of economic activity are measured and reported for each activity and target species:

Employment: The number of full- and part-time jobs created or supported as a result of the economic activity.

Labor income: Total payroll, including salaries, wages and benefits paid to employees and business proprietors

State GDP: This represents the total “value added” contribution of economic output made by the industries impacted by hunter spending.

Output: The number reports the value of total economic activity associated with hunter spending.

Throughout this report, the term “economic contributions” is used rather than “economic impact.” Technically, economic impacts refer to the effect of new money being introduced into a market. In this case, the state of Maine is the “market”. Because this study examines expenditures by Maine residents made within Maine, the total economic activity associated with hunter spending cannot be considered as an economic impact. However, nonresident expenditures within the state do represent an economic impact as new money is brought into the state by this user group.

Additional discussion about economic contribution concepts are provided in Appendix C. Details of the economic contribution methodology are presented in Appendix B.

The remainder of this report is structured in sections based around the size of the hunter population, their visits to or in Maine, their spending, and the economic contributions associated with their spending. The analysis also explores their history with hunting in Maine, important factors that influence their hunting activities, and future hunting activities. Tables with results by species and region can be found in Appendix A.

Findings

Hunter participation

Resident and nonresident hunters in Maine are predominantly male. Resident hunters are slightly younger, have lower incomes and more years of experience hunting in Maine than nonresidents. Between 15% and 18% percent of resident hunters indicate they began hunting in the state during each of the decades since 1970 (Figure 2). This is suggestive of steady recruitment among residents over the last forty years.

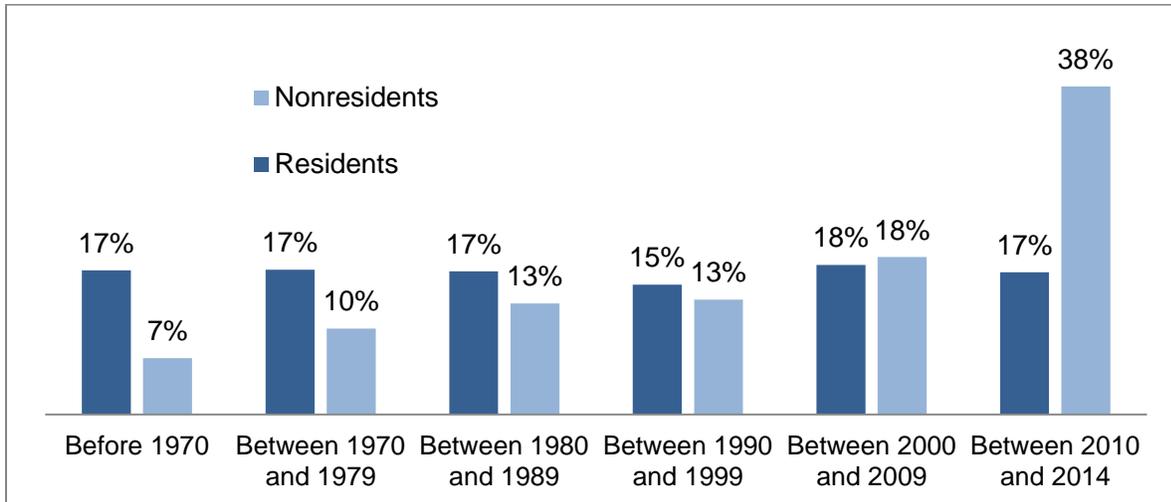


Figure 2. Decade when hunters first began hunting in Maine on a regular basis

Conversely, a substantial proportion of recent nonresident hunters do not have a long history of hunting in Maine. The greatest percentage of nonresident hunters report that they began hunting in Maine within the last five years (Figure 2). Increasingly fewer nonresident hunters began hunting in the state in each of the decades prior to the current period, ranging between 18% and 7%.

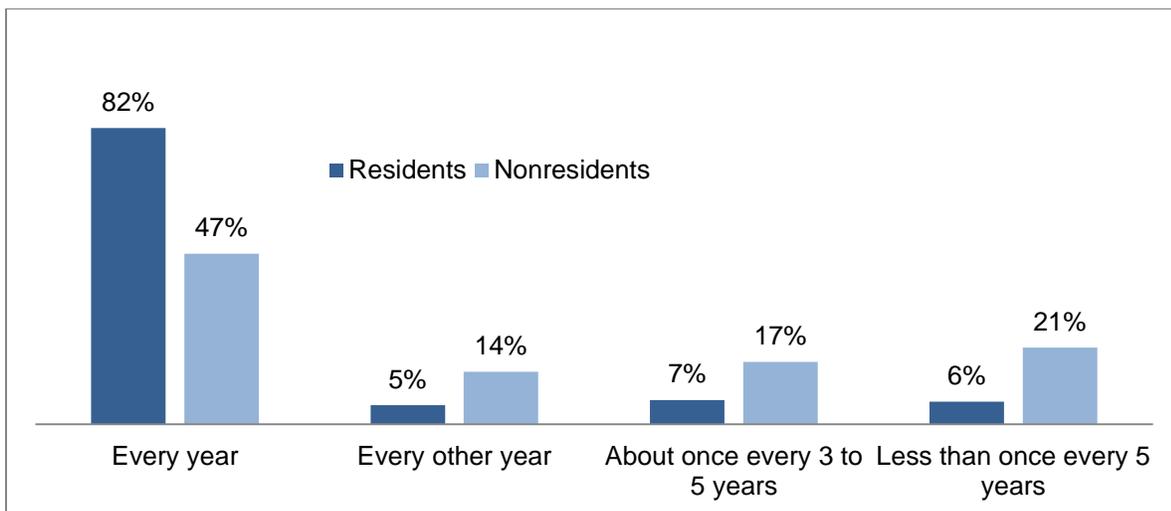


Figure 3. Hunting frequency in Maine

More than 80% of resident hunters hunt in the state every year reflecting a strong level of avidity among this group of hunters (Figure 3). Slightly less 50% of nonresidents hunt every year.

Maine offers a variety of hunting opportunities to residents and visitors throughout the state as hunters are able to pursue a variety of different species of big and small game. Ninety one percent of resident hunters pursue deer and 54% pursue upland game birds (Figure 4). One third or fewer of resident hunters pursue small game, turkey, waterfowl, bear, or moose. Half of nonresident hunters pursue deer and 33% pursue upland game birds

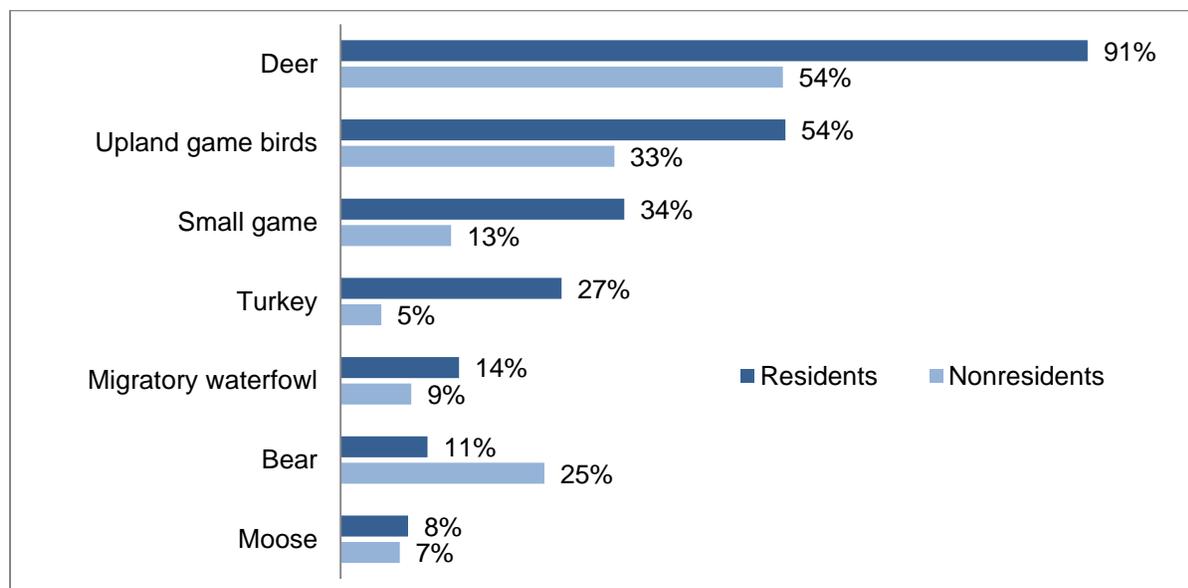


Figure 4. Species type pursued by hunters

Purpose, destination, and duration of hunting trip

A hunting trip can be for one day in which the hunter leaves home and returns the same day, or it can be multi-day trip including an overnight stay away from home. The differences are generally associated with the hunters' place of residence (in-state or out-of-state) and type of game pursued.

Single-day trips. In general, residents are more likely to take a one-day hunting trip compared to nonresident hunters. For example, 85% of resident hunters who pursue deer take one-day hunting trips (Table 3). On the other hand, only 21% of resident hunters who pursued moose took a one-day trip.

Table 3. Hunters who took a one-day trip in 2013 where the primary purpose was to hunt:

	Resident hunters	Nonresident hunters
Deer	85%	8%
Upland game birds	78%	9%
Turkey	93%	15%
Migratory waterfowl	96%	9%
Bear	59%	5%
Moose	21%	0%
Small game	89%	18%

The regional distribution of hunting trips, especially one-day trips, is a function of where resident hunters live and where the significant game populations can be found. Maine's Lakes & Mountains followed by The Maine Highlands regions are the locations where the largest proportion of one-day deer hunting trips occur among resident hunters. The Mid Coast region is the location for the greatest proportion one-day turkey hunting trips. More than half of all one-day moose hunting trips occur in Aroostook County (Table 4).

Table 4. One-day trips taken by hunters in 2013 by species and region as a proportion of statewide total.

	Deer	Upland game birds	Turkey	Migratory waterfowl	Bear	Moose	Small game
Residents							
Aroostook County	9.4%	23.9%	1.9%	13.8%	21.8%	63.1%	16.0%
Downeast & Acadia	7.6%	7.0%	6.2%	12.8%	11.4%	0.0%	5.6%
Greater Portland & Casco Bay	6.0%	1.7%	4.2%	7.4%	2.4%	0.0%	3.0%
The Kennebec Valley	14.0%	16.2%	20.6%	14.5%	9.7%	13.6%	17.2%
Maine's Lakes & Mountains	22.0%	18.3%	13.7%	10.7%	22.3%	4.7%	23.8%
Mid Coast	9.1%	5.5%	30.8%	19.7%	4.0%	5.2%	8.2%
The Maine Beaches	13.9%	3.8%	11.7%	6.3%	5.5%	0.0%	4.0%
The Maine Highlands	17.9%	23.5%	10.9%	14.8%	22.9%	13.4%	22.2%
State total	100%	100%	100%	100%	100%	100%	100%

Table 4 (cont'd). One-day trips taken by hunters in 2013 by species and region as a proportion of statewide total.

	Deer	Upland game birds	Turkey	Migratory waterfowl	Bear	Moose	Small game
Nonresidents							
Aroostook County	23.3%	15.9%	0.0%	17.6%	21.0%	*	7.0%
Downeast & Acadia	5.2%	4.3%	0.0%	25.1%	9.9%	*	1.4%
Greater Portland & Casco Bay	0.0%	0.0%	2.2%	9.4%	0.0%	*	2.1%
The Kennebec Valley	6.8%	5.1%	0.0%	1.0%	1.1%	*	9.1%
Maine's Lakes & Mountains	33.0%	30.3%	3.7%	7.4%	20.9%	*	33.8%
Mid Coast	2.3%	1.7%	6.3%	9.7%	0.0%	*	12.6%
The Maine Beaches	27.6%	28.9%	87.9%	29.7%	12.7%	*	28.3%
The Maine Highlands	1.8%	13.7%	0.0%	0.0%	34.3%	*	5.6%
State total	100%	100%	100%	100%	100%	*	100%

*Sample size too small to report reliable estimates.

Among nonresidents, Maine's Lakes & Mountains and The Maine Beaches regions are the locations where the largest proportion of one-day deer, upland game bird, and small game hunts occur. The Maine Beaches and Downeast & Acadia are the locations for the largest proportion of one-day migratory waterfowl hunts. The Maine Highlands and Aroostook County are the locations where the largest proportion of one-day bear hunts occur for nonresidents.

Multiple-day trips. Many hunters take overnight trips to go hunting over multiple days. In general, nonresidents are more likely to make overnight trips compared to residents (Table 5). Ninety-six percent of nonresident hunters who pursue moose make it an overnight trip. Eighty-seven percent of nonresident hunters who pursue deer take an overnight trip compared to 57% of residents.

Table 5. Hunters who took a multi-day trip in 2013 where the primary purpose was to hunt

	Resident hunters	Nonresident hunters
Deer	57%	87%
Upland game birds	57%	92%
Turkey	19%	86%
Migratory waterfowl	30%	94%
Bear	75%	89%
Moose	89%	96%
Small game	48%	87%

Trip duration is linked with the type of species pursued. For example all moose hunters are more likely to make an overnight trip compared to a one-day trip, while turkey hunters are much more likely to take a one-day hunting trip. Results also suggest that it is not uncommon for hunters to take both one-day and overnight hunting trips during the course of a hunting season.

Overall, nonresidents are more likely to take multiple-day trips than single day trips (Tables 4 and 5). In contrast, residents are only more likely to take multiple day hunting trips when targeting bear or moose (Table 6).

The Maine Highlands region and the Maine's Lakes & Mountains region are the locations with the largest proportion of overnight deer hunting trips among resident hunters. The Mid Coast is the location for the greatest proportion of resident overnight turkey hunting trips. More than half of all overnight moose hunting trips also occur in Aroostook County.

Among nonresidents, Maine's Lakes & Mountains and The Maine Highlands regions are the locations where the largest proportion of overnight deer, upland game bird, and small game hunts occur. Mid Coast followed and Downeast & Acadia are the locations for the largest proportion of overnight migratory waterfowl hunts. The Maine Highlands and Aroostook County are the locations where the largest proportion of overnight bear hunts occur.

Table 6. Overnight trips taken by hunters in 2013 by species and region as a proportion of statewide total.

	Deer	Upland game birds	Turkey	Migratory waterfowl	Bear	Moose	Small game
Residents							
Aroostook County	11.0%	27.4%	2.0%	8.1%	15.9%	58.0%	16.6%
Downeast & Acadia	4.7%	3.9%	5.2%	16.6%	12.1%	0.4%	8.7%
Greater Portland & Casco Bay	2.6%	0.1%	0.0%	1.0%	0.0%	0.0%	0.1%
The Kennebec Valley	19.7%	21.1%	8.0%	8.4%	9.2%	10.3%	21.8%
Maine's Lakes & Mountains	20.0%	20.3%	12.5%	11.5%	26.9%	4.0%	21.8%
Mid Coast	5.4%	0.5%	45.8%	12.9%	3.7%	3.3%	2.8%
The Maine Beaches	7.2%	0.3%	0.6%	2.1%	1.3%	0.0%	2.2%
The Maine Highlands	29.5%	26.5%	25.9%	39.4%	30.8%	24.0%	26.1%
State total	100%	100%	100%	100%	100%	100%	100%
Nonresidents							
Aroostook County	13.8%	21.9%	0.0%	6.3%	31.5%	64.1%	9.1%
Downeast & Acadia	4.4%	8.0%	3.4%	21.3%	10.5%	3.7%	7.5%
Greater Portland & Casco Bay	1.2%	0.4%	2.3%	10.0%	0.8%	0.0%	0.0%
The Kennebec Valley	18.3%	18.4%	22.5%	17.8%	11.8%	21.9%	18.4%
Maine's Lakes & Mountains	25.3%	21.8%	23.3%	6.1%	12.5%	6.8%	22.6%
Mid Coast	10.0%	1.5%	18.8%	33.4%	1.7%	0.0%	2.3%
The Maine Beaches	4.7%	2.8%	21.1%	2.6%	1.0%	0.0%	1.1%
The Maine Highlands	22.2%	25.2%	8.7%	2.5%	30.3%	3.5%	39.0%
State total	100%	100%	100%	100%	100%	100%	100%

For those hunters who do take part in a multi-day hunting trip that involves an overnight away from home, Table 7 shows the types of accommodations utilized by residents and nonresidents. Regardless of the region visited, the primary overnight accommodation for residents is a relative's or associate's lodging. For nonresidents visiting Aroostook County, the most commonly utilized accommodation is a sporting or wilderness camp or lodge. Outside of Aroostook County, the most commonly utilized accommodation is a relative's or associate's lodging.

Table 7. Accommodation type used by overnight hunters, by region and residency

	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
<u>Residents</u>								
Hotel, motel, resort	5.9%	2.4%	8.6%	3.5%	2.5%	1.8%	0.0%	3.3%
Inn or bed and breakfast	5.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Rented lodging**	16.7%	14.3%	0.0%	9.1%	14.7%	6.0%	0.0%	6.0%
Campground or RV part	8.3%	0.4%	0.0%	8.8%	0.8%	4.3%	0.0%	4.8%
Sporting/wilderness camp or lodge	18.1%	4.0%	0.0%	9.4%	1.7%	0.3%	0.0%	13.8%
Other paid accommodation	1.1%	0.0%	0.0%	0.7%	0.8%	0.0%	0.0%	1.3%
Lodging owned by respondent**	16.8%	32.4%	11.4%	27.8%	18.3%	11.1%	22.9%	23.7%
Relative or associate's lodging**	44.0%	43.9%	37.3%	49.4%	58.1%	69.9%	63.1%	54.1%
A free campground or campsite	8.3%	5.9%	14.7%	6.1%	7.1%	2.0%	4.0%	8.6%
Other unpaid accommodation	11.9%	5.4%	28.0%	4.7%	4.8%	4.9%	22.7%	5.4%
Total*	136%	111%	100%	120%	109%	100%	113%	121%
<u>Nonresidents</u>								
Hotel, motel, resort	5.2%	5.3%	15.6%	4.4%	5.0%	5.6%	2.9%	5.7%
Inn or bed and breakfast	0.4%	2.1%	0.0%	1.0%	3.2%	0.7%	0.0%	1.0%
Rented lodging**	18.9%	12.6%	2.1%	16.8%	17.0%	10.1%	2.9%	11.5%
Campground or RV part	1.1%	0.5%	2.1%	0.0%	1.3%	0.9%	0.0%	1.8%
Sporting/wilderness camp or lodge	47.2%	23.4%	5.0%	24.0%	11.0%	5.0%	5.7%	24.8%
Other paid accommodation	2.2%	2.4%	0.0%	0.7%	0.2%	0.7%	0.0%	2.4%
Lodging owned by respondent**	8.5%	24.4%	6.4%	12.8%	21.2%	20.6%	15.7%	11.0%
Relative or associate's lodging**	19.6%	35.2%	56.9%	42.6%	41.4%	49.8%	71.2%	44.4%
A free campground or campsite	1.3%	0.6%	0.0%	2.3%	1.0%	0.5%	0.0%	1.0%
Other unpaid accommodation	2.0%	3.6%	20.1%	1.8%	2.3%	6.4%	2.9%	2.2%
Total*	106%	110%	108%	106%	103%	100%	101%	106%

* Total is larger than 100% since some respondents reported staying at more than one type of lodging.

** Includes cabin, cottage, condo, and vacation home.

Residents typically take one month or less to plan for a hunting trip (Table 8). Nonresidents can take anywhere between one month to one year to plan for a hunting trip. The planning duration is sensitive to the type of game pursued.

Table 8. Advance planning timeframe for overnight hunting trips.

	Deer	Upland game birds	Turkey	Bear	Migratory waterfowl	Moose	Small game
Residents							
Less than a week	38.8%	38.2%	56.2%	20.3%	49.8%	2.1%	47.9%
2 to 4 weeks	33.5%	31.8%	32.3%	26.8%	32.6%	19.1%	31.6%
1 to 6 months	18.7%	21.3%	9.1%	26.9%	10.1%	65.1%	13.2%
6 to 12 months	7.7%	7.8%	2.3%	22.2%	6.7%	12.8%	6.5%
More than a year	1.3%	0.8%	0.0%	3.8%	0.8%	1.0%	0.8%
Total	100%	100%	100%	100%	100%	100%	100%
Nonresidents							
Less than a week	5.3%	4.4%	15.2%	1.9%	3.2%	2.9%	14.7%
2 to 4 weeks	15.2%	8.9%	31.0%	4.7%	10.6%	2.0%	29.9%
1 to 6 months	42.0%	52.5%	37.3%	23.6%	56.1%	68.9%	33.7%
6 to 12 months	35.1%	33.4%	14.7%	56.0%	26.4%	21.6%	20.1%
More than a year	2.5%	0.8%	1.8%	13.8%	3.7%	4.7%	1.5%
Total	100%	100%	100%	100%	100%	100%	100%

Hunter spending

In broad terms, the expenditure questions in the survey mirror the categories included in the U.S. Fish and Wildlife Service's *National Survey of Fishing, Hunting and Wildlife-Associated Recreation*. Trip-related spending includes primarily consumables such as fuel, food, and lodging. Hunting equipment include special-purpose items such as firearms, ammunition, sights, and calls. Auxiliary, special, and other equipment includes purchases for clothing, ATVs, campers or camping equipment, vehicles, and property purchased specifically for the purpose of hunting. In the case of special equipment (vehicles, property, etc.), respondents were asked to report the percentage for which the item is used specifically for hunting purposes.

Hunters, on average, spend \$1,429 per year in Maine on items purchased to take a trip where the primary purpose is hunting (Table 9). Deer hunters collectively spend an average of \$1,114 per year. Nonresident deer hunters spend \$1,113, the majority of which is on travel related expenditures, while resident deer hunters spend \$1,114 per year. Upland game bird hunters, on average, spend \$1,289 per year. Nonresident upland game hunters spend \$1,187; again the majority of their expenses are allocated towards travel. Resident upland game hunters spend \$1,311. In all categories, nonresidents spend more in Maine than residents on trip-related purchases, while residents spend more in the state on equipment and other durable goods.

Bear hunters spend the largest amount annually (\$3,310) on hunting related items. Nonresident bear hunters spend \$2,761 per year; resident bear hunters spend \$3,753 per year. The largest proportions of this spending are balanced between trip and auxiliary spending.

Table 9. Annual spending per hunter by species in 2013

	Resident	Nonresident	All hunters
All hunting			
Trip expenditures	\$463	\$985	\$554
Hunting equipment	\$302	\$262	\$295
Auxiliary, special, and other equipment	\$651	\$243	\$580
Total	\$1,416	\$1,490	\$1,429
Deer			
Trip expenditures	\$403	\$635	\$443
Hunting equipment	\$266	\$171	\$250
Auxiliary, special, and other equipment	\$445	\$307	\$422
Total	\$1,115	\$1,112	\$1,114
Upland game birds			
Trip expenditures	\$447	\$879	\$522
Hunting equipment	\$187	\$144	\$180
Auxiliary, special, and other equipment	\$677	\$164	\$587
Total	\$1,311	\$1,187	\$1,289
Turkey			
Trip expenditures	\$205	\$576	\$228
Hunting equipment	\$194	\$192	\$194
Auxiliary, special, and other equipment	\$543	\$154	\$520
Total	\$943	\$922	\$942
Migratory waterfowl			
Trip expenditures	\$447	\$836	\$513
Hunting equipment	\$470	\$112	\$409
Auxiliary, special, and other equipment	\$1,032	\$58	\$865
Total	\$1,949	\$1,006	\$1,788
Bear			
Trip expenditures	\$1,10	\$1,959	\$1,488
Hunting equipment	\$753	\$588	\$680
Auxiliary, special, and other equipment	\$1,892	\$213	\$1,143
Total	\$3,753	\$2,761	\$3,310
Moose			
Trip expenditures	\$842	\$1,825	\$1,070
Hunting equipment	\$647	\$696	\$658
Auxiliary, special, and other equipment	\$1,102	\$280	\$911
Total	\$2,590	\$2,801	\$2,639
Small game			
Trip expenditures	\$567	\$648	\$577
Hunting equipment	\$371	\$212	\$352
Auxiliary, special, and other equipment	\$587	\$368	\$561
Total	\$1,526	\$1,228	\$1,490

Turkey hunters are estimated to spend the least amount annually on hunting related items, \$942. Nonresident turkey hunters spend \$922 and resident turkey hunters spend \$943 per year.

Table 10 shows total direct retail spending at the statewide level across all hunters and by species hunted for resident and nonresident hunters who traveled for the purpose of recreational hunting. Total spending by all hunters regardless of species pursued is estimated at \$231.6 million per year. Deer hunters spend \$68.2 million per year. Nonresident deer hunters spend \$11.5 million, while resident deer hunters spend \$56.6 million per year. Upland game bird hunters spend \$47.3 million per year. Nonresident upland game bird hunters spend \$7.6 million while resident upland game bird hunters spend \$39.6 million.

Table 10. Total spending among Maine hunters by species in 2013

	Resident	Nonresident	Total
All hunting			
Trip expenditures	\$62,040,213	\$27,716,984	\$89,757,198
Hunting equipment	\$40,498,434	\$7,383,671	\$47,882,105
Auxiliary, special, and other equipment	\$87,135,554	\$6,848,390	\$93,983,945
Total	\$189,674,201	\$41,949,046	\$231,623,247
Deer			
Trip expenditures	\$20,490,802	\$6,580,768	\$27,071,570
Hunting equipment	\$13,534,028	\$1,768,091	\$15,302,119
Auxiliary, special, and other equipment	\$22,617,857	\$3,187,267	\$25,805,124
Total	\$56,642,686	\$11,536,127	\$68,178,813
Upland game birds			
Trip expenditures	\$13,504,270	\$5,642,307	\$19,146,577
Hunting equipment	\$5,667,593	\$925,324	\$6,592,917
Auxiliary, special, and other equipment	\$20,465,144	\$1,055,423	\$21,520,566
Total	\$39,637,007	\$7,623,053	\$47,260,061
Turkey			
Trip expenditures	\$3,088,205	\$549,088	\$3,637,293
Hunting equipment	\$2,920,104	\$182,767	\$3,102,871
Auxiliary, special, and other equipment	\$8,162,921	\$147,162	\$8,310,083
Total	\$14,171,230	\$879,017	\$15,050,248
Migratory waterfowl			
Trip expenditures	\$3,587,243	\$1,386,816	\$4,974,059
Hunting equipment	\$3,778,713	\$186,169	\$3,964,882
Auxiliary, special, and other equipment	\$8,288,708	\$96,354	\$8,385,063
Total	\$15,654,664	\$1,669,340	\$17,324,004
Bear			
Trip expenditures	\$6,557,281	\$9,341,863	\$15,899,144
Hunting equipment	\$4,458,018	\$2,804,298	\$7,262,316
Auxiliary, special, and other equipment	\$11,197,088	\$1,018,042	\$12,215,130
Total	\$22,212,387	\$13,164,203	\$35,376,590
Moose			
Trip expenditures	\$3,866,058	\$2,537,055	\$6,403,114
Hunting equipment	\$2,971,874	\$967,038	\$3,938,912
Auxiliary, special, and other equipment	\$5,062,466	\$389,273	\$5,451,739
Total	\$11,900,399	\$3,893,366	\$15,793,765

Table 10 (cont.). Total spending among Maine hunters by species in 2013

	Resident	Nonresident	Total
Small game			
Trip expenditures	\$10,946,354	\$1,679,086	\$12,625,440
Hunting equipment	\$7,168,103	\$549,984	\$7,718,087
Auxiliary, special, and other equipment	\$11,341,369	\$954,869	\$12,296,238
Total	\$29,455,827	\$3,183,939	\$32,639,766

Respondents were asked to report the tourism region in which their spending occurred (See Figure 1 for location of each region). The survey shows that the direct spending by hunters is realized in each of the eight tourism regions across the state. Spending associated with all aspects of the hunting trip can occur both close to home and close to the destination, regardless of the species. As a result, retail expenditures impact the economy of all tourism regions, even in those areas where relatively little hunting activity is likely to take place such as the Greater Portland & Casco Bay (Table 11). Detailed expenditure tables for both residents and nonresidents cross-tabulated by both species and tourism region are provided in Appendix A.

Table 11. Resident and nonresident total annual spending in 2013, statewide and by tourism region

Region	All hunting	Deer	Upland game birds	Turkey	Migratory waterfowl	Bear	Moose	Small game
Statewide	\$231,623,247	\$68,178,813	\$47,260,061	\$15,050,248	\$17,324,004	\$35,376,590	\$15,793,765	\$32,639,766
Aroostook County	\$42,591,666	\$6,925,047	\$8,959,619	\$191,691	\$1,761,155	\$9,353,419	\$5,085,154	\$5,319,159
Downeast & Acadia	\$21,352,939	\$3,700,820	\$2,986,341	\$1,729,248	\$2,335,720	\$4,465,963	\$1,393,429	\$3,529,816
Greater Portland & Casco Bay	\$13,482,460	\$7,015,489	\$1,973,361	\$1,855,209	\$1,769,323	\$993,126	\$264,760	\$2,069,977
The Kennebec Valley	\$28,888,744	\$10,101,814	\$6,324,584	\$2,651,830	\$1,753,523	\$3,428,691	\$1,329,455	\$5,413,656
Maine's Lakes & Mountains	\$37,435,165	\$11,192,669	\$10,703,742	\$2,927,970	\$2,010,578	\$4,713,719	\$2,127,093	\$3,998,479
Mid Coast	\$23,518,654	\$9,331,386	\$3,787,431	\$2,644,810	\$2,431,108	\$1,481,701	\$2,265,143	\$2,550,442
The Maine Beaches	\$18,836,457	\$7,366,122	\$3,302,430	\$1,471,231	\$1,243,340	\$2,929,653	\$842,905	\$2,423,360
The Maine Highlands	\$45,517,161	\$12,545,466	\$9,222,554	\$1,578,259	\$4,019,257	\$8,010,319	\$2,485,824	\$7,334,877

Economic contributions associated with hunter spending

Tables 12, 13, and 14 show the economic contributions of direct spending by residents, nonresidents and overall, respectively, by species. Detailed economic contribution tables for both residents and nonresidents cross-tabulated by both species and tourism region are provided in Appendix A.

A brief discussion of the results below focuses on Table 14 which shows by all hunters. Interpretations of the economic contributions associated with residents and nonresidents are similar when using their individual tables, Table 12 and Table 13, respectively.

Collectively, spending by sportsmen who hunt in Maine supports more than 3,400 full- and part-time jobs in the state, providing \$115.6 million in labor income (Table 14). Hunters' purchases contribute \$191 million to the gross state product and generate total economic activity of \$338.7 million.

Spending by deer hunters supports 1,010 full- and part-time jobs which provide \$34.8 million in labor income (Table 14). Their purchases contribute \$57.5 million to the gross state product and total economic activity of \$101.4 million. Spending by all upland game bird hunters supports 652 full- and part-time jobs which provide \$22.1 million in labor income. Their purchases contribute \$36.8 million to the gross state product and total economic activity of \$65.8 million. Spending by all bear hunters supports more than 560 full- and part-time jobs which provide \$18.0 million in labor income. Their purchases contribute \$29.9 million to the gross state product and total economic activity of \$52.7 million. Finally, spending by all small game hunters supports more than 490 full- and part-time jobs which provide \$16.9 million in labor income. Their purchases contribute \$28.0 million to the gross state product and total economic activity of \$49.4 million.

Table 12. **Resident** hunter economic contributions in 2013 by species

	Employment	Labor Income	Value Added (State GDP)	Total Output
All hunting				
Direct	1,792	\$56,561,376	\$91,852,234	\$169,023,604
Multiplier	935	\$37,211,143	\$63,035,993	\$105,824,193
Total	2,727	\$93,772,519	\$154,888,228	\$274,847,797
Deer				
Direct	553	\$17,833,295	\$28,614,829	\$52,506,080
Multiplier	290	\$11,605,793	\$19,681,505	\$33,022,106
Total	844	\$29,439,088	\$48,296,333	\$85,528,186
Upland game birds				
Direct	347	\$10,951,521	\$17,849,254	\$33,522,429
Multiplier	181	\$7,260,045	\$12,312,860	\$20,662,550
Total	527	\$18,211,566	\$30,162,114	\$54,184,980
Turkey				
Direct	142	\$4,574,704	\$7,417,031	\$13,558,548
Multiplier	74	\$2,951,760	\$4,995,676	\$8,377,567
Total	216	\$7,526,464	\$12,412,707	\$21,936,115
Migratory waterfowl				
Direct	145	\$4,543,446	\$7,360,697	\$13,687,090
Multiplier	78	\$3,097,427	\$5,238,676	\$8,798,557
Total	223	\$7,640,873	\$12,599,372	\$22,485,647
Bear				
Direct	209	\$6,427,517	\$10,440,818	\$19,263,067
Multiplier	109	\$4,271,827	\$7,201,515	\$12,116,918
Total	318	\$10,699,343	\$17,642,333	\$31,379,985
Moose				
Direct	101	\$2,964,728	\$5,163,953	\$8,986,262
Multiplier	50	\$1,964,182	\$3,331,249	\$5,596,176
Total	151	\$4,928,910	\$8,495,202	\$14,582,438
Small game				
Direct	295	\$9,266,165	\$15,005,652	\$27,500,128
Multiplier	151	\$6,060,110	\$10,274,513	\$17,250,318
Total	447	\$15,326,275	\$25,280,165	\$44,750,446

Table 13. **Nonresident** hunter economic contributions in 2013 by species

	Employment	Labor Income	Value Added (State GDP)	Total Output
All hunting				
Direct	477	\$12,961,530	\$21,838,552	\$38,720,837
Multiplier	226	\$8,891,366	\$14,922,405	\$25,162,005
Total	704	\$21,852,896	\$36,760,957	\$63,882,842
Deer				
Direct	112	\$3,261,342	\$5,593,293	\$9,751,851
Multiplier	54	\$2,153,751	\$3,638,811	\$6,139,015
Total	166	\$5,415,093	\$9,232,104	\$15,890,867
Upland game birds				
Direct	84	\$2,300,008	\$3,904,853	\$7,082,868
Multiplier	41	\$1,620,940	\$2,721,582	\$4,588,761
Total	124	\$3,920,948	\$6,626,435	\$11,671,629
Turkey				
Direct	10	\$288,624	\$459,744	\$837,344
Multiplier	5	\$188,543	\$319,669	\$538,359
Total	14	\$477,167	\$779,413	\$1,375,703
Migratory waterfowl				
Direct	20	\$533,792	\$902,518	\$1,626,880
Multiplier	9	\$375,370	\$627,964	\$1,059,585
Total	30	\$909,162	\$1,530,482	\$2,686,464
Bear				
Direct	168	\$4,297,256	\$7,210,129	\$12,768,309
Multiplier	79	\$3,031,816	\$5,050,449	\$8,527,359
Total	246	\$7,329,072	\$12,260,578	\$21,295,668
Moose				
Direct	51	\$1,307,709	\$2,140,907	\$3,774,336
Multiplier	23	\$883,490	\$1,485,359	\$2,494,619
Total	74	\$2,191,199	\$3,626,265	\$6,268,955
Small game				
Direct	33	\$972,799	\$1,627,108	\$2,879,248
Multiplier	16	\$637,456	\$1,078,571	\$1,814,308
Total	49	\$1,610,255	\$2,705,680	\$4,693,556

Table 14. **All** hunter economic contributions in 2013 by species

	Employment	Labor Income	Value Added (State GDP)	Total Output
All hunting				
Direct	2,269	\$69,522,906	\$113,690,786	\$207,744,441
Multiplier	1,161	\$46,102,509	\$77,958,398	\$130,986,198
Total	3,430	\$115,625,414	\$191,649,185	\$338,730,639
Deer				
Direct	665	\$21,094,637	\$34,208,122	\$62,257,931
Multiplier	345	\$13,759,544	\$23,320,316	\$39,161,121
Total	1,010	\$34,854,181	\$57,528,437	\$101,419,052
Upland game birds				
Direct	430	\$13,251,529	\$21,754,107	\$40,605,297
Multiplier	221	\$8,880,985	\$15,034,442	\$25,251,312
Total	652	\$22,132,514	\$36,788,549	\$65,856,609
Turkey				
Direct	152	\$4,863,328	\$7,876,775	\$14,395,892
Multiplier	79	\$3,140,302	\$5,315,345	\$8,915,926
Total	230	\$8,003,631	\$13,192,120	\$23,311,818
Migratory waterfowl				
Direct	165	\$5,077,238	\$8,263,215	\$15,313,970
Multiplier	88	\$3,472,796	\$5,866,639	\$9,858,142
Total	253	\$8,550,034	\$14,129,855	\$25,172,112
Bear				
Direct	377	\$10,724,773	\$17,650,947	\$32,031,376
Multiplier	188	\$7,303,643	\$12,251,964	\$20,644,277
Total	565	\$18,028,415	\$29,902,911	\$52,675,653
Moose				
Direct	152	\$4,272,437	\$7,304,860	\$12,760,598
Multiplier	73	\$2,847,672	\$4,816,608	\$8,090,795
Total	225	\$7,120,109	\$12,121,467	\$20,851,393
Small game				
Direct	328	\$10,238,964	\$16,632,761	\$30,379,376
Multiplier	167	\$6,697,565	\$11,353,084	\$19,064,625
Total	496	\$16,936,529	\$27,985,845	\$49,444,001

Summary

One of the goals of this study was to help provide insight about jobs, labor income and other economic contributions that result from recreational hunting that occurs in Maine at a statewide and tourism region level. Maine's wildlife draws thousands of resident and non-resident sportsmen to take a trip to hunt every year (Table 15). The longevity within the sport among resident hunters in Maine is roughly a balanced blend of hunters who have been in the field since before 1970 to newer hunters just taking to the field within the last five years. These resident hunters typically go hunting every year and the most popular species pursued are deer and upland game birds.

The majority, 56%, of nonresident hunters first began hunting regularly in Maine in the last decade. They are most likely to go hunting every year or every other year. And, the most popular species among nonresidents are also deer and upland game birds.

Table 15. Participation and spending of hunting in Maine in 2013

Activity	Hunters		Total Annual Spending	
	Resident	Nonresident	Resident	Nonresident
Hunting:				
Deer	121,606	15,190	\$56,642,686	\$11,536,127
Upland game birds	72,359	9,408	\$39,637,007	\$7,623,053
Turkey	35,978	1,397	\$14,171,230	\$879,017
Migratory waterfowl	19,224	2,432	\$15,654,664	\$1,669,340
Bear	14,165	6,988	\$22,212,387	\$13,164,203
Moose	10,996	2,037	\$11,900,399	\$3,893,366
Small game	46,207	3,800	\$29,455,827	\$3,183,939
Hunting Total*	133,925	28,150	\$189,674,201	\$41,949,046

* From 2013 license records.

These hunters spend \$231.6 million on hunting related activities. The spending associated with these activities leads to significant economic contributions to the Maine economy. Included in this spending are expenditures on trip-related items such as meals, fuel, and lodging. Resident hunters are more likely than nonresident hunters to take just a day trip to go hunting, whereas, nonresidents are more likely to take an overnight trip to go hunting. For residents and most nonresident hunters who do take an overnight trip, the most commonly utilized accommodation is a relative's or associate's lodging. Nonresidents in Aroostook County most often stay overnight in a sporting lodge or wilderness camp.

Collectively, recreational hunting supports more than 3,400 (2,727 associated with resident spending and 935 associated with nonresident spending) full- and part-time jobs providing more than \$115.6 million in labor income (Table 16). The direct spending by sportsmen who hunt and multiplier effects of that spending in Maine contribute \$191.6 million (\$154.9 million associated with resident spending and \$36.8 associated with nonresident spending) to the state's gross domestic product and a total economic contribution of \$338.7 million.

Table 16. Total economic effects of hunting on Maine's economy in 2013

	Employment	Labor Income	Value Added (State GDP)	Total Output
<u>Residents</u>				
Hunting Total	2,727	\$93,772,519	\$154,888,228	\$274,847,797
<i>Hunting by species</i>				
Deer	844	\$29,439,088	\$48,296,333	\$85,528,186
Upland game birds	527	\$18,211,566	\$30,162,114	\$54,184,980
Turkey	216	\$7,526,464	\$12,412,707	\$21,936,115
Migratory waterfowl	223	\$7,640,873	\$12,599,372	\$22,485,647
Bear	318	\$10,699,343	\$17,642,333	\$31,379,985
Moose	151	\$4,928,910	\$8,495,202	\$14,582,438
Small game	447	\$15,326,275	\$25,280,165	\$44,750,446
<u>Nonresidents</u>				
Hunting Total	704	\$21,852,896	\$36,760,957	\$63,882,842
<i>Hunting by species</i>				
Deer	166	\$5,415,093	\$9,232,104	\$15,890,867
Upland game birds	124	\$3,920,948	\$6,626,435	\$11,671,629
Turkey	14	\$477,167	\$779,413	\$1,375,703
Migratory waterfowl	30	\$909,162	\$1,530,482	\$2,686,464
Bear	246	\$7,329,072	\$12,260,578	\$21,295,668
Moose	74	\$2,191,199	\$3,626,265	\$6,268,955
Small game	49	\$1,610,255	\$2,705,680	\$4,693,556

The study shows that the economic contributions of sportsmen occur across the eight travel regions within the state. This variation stems, in large part, from the opportunities to hunt within a region's boundary. However, it is important to remember that spending associated with sportsmen's activities occurs both close to home and close to their hunting destination. As a result, economic contributions are felt from hunting activities, regardless of species, all across the state.

Appendices

Appendix A: Hunting by tourism region

Appendix B: Methodology for estimating economic contributions

Appendix C: Explanation of economic contribution

Appendix D: Hunter spending profiles by game type

Appendix A: Hunting by species and by tourism region

Note: The purpose of Appendix A is to incorporate all measures (participation, spending and economic contributions by activity) together from the perspective of the tourism region.

Table A 1. Total annual spending in 2013 by **resident** Hunters by species and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All hunting								
Trip Expenditure	\$15,468,340	\$4,584,380	\$1,770,056	\$9,636,907	\$9,427,272	\$3,893,948	\$2,697,313	\$14,561,998
Hunting equipment	\$7,691,029	\$2,628,320	\$3,197,558	\$5,286,727	\$5,133,009	\$4,444,390	\$4,470,609	\$7,646,792
Auxiliary, special and other equipment	\$9,143,949	\$10,175,458	\$7,117,367	\$8,569,021	\$15,398,678	\$13,314,216	\$9,213,665	\$14,203,201
Total Hunting Expenditure	\$32,303,318	\$17,388,158	\$12,084,980	\$23,492,654	\$29,958,960	\$21,652,554	\$16,381,587	\$36,411,991
Deer								
Trip Expenditure	\$2,291,761	\$1,622,320	\$879,659	\$3,665,044	\$3,535,024	\$1,665,075	\$1,697,006	\$5,134,912
Hunting equipment	\$1,303,009	\$676,485	\$1,575,922	\$2,092,476	\$1,914,698	\$1,347,636	\$2,092,787	\$2,531,015
Auxiliary, special and other equipment	\$1,822,520	\$552,942	\$4,260,465	\$2,093,521	\$2,998,086	\$5,457,553	\$2,665,007	\$2,767,763
Total Hunting Expenditure	\$5,417,290	\$2,851,747	\$6,716,047	\$7,851,041	\$8,447,808	\$8,470,264	\$6,454,800	\$10,433,690
Upland game birds								
Trip Expenditure	\$4,172,438	\$832,185	\$221,591	\$2,077,685	\$2,354,212	\$549,815	\$242,797	\$3,053,547
Hunting equipment	\$970,085	\$364,951	\$526,114	\$866,723	\$851,528	\$387,954	\$642,004	\$1,058,233
Auxiliary, special and other equipment	\$2,224,607	\$923,383	\$856,382	\$2,352,133	\$5,710,806	\$2,694,745	\$1,988,797	\$3,714,290
Total Hunting Expenditure	\$7,367,130	\$2,120,519	\$1,604,087	\$5,296,541	\$8,916,547	\$3,632,514	\$2,873,599	\$7,826,070
Turkey								
Trip Expenditure	\$84,573	\$222,656	\$161,271	\$694,930	\$905,794	\$452,569	\$199,831	\$366,581
Hunting equipment	\$40,960	\$155,287	\$281,751	\$451,139	\$646,816	\$643,565	\$332,072	\$368,515
Auxiliary, special and other equipment	\$31,558	\$1,330,051	\$1,330,682	\$1,411,891	\$1,192,460	\$1,462,488	\$584,659	\$819,132
Total Hunting Expenditure	\$157,091	\$1,707,993	\$1,773,705	\$2,557,959	\$2,745,069	\$2,558,623	\$1,116,561	\$1,554,228

Table A1 (cont.). Total annual spending in 2013 by **resident** hunters by species and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
Migratory waterfowl								
Trip Expenditure	\$566,363	\$482,599	\$204,436	\$539,308	\$473,740	\$558,011	\$186,670	\$576,115
Hunting equipment	\$591,814	\$373,638	\$388,487	\$587,202	\$242,076	\$702,617	\$407,567	\$485,312
Auxiliary, special and other equipment	\$392,581	\$944,792	\$941,232	\$530,631	\$1,252,760	\$849,849	\$478,633	\$2,898,231
Total Hunting Expenditure	\$1,550,758	\$1,801,029	\$1,534,155	\$1,657,141	\$1,968,576	\$2,110,477	\$1,072,869	\$3,959,658
Bear								
Trip Expenditure	\$1,605,552	\$584,579	\$171,488	\$1,017,000	\$920,869	\$169,650	\$161,133	\$1,927,010
Hunting equipment	\$906,574	\$454,899	\$297,962	\$471,719	\$640,307	\$289,540	\$333,569	\$1,063,449
Auxiliary, special and other equipment	\$2,310,802	\$2,095,768	\$247,606	\$773,689	\$1,202,557	\$720,364	\$1,977,646	\$1,868,656
Total Hunting Expenditure	\$4,822,928	\$3,135,246	\$717,055	\$2,262,408	\$2,763,733	\$1,179,554	\$2,472,348	\$4,859,116
Moose								
Trip Expenditure	\$2,010,789	\$87,220	\$42,938	\$440,961	\$214,925	\$168,072	\$155,581	\$745,572
Hunting equipment	\$1,190,949	\$91,865	\$92,258	\$305,797	\$256,221	\$252,468	\$337,101	\$445,215
Auxiliary, special and other equipment	\$275,679	\$916,264	\$67,175	\$72,110	\$1,544,883	\$1,776,247	\$241,298	\$168,809
Total Hunting Expenditure	\$3,477,417	\$1,095,349	\$202,371	\$818,869	\$2,016,030	\$2,196,787	\$733,980	\$1,359,597
Small game								
Trip Expenditure	\$2,343,954	\$915,254	\$281,966	\$1,613,363	\$1,830,358	\$770,066	\$464,767	\$2,726,627
Hunting equipment	\$1,336,165	\$380,332	\$378,561	\$770,963	\$864,301	\$1,114,456	\$617,240	\$1,706,086
Auxiliary, special and other equipment	\$1,305,741	\$2,091,852	\$1,280,092	\$2,473,101	\$620,382	\$538,008	\$1,126,150	\$1,906,044
Total Hunting Expenditure	\$4,985,859	\$3,387,438	\$1,940,618	\$4,857,427	\$3,315,041	\$2,422,530	\$2,208,156	\$6,338,757

Table A 2. Total annual spending in 2013 for nonresident hunters by species and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All hunting								
Trip Expenditure	\$7,708,936	\$2,594,046	\$813,076	\$3,566,599	\$4,614,567	\$1,109,114	\$1,212,011	\$6,098,633
Hunting equipment	\$1,709,623	\$779,781	\$291,597	\$794,731	\$1,244,700	\$282,315	\$631,552	\$1,649,373
Auxiliary, special and other equipment	\$869,789	\$590,954	\$292,807	\$1,034,760	\$1,616,938	\$474,670	\$611,307	\$1,357,164
Total Hunting Expenditure	\$10,288,349	\$3,964,781	\$1,397,480	\$5,396,090	\$7,476,206	\$1,866,100	\$2,454,870	\$9,105,170
Deer								
Trip Expenditure	\$975,690	\$353,499	\$144,776	\$1,119,802	\$1,774,083	\$579,486	\$357,777	\$975,690
Hunting equipment	\$208,388	\$88,021	\$56,517	\$316,491	\$520,894	\$114,733	\$214,699	\$208,388
Auxiliary, special and other equipment	\$323,679	\$407,554	\$98,150	\$814,479	\$449,885	\$166,904	\$338,846	\$323,679
Total Hunting Expenditure	\$1,507,758	\$849,073	\$299,442	\$2,250,773	\$2,744,861	\$861,122	\$911,322	\$1,507,758
Upland game birds								
Trip Expenditure	\$1,305,103	\$568,234	\$260,323	\$939,853	\$1,165,614	\$74,545	\$226,761	\$1,101,875
Hunting equipment	\$165,477	\$67,455	\$53,168	\$75,374	\$216,612	\$38,408	\$150,636	\$158,193
Auxiliary, special and other equipment	\$121,908	\$230,133	\$55,783	\$12,816	\$404,969	\$41,964	\$51,434	\$136,415
Total Hunting Expenditure	\$1,592,488	\$865,822	\$369,274	\$1,028,043	\$1,787,195	\$154,917	\$428,831	\$1,396,484
Turkey								
Trip Expenditure	\$26,299	\$17,060	\$48,542	\$75,185	\$170,182	\$39,412	\$151,503	\$20,906
Hunting equipment	\$7,512	\$4,195	\$18,075	\$17,509	\$11,894	\$10,060	\$111,849	\$1,673
Auxiliary, special and other equipment	\$791	\$0	\$14,887	\$1,176	\$825	\$36,715	\$91,318	\$1,450
Total Hunting Expenditure	\$34,601	\$21,254	\$81,504	\$93,870	\$182,900	\$86,188	\$354,670	\$24,030

Table A2 (cont.). Total annual spending in 2013 for nonresident hunters by species and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
Migratory waterfowl								
Trip Expenditure	\$195,011	\$469,412	\$185,431	\$65,363	\$24,441	\$248,926	\$145,089	\$53,143
Hunting equipment	\$15,386	\$44,447	\$38,534	\$16,775	\$6,686	\$37,901	\$20,628	\$5,812
Auxiliary, special and other equipment	\$0	\$20,831	\$11,203	\$14,244	\$10,875	\$33,804	\$4,753	\$644
Total Hunting Expenditure	\$210,397	\$534,690	\$235,168	\$96,381	\$42,002	\$320,631	\$170,471	\$59,599
Bear								
Trip Expenditure	\$3,347,649	\$904,305	\$137,527	\$876,384	\$1,283,542	\$138,873	\$245,200	\$2,408,385
Hunting equipment	\$911,126	\$384,289	\$89,145	\$250,960	\$383,935	\$18,301	\$110,532	\$656,011
Auxiliary, special and other equipment	\$271,716	\$42,123	\$49,399	\$38,940	\$282,510	\$144,973	\$101,573	\$86,807
Total Hunting Expenditure	\$4,530,491	\$1,330,716	\$276,071	\$1,166,284	\$1,949,986	\$302,147	\$457,305	\$3,151,203
Moose								
Trip Expenditure	\$1,303,553	\$171,708	\$55,107	\$225,003	\$95,957	\$35,334	\$65,370	\$585,024
Hunting equipment	\$300,217	\$123,426	\$5,356	\$16,881	\$14,905	\$30,538	\$39,161	\$436,554
Auxiliary, special and other equipment	\$3,967	\$2,947	\$1,926	\$268,703	\$203	\$2,484	\$4,394	\$104,649
Total Hunting Expenditure	\$1,607,737	\$298,081	\$62,389	\$510,586	\$111,064	\$68,356	\$108,925	\$1,126,227
Small game								
Trip Expenditure	\$249,174	\$108,885	\$49,073	\$378,540	\$261,474	\$64,373	\$99,651	\$467,915
Hunting equipment	\$22,173	\$33,493	\$36,305	\$102,620	\$117,851	\$55,179	\$55,746	\$126,618
Auxiliary, special and other equipment	\$61,952	\$0	\$43,981	\$75,069	\$304,113	\$8,360	\$59,807	\$401,587
Total Hunting Expenditure	\$333,299	\$142,378	\$129,359	\$556,229	\$683,438	\$127,912	\$215,204	\$996,120

Table A 3. Total annual spending in 2013 for **all** hunters by species and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All hunting								
Trip Expenditure	\$23,177,276	\$7,178,426	\$2,583,132	\$13,203,506	\$14,041,839	\$5,003,062	\$3,909,324	\$20,660,632
Hunting equipment	\$9,400,652	\$3,408,101	\$3,489,154	\$6,081,457	\$6,377,710	\$4,726,705	\$5,102,161	\$9,296,164
Auxiliary, special and other equipment	\$10,013,738	\$10,766,412	\$7,410,174	\$9,603,781	\$17,015,616	\$13,788,886	\$9,824,972	\$15,560,365
Total Hunting Expenditure	\$42,591,666	\$21,352,939	\$13,482,460	\$28,888,744	\$37,435,165	\$23,518,654	\$18,836,457	\$45,517,161
Deer								
Trip Expenditure	\$3,267,452	\$1,975,819	\$1,024,435	\$4,784,847	\$5,309,107	\$2,244,560	\$2,054,783	\$6,410,568
Hunting equipment	\$1,511,397	\$764,506	\$1,632,439	\$2,408,968	\$2,435,592	\$1,462,369	\$2,307,486	\$2,779,364
Auxiliary, special and other equipment	\$2,146,199	\$960,496	\$4,358,615	\$2,908,000	\$3,447,971	\$5,624,457	\$3,003,853	\$3,355,534
Total Hunting Expenditure	\$6,925,047	\$3,700,820	\$7,015,489	\$10,101,814	\$11,192,669	\$9,331,386	\$7,366,122	\$12,545,466
Upland game birds								
Trip Expenditure	\$5,477,541	\$1,400,419	\$481,914	\$3,017,537	\$3,519,826	\$624,360	\$469,558	\$4,155,422
Hunting equipment	\$1,135,562	\$432,406	\$579,282	\$942,097	\$1,068,141	\$426,362	\$792,641	\$1,216,426
Auxiliary, special and other equipment	\$2,346,516	\$1,153,517	\$912,165	\$2,364,949	\$6,115,775	\$2,736,708	\$2,040,231	\$3,850,705
Total Hunting Expenditure	\$8,959,619	\$2,986,341	\$1,973,361	\$6,324,584	\$10,703,742	\$3,787,431	\$3,302,430	\$9,222,554
Turkey								
Trip Expenditure	\$110,872	\$239,715	\$209,813	\$770,115	\$1,075,975	\$491,982	\$351,334	\$387,488
Hunting equipment	\$48,471	\$159,481	\$299,827	\$468,648	\$658,710	\$653,625	\$443,920	\$370,188
Auxiliary, special and other equipment	\$32,348	\$1,330,051	\$1,345,569	\$1,413,067	\$1,193,285	\$1,499,203	\$675,977	\$820,583
Total Hunting Expenditure	\$191,691	\$1,729,248	\$1,855,209	\$2,651,830	\$2,927,970	\$2,644,810	\$1,471,231	\$1,578,259

Table A3 (cont.). Total annual spending in 2013 for all hunters by species and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
Migratory waterfowl								
Trip Expenditure	\$761,374	\$952,011	\$389,867	\$604,671	\$498,182	\$806,937	\$331,759	\$629,258
Hunting equipment	\$607,200	\$418,086	\$427,021	\$603,977	\$248,761	\$740,518	\$428,195	\$491,124
Auxiliary, special and other equipment	\$392,581	\$965,623	\$952,435	\$544,874	\$1,263,635	\$883,653	\$483,386	\$2,898,875
Total Hunting Expenditure	\$1,761,155	\$2,335,720	\$1,769,323	\$1,753,523	\$2,010,578	\$2,431,108	\$1,243,340	\$4,019,257
Bear								
Trip Expenditure	\$4,953,200	\$1,488,884	\$309,015	\$1,893,383	\$2,204,411	\$308,523	\$406,333	\$4,335,396
Hunting equipment	\$1,817,700	\$839,188	\$387,106	\$722,679	\$1,024,241	\$307,841	\$444,101	\$1,719,460
Auxiliary, special and other equipment	\$2,582,518	\$2,137,891	\$297,005	\$812,629	\$1,485,067	\$865,337	\$2,079,219	\$1,955,464
Total Hunting Expenditure	\$9,353,419	\$4,465,963	\$993,126	\$3,428,691	\$4,713,719	\$1,481,701	\$2,929,653	\$8,010,319
Moose								
Trip Expenditure	\$3,314,342	\$258,928	\$98,045	\$665,964	\$310,882	\$203,405	\$220,952	\$1,330,596
Hunting equipment	\$1,491,167	\$215,291	\$97,614	\$322,678	\$271,126	\$283,007	\$376,261	\$881,769
Auxiliary, special and other equipment	\$279,646	\$919,211	\$69,101	\$340,813	\$1,545,086	\$1,778,731	\$245,692	\$273,459
Total Hunting Expenditure	\$5,085,154	\$1,393,429	\$264,760	\$1,329,455	\$2,127,093	\$2,265,143	\$842,905	\$2,485,824
Small game								
Trip Expenditure	\$2,593,128	\$1,024,139	\$331,039	\$1,991,902	\$2,091,832	\$834,439	\$564,418	\$3,194,542
Hunting equipment	\$1,358,338	\$413,825	\$414,865	\$873,583	\$982,151	\$1,169,635	\$672,986	\$1,832,704
Auxiliary, special and other equipment	\$1,367,693	\$2,091,852	\$1,324,073	\$2,548,170	\$924,495	\$546,367	\$1,185,957	\$2,307,631
Total Hunting Expenditure	\$5,319,159	\$3,529,816	\$2,069,977	\$5,413,656	\$3,998,479	\$2,550,442	\$2,423,360	\$7,334,877

Table A 4. Total economic contributions in 2013 for **resident** hunters by species and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All hunting								
Employment	464	250	174	338	431	311	235	523
Labor Income	\$15,970,350	\$8,596,484	\$5,974,661	\$11,614,470	\$14,811,330	\$10,704,748	\$8,098,849	\$18,001,626
Value Added (State GDP)	\$26,378,936	\$14,199,195	\$9,868,612	\$19,184,135	\$24,464,530	\$17,681,507	\$13,377,227	\$29,734,085
Total Output	\$46,809,190	\$25,196,346	\$17,511,765	\$34,042,080	\$43,412,093	\$31,375,679	\$23,737,772	\$52,762,872
Deer								
Employment	81	42	100	117	126	126	96	155
Labor Income	\$2,815,546	\$1,482,148	\$3,490,553	\$4,080,447	\$4,390,607	\$4,402,278	\$3,354,774	\$5,422,736
Value Added (State GDP)	\$4,619,047	\$2,431,539	\$5,726,431	\$6,694,183	\$7,203,016	\$7,222,162	\$5,503,679	\$8,896,276
Total Output	\$8,179,890	\$4,306,024	\$10,140,961	\$11,854,758	\$12,755,852	\$12,789,758	\$9,746,489	\$15,754,454
Upland game birds								
Employment	98	28	21	70	119	48	38	104
Labor Income	\$3,384,892	\$974,291	\$737,012	\$2,433,541	\$4,096,785	\$1,668,990	\$1,320,300	\$3,595,756
Value Added (State GDP)	\$5,606,080	\$1,613,627	\$1,220,643	\$4,030,447	\$6,785,121	\$2,764,192	\$2,186,689	\$5,955,314
Total Output	\$10,071,089	\$2,898,814	\$2,192,835	\$7,240,530	\$12,189,187	\$4,965,755	\$3,928,296	\$10,698,473
Turkey								
Employment	2	26	27	39	42	39	17	24
Labor Income	\$83,432	\$907,130	\$942,030	\$1,358,555	\$1,457,930	\$1,358,907	\$593,015	\$825,464
Value Added (State GDP)	\$137,597	\$1,496,047	\$1,553,604	\$2,240,539	\$2,404,431	\$2,241,121	\$978,006	\$1,361,363
Total Output	\$243,166	\$2,643,859	\$2,745,576	\$3,959,550	\$4,249,183	\$3,960,577	\$1,728,362	\$2,405,841
Migratory waterfowl								
Employment	22	26	22	24	28	30	15	56
Labor Income	\$756,908	\$879,063	\$748,804	\$808,833	\$960,841	\$1,030,101	\$523,656	\$1,932,666
Value Added (State GDP)	\$1,248,100	\$1,449,526	\$1,234,737	\$1,333,720	\$1,584,373	\$1,698,579	\$863,480	\$3,186,859
Total Output	\$2,227,438	\$2,586,917	\$2,203,590	\$2,380,243	\$2,827,573	\$3,031,393	\$1,541,021	\$5,687,472

Table A4 (cont.). Total economic contributions in 2013 for **resident** hunters by species and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
Bear								
Employment	69	45	10	32	40	17	35	70
Labor Income	\$2,323,125	\$1,510,197	\$345,394	\$1,089,765	\$1,331,245	\$568,172	\$1,190,889	\$2,340,557
Value Added (State GDP)	\$3,830,642	\$2,490,190	\$569,526	\$1,796,932	\$2,195,113	\$936,868	\$1,963,678	\$3,859,384
Total Output	\$6,813,469	\$4,429,240	\$1,013,002	\$3,196,159	\$3,904,393	\$1,666,384	\$3,492,746	\$6,864,592
Moose								
Employment	44	14	3	10	26	28	9	17
Labor Income	\$1,440,278	\$453,672	\$83,818	\$339,159	\$835,000	\$909,866	\$304,000	\$563,118
Value Added (State GDP)	\$2,482,384	\$781,924	\$144,464	\$584,556	\$1,439,160	\$1,568,195	\$523,958	\$970,560
Total Output	\$4,261,137	\$1,342,211	\$247,980	\$1,003,420	\$2,470,390	\$2,691,886	\$899,400	\$1,666,015
Small game								
Employment	76	51	29	74	50	37	33	96
Labor Income	\$2,594,212	\$1,762,531	\$1,009,730	\$2,527,386	\$1,724,862	\$1,260,476	\$1,148,934	\$3,298,143
Value Added (State GDP)	\$4,279,063	\$2,907,235	\$1,665,516	\$4,168,837	\$2,845,100	\$2,079,112	\$1,895,128	\$5,440,174
Total Output	\$7,574,713	\$5,146,329	\$2,948,263	\$7,379,593	\$5,036,340	\$3,680,402	\$3,354,717	\$9,630,088

Table A 5. Total economic contributions in 2013 for **nonresident** hunters by region and species

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All hunting								
Employment	173	67	23	91	125	31	41	153
Labor Income	\$5,359,602	\$2,065,409.31	\$728,002	\$2,811,034	\$3,894,647	\$972,124	\$1,278,838	\$4,743,239
Value Added (State GDP)	\$9,015,927	\$3,474,433	\$1,224,646	\$4,728,723	\$6,551,579	\$1,635,308	\$2,151,262	\$7,979,079
Total Output	\$15,667,792	\$6,037,837	\$2,128,178	\$8,217,531	\$11,385,271	\$2,841,823	\$3,738,443	\$13,865,968
Deer								
Employment	22	12	4	32	39	12	13	30
Labor Income	\$707,746	\$398,557.50	\$140,559	\$1,056,520	\$1,288,446	\$404,213	\$427,777	\$991,274
Value Added (State GDP)	\$1,206,625	\$679,494	\$239,637	\$1,801,243	\$2,196,651	\$689,137	\$729,311	\$1,690,007
Total Output	\$2,076,917	\$1,169,587	\$412,477	\$3,100,411	\$3,781,011	\$1,186,185	\$1,255,334	\$2,908,944
Upland game birds								
Employment	26	14	6	17	29	3	7	23
Labor Income	\$819,103	\$445,338.82	\$189,938	\$528,778	\$919,251	\$79,682	\$220,571	\$718,287
Value Added (State GDP)	\$1,384,290	\$752,626	\$320,996	\$893,639	\$1,553,542	\$134,664	\$372,767	\$1,213,911
Total Output	\$2,438,253	\$1,325,656	\$565,394	\$1,574,033	\$2,736,368	\$237,193	\$656,582	\$2,138,151
Turkey								
Employment	1	0	1	2	3	1	6	0
Labor Income	\$18,783	\$11,537.76	\$44,244	\$50,957	\$99,286	\$46,786	\$192,529	\$13,045
Value Added (State GDP)	\$30,680	\$18,846	\$72,268	\$83,233	\$162,175	\$76,421	\$314,481	\$21,307
Total Output	\$54,152	\$33,264	\$127,557	\$146,911	\$286,248	\$134,888	\$555,075	\$37,608
Migratory waterfowl								
Employment	4	10	4	2	1	6	3	1
Labor Income	\$114,587	\$291,204.95	\$128,078	\$52,491	\$22,875	\$174,623	\$92,842	\$32,459
Value Added (State GDP)	\$192,896	\$490,214	\$215,607	\$88,364	\$38,508	\$293,960	\$156,291	\$54,642
Total Output	\$338,592	\$860,476	\$378,456	\$155,106	\$67,594	\$515,990	\$274,338	\$95,913

Table A5 (cont.). Total economic contributions in 2013 for **nonresident** hunters by region and species

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
Bear								
Employment	85	25	5	22	36	6	9	59
Labor Income	\$2,522,317	\$740,866.40	\$153,700	\$649,320	\$1,085,640	\$168,218	\$254,601	\$1,754,409
Value Added (State GDP)	\$4,219,506	\$1,239,372	\$257,120	\$1,086,227	\$1,816,134	\$281,407	\$425,915	\$2,934,897
Total Output	\$7,328,953	\$2,152,693	\$446,598	\$1,886,691	\$3,154,483	\$488,782	\$739,780	\$5,097,687
Moose								
Employment	30	6	1	10	2	1	2	21
Labor Income	\$904,840	\$167,760.85	\$35,113	\$287,360	\$62,507	\$38,471	\$61,303	\$633,844
Value Added (State GDP)	\$1,497,440	\$277,631	\$58,109	\$475,558	\$103,445	\$63,667	\$101,452	\$1,048,963
Total Output	\$2,588,719	\$479,959	\$100,457	\$822,128	\$178,831	\$110,064	\$175,387	\$1,813,410
Small game								
Employment	5	2	2	9	11	2	3	15
Labor Income	\$168,564	\$72,006.66	\$65,422	\$281,309	\$345,644	\$64,691	\$108,838	\$503,781
Value Added (State GDP)	\$283,234	\$120,991	\$109,928	\$472,678	\$580,778	\$108,698	\$182,878	\$846,493
Total Output	\$491,328	\$209,884	\$190,693	\$819,957	\$1,007,479	\$188,560	\$317,240	\$1,468,415

Table A 6. Total economic contributions in 2013 for all hunters by species and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
All hunting								
Employment	637	316	197	428	556	343	277	676
Labor Income	\$21,329,953	\$10,661,894	\$6,702,663	\$14,425,504	\$18,705,977	\$11,676,872	\$9,377,686	\$22,744,865
Value Added (State GDP)	\$35,394,863	\$17,673,628	\$11,093,258	\$23,912,859	\$31,016,109	\$19,316,815	\$15,528,489	\$37,713,164
Total Output	\$62,476,982	\$31,234,183	\$19,639,943	\$42,259,610	\$54,797,364	\$34,217,502	\$27,476,215	\$66,628,840
Deer								
Employment	102	55	104	149	165	139	109	186
Labor Income	\$3,523,292	\$1,880,705	\$3,631,112	\$5,136,967	\$5,679,053	\$4,806,491	\$3,782,551	\$6,414,010
Value Added (State GDP)	\$5,825,672	\$3,111,034	\$5,966,068	\$8,495,426	\$9,399,667	\$7,911,299	\$6,232,990	\$10,586,283
Total Output	\$10,256,807	\$5,475,611	\$10,553,439	\$14,955,168	\$16,536,863	\$13,975,943	\$11,001,823	\$18,663,398
Upland game birds								
Employment	124	42	27	87	148	51	45	127
Labor Income	\$4,203,995	\$1,419,630	\$926,949	\$2,962,319	\$5,016,036	\$1,748,672	\$1,540,871	\$4,314,043
Value Added (State GDP)	\$6,990,370	\$2,366,253	\$1,541,639	\$4,924,086	\$8,338,663	\$2,898,855	\$2,559,456	\$7,169,225
Total Output	\$12,509,341	\$4,224,470	\$2,758,229	\$8,814,563	\$14,925,555	\$5,202,948	\$4,584,878	\$12,836,624
Turkey								
Employment	3	26	28	41	45	40	23	24
Labor Income	\$102,215	\$918,668	\$986,274	\$1,409,511	\$1,557,216	\$1,405,693	\$785,545	\$838,509
Value Added (State GDP)	\$168,277	\$1,514,893	\$1,625,872	\$2,323,773	\$2,566,606	\$2,317,542	\$1,292,487	\$1,382,670
Total Output	\$297,318	\$2,677,124	\$2,873,134	\$4,106,461	\$4,535,431	\$4,095,464	\$2,283,437	\$2,443,450
Migratory waterfowl								
Employment	26	35	26	25	29	36	18	57
Labor Income	\$871,496	\$1,170,268	\$876,883	\$861,324	\$983,716	\$1,204,724	\$616,498	\$1,965,125
Value Added (State GDP)	\$1,440,996	\$1,939,740	\$1,450,343	\$1,422,084	\$1,622,881	\$1,992,540	\$1,019,770	\$3,241,500

Total Output \$2,566,030 \$3,447,393 \$2,582,046 \$2,535,348 \$2,895,167 \$3,547,384 \$1,815,359 \$5,783,385
 Table A6 (cont.). Total economic contributions in 2013 for **all** hunters by species and region

Region	Aroostook County	Downeast & Acadia	Greater Portland & Casco Bay	The Kennebec Valley	Maine's Lakes & Mountains	Mid Coast	The Maine Beaches	The Maine Highlands
Bear								
Employment	154	70	15	54	76	23	44	129
Labor Income	\$4,845,442	\$2,251,063	\$499,094	\$1,739,085	\$2,416,885	\$736,390	\$1,445,491	\$4,094,966
Value Added (State GDP)	\$8,050,148	\$3,729,562	\$826,646	\$2,883,159	\$4,011,247	\$1,218,275	\$2,389,593	\$6,794,281
Total Output	\$14,142,422	\$6,581,933	\$1,459,600	\$5,082,851	\$7,058,876	\$2,155,167	\$4,232,527	\$11,962,279
Moose								
Employment	75	20	4	20	28	29	11	39
Labor Income	\$2,345,117	\$621,433	\$118,931	\$626,519	\$897,507	\$948,337	\$365,303	\$1,196,962
Value Added (State GDP)	\$3,979,824	\$1,059,555	\$202,573	\$1,060,115	\$1,542,605	\$1,631,862	\$625,410	\$2,019,523
Total Output	\$6,849,856	\$1,822,170	\$348,437	\$1,825,548	\$2,649,221	\$2,801,950	\$1,074,787	\$3,479,424
Small game								
Employment	81	54	31	82	61	39	37	112
Labor Income	\$2,762,775	\$1,834,538	\$1,075,153	\$2,808,695	\$2,070,505	\$1,325,166	\$1,257,772	\$3,801,924
Value Added (State GDP)	\$4,562,298	\$3,028,226	\$1,775,444	\$4,641,515	\$3,425,879	\$2,187,810	\$2,078,006	\$6,286,667
Total Output	\$8,066,041	\$5,356,213	\$3,138,956	\$8,199,550	\$6,043,819	\$3,868,962	\$3,671,957	\$11,098,503

Appendix B: Methodology for estimating economic contributions

The extent of the economic contributions associated with spending for outdoor recreation can be estimated in two ways:

- **Direct effects:** These include the jobs, income and tax revenues that are tied directly to the spending by outdoor recreationists without including multiplier effects.
- **Total effects:** These include the jobs, income and tax revenues that are tied directly to the spending by outdoor recreationists plus the jobs, income and tax revenues that result from the multiplier effects of outdoor recreation spending. The multiplier effect occurs when a direct purchase from a business leads to increased demand for goods and services from other businesses along their supply chain. Also included is economic activity associated with household spending of incomes earned in the affected businesses.

The economic contributions from outdoor recreation, both direct effects and total effects, were estimated with an IMPLAN input-output model for the state and regional economies of Maine, and the county economies for hunting economic contributions. The IMPLAN model was developed by MIG, Inc. originally for use by the U.S. Forest Service. Inherent in each IMPLAN model is the relationship between the economic output of each industry (i.e. sales) and the jobs, income and taxes associated with a given level of output. Through those models, it is possible to determine the jobs, income and taxes supported directly by wildlife-based recreationists with and without the multiplier effects.

Input-output models describe how sales in one industry affect other industries. For example, once a consumer makes a purchase, the retailer buys more merchandise from wholesalers, who buy more from manufacturers, who, in turn, purchase new inputs and supplies. In addition, the salaries and wages paid by these businesses stimulate more benefits. Simply, the first purchase creates numerous rounds of purchasing. Input-output analysis tracks the flow of dollars from the consumer through all of the businesses that are affected, either directly or indirectly.

To apply the IMPLAN model, each specific expenditure for outdoor recreation activities was matched to the appropriate industry sector affected by the initial purchase. The spending was estimated with models of the Maine economy, therefore all of the resulting contributions represent salaries and wages, total economic effects, jobs and tax revenues that occur within the state of Maine. Likewise, models based on specific regions or counties represent the economic effects within the selected region or county. The results do not include any economic activity or indirect contributions that leak out of the state, region, or county of interest. As a result of this leakage, economic contributions at the state level are larger than the sum of corresponding regional or county contributions. This occurs because a portion spending in a particular region (or county) leaks to other regions (or counties) within the state, and this within-state leakage is captured in the Maine model.

Appendix C: Explanation of Economic Contribution

Estimations of **economic benefits** can be calculated through two types of measures: economic contributions and economic values. An **economic contribution** addresses the business and financial activity resulting from the use of a resource. **Economic value**, on the other hand, is a non-business measure that estimates the value people receive from an activity after subtracting for their costs and expenditures. This concept is also known as consumer surplus.

There are three types of economic contribution: direct, indirect and induced. A **direct contribution** is defined as the economic contribution of the initial purchase made by the consumer (the original retail sale). **Indirect contributions** are the secondary effects generated from a direct contribution, such as the retailer buying additional inventory, and the wholesaler and manufacturers buying additional materials. Indirect contributions affect not only the industry being studied, but also the industries that supply the first industry. An **induced contribution** results from the salaries and wages paid by the directly and indirectly effected industries. The employees of these industries spend their income on various goods and services. These expenditures are induced contributions, which, in turn, create a continual cycle of indirect and induced effects.

The direct, indirect and induced contribution effects sum together to provide the overall economic contribution of the activity under study. As the original retail purchase (direct contribution) goes through round after round of indirect and induced effects, the economic contribution of the original purchase is multiplied, benefiting many industries and individuals. Likewise, the reverse is true. If a particular item or industry is removed from the economy, the economic loss is greater than the original lost retail sale. Once the original retail purchase is made, each successive round of spending is smaller than the previous round. When the economic benefits are no longer measurable, the economic examination ends.

This study presents several important measures:

Retail Sales – these include expenditures made by outdoor recreationists for equipment, travel expenses and services related to their outdoor activities over the course of the year. These combined initial retail sales represent the “direct output”.

Total Economic Effect – also known as “total output” or “total multiplier effect,” this measure reports the sum of the direct, indirect and induced contributions resulting from the original retail sale. This figure explains the total activity in the economy generated by a retail sale. Another way to look at this figure is, if the activity in question were to disappear and participants did not spend their money elsewhere, the economy would contract by this amount.

Salaries & Wages – this figure reports the total salaries and wages paid in all sectors of the economy as a result of the activity under study. These are not just the paychecks of those employees directly serving recreationists or manufacturing their goods, it also includes portions of the paychecks of, for example, the truck driver who delivers food to the restaurants serving recreationists and the accountants who manage the books for companies down the supply chain, etc. This figure is based on the direct, indirect and induced effects, and is essentially a portion of the total economic effect figure reported in this study.

Jobs – much like Salaries and Wages, this figure reports the total jobs in all sectors of the economy as a result of the activity under study. These are not just the employees directly serving recreationists or manufacturing their goods, they also include, for example, the truck driver who delivers food to the restaurants serving recreationists and

the accountants who manage the books for companies down the supply chain, etc. This figure is based on direct, indirect and induced effects.

GDP Contribution – this represents the total “value added” contribution of economic output made by the industries involved in the production of outdoor recreation goods and services. For a given industry, value added equals the difference between gross output (sales and other income) and intermediate inputs (goods and services imported or purchased from other industries). It represents the contribution to GDP in a given industry for production related to outdoor recreation.

Appendix D: Hunter spending profiles

Table D 1. Deer hunter spending profile

Type of Spending	Resident Hunters	Nonresident Hunters	All Hunters
Commercial transportation (airline, bus, car rental, train)	\$9.76	\$46.67	\$16.02
Other transportation costs (gas or oil for car, truck, boat, ATV, etc)	\$141.74	\$160.39	\$144.90
Groceries	\$89.77	\$137.53	\$97.86
Restaurants and bars	\$38.17	\$64.31	\$42.59
Lodging (cabin, motel, lodge, rental, campground, etc)	\$24.47	\$113.84	\$39.62
Equipment rental	\$4.86	\$1.41	\$4.28
Fees (highway tolls, land access fees)	\$5.65	\$16.33	\$7.46
Guide fees	\$0.76	\$19.33	\$3.90
Baits, lures, scents, ammunition	\$46.88	\$26.90	\$43.50
Other day-to-day items (heating/cooking fuel, ice, etc)	\$41.22	\$48.16	\$42.39
Hunting gear (guns, gun cleaner, gun case, scopes, bows and arrows, decoys, calls, knives, tree stands, etc)	\$143.70	\$80.20	\$132.94
Scouting expenses prior to the hunt	\$24.24	\$21.56	\$23.78
Maps	\$3.31	\$2.85	\$3.23
Repair of hunting equipment	\$4.40	\$1.42	\$3.89
Taxidermy and mounting	\$10.25	\$15.69	\$11.17
Clothing used only for hunting (blaze orange, camouflage)	\$50.19	\$27.55	\$46.35
Meat cutting	\$21.37	\$9.02	\$19.28
Other	\$8.90	\$12.28	\$9.48
ATV, trailer, accessories (MAINE)	\$69.12	\$16.80	\$60.25
Boat, motor, trailer, accessories (MAINE)	\$31.34	\$0.90	\$26.19
Travel trailer, tent trailer (pop-up), pickup camper, motor home (MAINE)	\$16.05	\$4.42	\$14.08
Vehicle purchased to use for hunting (MAINE)	\$172.07	\$8.01	\$144.27
Recreational property purchase (MAINE)	\$0.00	\$177.14	\$30.01
Recreational property utilities and maintenance (MAINE)	\$32.68	\$53.22	\$36.16
Camping equipment (tent, sleeping bag, stove, compass, etc) (MAINE)	\$11.20	\$2.85	\$9.79
Binoculars, camera (MAINE)	\$18.38	\$4.16	\$15.97
Clothing used for hunting and other outdoor recreation (such as cold weather gear) (MAINE)	\$55.44	\$21.75	\$49.73
Other hunting-related equipment (MAINE)	\$38.86	\$18.23	\$35.37
Total	\$1,114.81	\$1,112.91	\$1,114.49

Table D 2. Upland game bird spending profile

Type of Spending	Resident Hunters	Nonresident Hunters	All Hunters
Commercial transportation (airline, bus, car rental, train)	\$11.78	\$98.93	\$27.04
Other transportation costs (gas or oil for car, truck, boat, ATV, etc)	\$150.59	\$181.06	\$155.93
Groceries	\$87.74	\$104.77	\$90.72
Restaurants and bars	\$40.14	\$70.04	\$45.38
Lodging (cabin, motel, lodge, rental, campground, etc)	\$72.05	\$252.75	\$103.70
Equipment rental	\$0.80	\$14.14	\$3.14
Fees (highway tolls, land access fees)	\$10.20	\$17.30	\$11.45
Guide fees	\$7.37	\$83.48	\$20.70
Baits, lures, scents, ammunition	\$28.96	\$18.73	\$27.17
Other day-to-day items (heating/cooking fuel, ice, etc)	\$37.05	\$37.70	\$37.16
Hunting gear (guns, gun cleaner, gun case, scopes, bows and arrows, decoys, calls, knives, tree stands, etc)	\$124.45	\$70.53	\$115.00
Scouting expenses prior to the hunt	\$7.84	\$5.30	\$7.39
Maps	\$3.48	\$3.84	\$3.55
Repair of hunting equipment	\$2.58	\$0.82	\$2.27
Taxidermy and mounting	\$1.65	\$6.20	\$2.45
Clothing used only for hunting (blaze orange, camouflage)	\$34.13	\$29.77	\$33.37
Meat cutting	\$7.16	\$1.35	\$6.14
Other	\$6.17	\$26.32	\$9.70
ATV, trailer, accessories (MAINE)	\$124.62	\$23.57	\$106.92
Boat, motor, trailer, accessories (MAINE)	\$25.22	\$0.62	\$20.91
Travel trailer, tent trailer (pop-up), pickup camper, motor home (MAINE)	\$117.79	\$0.04	\$97.16
Vehicle purchased to use for hunting (MAINE)	\$166.10	\$3.11	\$137.55
Recreational property purchase (MAINE)	\$124.23	\$72.28	\$115.13
Recreational property utilities and maintenance (MAINE)	\$11.28	\$29.61	\$14.49
Camping equipment (tent, sleeping bag, stove, compass, etc) (MAINE)	\$19.21	\$3.29	\$16.43
Binoculars, camera (MAINE)	\$18.34	\$1.43	\$15.38
Clothing used for hunting and other outdoor recreation (such as cold weather gear) (MAINE)	\$42.10	\$18.14	\$37.90
Other hunting-related equipment (MAINE)	\$28.03	\$12.32	\$25.27
Total	\$1,311.06	\$1,187.43	\$1,289.40

Table D 3. Turkey hunter spending profile

Type of Spending	Resident Hunters	Nonresident Hunters	All Hunters
Commercial transportation (airline, bus, car rental, train)	\$8.96	\$35.50	\$10.54
Other transportation costs (gas or oil for car, truck, boat, ATV, etc)	\$77.47	\$176.00	\$83.35
Groceries	\$31.58	\$111.59	\$36.35
Restaurants and bars	\$22.06	\$108.25	\$27.20
Lodging (cabin, motel, lodge, rental, campground, etc)	\$3.74	\$46.57	\$6.29
Equipment rental	\$0.00	\$0.00	\$0.00
Fees (highway tolls, land access fees)	\$2.68	\$11.66	\$3.22
Guide fees	\$4.61	\$22.40	\$5.67
Baits, lures, scents, ammunition	\$39.77	\$24.10	\$38.84
Other day-to-day items (heating/cooking fuel, ice, etc)	\$14.56	\$39.95	\$16.08
Hunting gear (guns, gun cleaner, gun case, scopes, bows and arrows, decoys, calls, knives, tree stands, etc)	\$110.23	\$101.42	\$109.71
Scouting expenses prior to the hunt	\$18.28	\$33.49	\$19.19
Maps	\$1.86	\$4.04	\$1.99
Repair of hunting equipment	\$2.02	\$3.06	\$2.08
Taxidermy and mounting	\$14.09	\$0.55	\$13.28
Clothing used only for hunting (blaze orange, camouflage)	\$40.95	\$39.62	\$40.87
Meat cutting	\$5.03	\$0.93	\$4.78
Other	\$1.80	\$8.63	\$2.20
ATV, trailer, accessories (MAINE)	\$195.91	\$31.01	\$186.07
Boat, motor, trailer, accessories (MAINE)	\$20.39	\$57.61	\$22.61
Travel trailer, tent trailer (pop-up), pickup camper, motor home (MAINE)	\$24.81	\$0.00	\$23.33
Vehicle purchased to use for hunting (MAINE)	\$62.29	\$0.00	\$58.57
Recreational property purchase (MAINE)	\$0.00	\$0.00	\$0.00
Recreational property utilities and maintenance (MAINE)	\$100.99	\$0.00	\$94.96
Camping equipment (tent, sleeping bag, stove, compass, etc) (MAINE)	\$7.33	\$8.18	\$7.38
Binoculars, camera (MAINE)	\$12.01	\$9.70	\$11.87
Clothing used for hunting and other outdoor recreation (such as cold weather gear) (MAINE)	\$80.48	\$31.66	\$77.56
Other hunting-related equipment (MAINE)	\$38.84	\$16.22	\$37.49
Total	\$942.73	\$922.13	\$941.50

Table D 4. Migratory waterfowl hunter spending profile

Type of Spending	Resident Hunters	Nonresident Hunters	All Hunters
Commercial transportation (airline, bus, car rental, train)	\$5.49	\$117.48	\$24.67
Other transportation costs (gas or oil for car, truck, boat, ATV, etc)	\$144.79	\$144.95	\$144.82
Groceries	\$74.47	\$68.75	\$73.49
Restaurants and bars	\$43.61	\$87.49	\$51.12
Lodging (cabin, motel, lodge, rental, campground, etc)	\$27.35	\$119.55	\$43.14
Equipment rental	\$2.20	\$0.00	\$1.82
Fees (highway tolls, land access fees)	\$4.17	\$7.83	\$4.80
Guide fees	\$9.75	\$210.22	\$44.08
Baits, lures, scents, ammunition	\$93.12	\$54.69	\$86.54
Other day-to-day items (heating/cooking fuel, ice, etc)	\$41.66	\$24.64	\$38.74
Hunting gear (guns, gun cleaner, gun case, scopes, bows and arrows, decoys, calls, knives, tree stands, etc)	\$293.07	\$57.18	\$252.68
Scouting expenses prior to the hunt	\$32.81	\$6.49	\$28.30
Maps	\$3.13	\$1.48	\$2.85
Repair of hunting equipment	\$3.03	\$1.11	\$2.70
Taxidermy and mounting	\$30.40	\$14.58	\$27.69
Clothing used only for hunting (blaze orange, camouflage)	\$87.14	\$26.18	\$76.70
Meat cutting	\$8.78	\$2.44	\$7.69
Other	\$12.09	\$2.72	\$10.49
ATV, trailer, accessories (MAINE)	\$278.35	\$0.00	\$230.69
Boat, motor, trailer, accessories (MAINE)	\$38.84	\$2.94	\$32.69
Travel trailer, tent trailer (pop-up), pickup camper, motor home (MAINE)	\$1.95	\$0.00	\$1.61
Vehicle purchased to use for hunting (MAINE)	\$335.37	\$3.27	\$278.50
Recreational property purchase (MAINE)	\$147.49	\$0.00	\$122.23
Recreational property utilities and maintenance (MAINE)	\$12.07	\$13.49	\$12.32
Camping equipment (tent, sleeping bag, stove, compass, etc) (MAINE)	\$34.89	\$4.77	\$29.73
Binoculars, camera (MAINE)	\$29.83	\$0.40	\$24.79
Clothing used for hunting and other outdoor recreation (such as cold weather gear) (MAINE)	\$80.59	\$16.39	\$69.60
Other hunting-related equipment (MAINE)	\$72.57	\$16.79	\$63.02
Total	\$1,949.02	\$1,005.84	\$1,787.51

Table D 5. Bear hunter spending profile

Type of Spending	Resident Hunters	Nonresident Hunters	All Hunters
Commercial transportation (airline, bus, car rental, train)	\$14.55	\$151.09	\$75.47
Other transportation costs (gas or oil for car, truck, boat, ATV, etc)	\$289.19	\$230.95	\$263.20
Groceries	\$165.00	\$115.81	\$143.05
Restaurants and bars	\$74.10	\$88.26	\$80.42
Lodging (cabin, motel, lodge, rental, campground, etc)	\$155.53	\$368.62	\$250.61
Equipment rental	\$8.65	\$18.23	\$12.92
Fees (highway tolls, land access fees)	\$15.48	\$23.30	\$18.97
Guide fees	\$130.70	\$853.30	\$453.13
Baits, lures, scents, ammunition	\$167.42	\$63.41	\$121.01
Other day-to-day items (heating/cooking fuel, ice, etc)	\$87.35	\$46.11	\$68.95
Hunting gear (guns, gun cleaner, gun case, scopes, bows and arrows, decoys, calls, knives, tree stands, etc)	\$258.15	\$150.55	\$210.14
Scouting expenses prior to the hunt	\$102.76	\$32.78	\$71.54
Maps	\$5.81	\$1.96	\$4.09
Repair of hunting equipment	\$10.45	\$1.61	\$6.51
Taxidermy and mounting	\$202.58	\$222.99	\$211.69
Clothing used only for hunting (blaze orange, camouflage)	\$93.73	\$47.14	\$72.94
Meat cutting	\$46.97	\$32.51	\$40.52
Other	\$32.79	\$98.55	\$62.13
ATV, trailer, accessories (MAINE)	\$622.61	\$30.48	\$358.40
Boat, motor, trailer, accessories (MAINE)	\$52.80	\$0.12	\$29.29
Travel trailer, tent trailer (pop-up), pickup camper, motor home (MAINE)	\$28.81	\$0.48	\$16.17
Vehicle purchased to use for hunting (MAINE)	\$393.37	\$22.70	\$227.97
Recreational property purchase (MAINE)	\$422.43	\$53.71	\$257.90
Recreational property utilities and maintenance (MAINE)	\$34.64	\$31.53	\$33.25
Camping equipment (tent, sleeping bag, stove, compass, etc) (MAINE)	\$48.61	\$9.14	\$31.00
Binoculars, camera (MAINE)	\$42.92	\$7.68	\$27.20
Clothing used for hunting and other outdoor recreation (such as cold weather gear) (MAINE)	\$104.81	\$32.23	\$72.43
Other hunting-related equipment (MAINE)	\$140.94	\$25.44	\$89.40
Total	\$3,753.17	\$2,760.66	\$3,310.31

Table D 6. Moose hunter spending profile

Type of Spending	Resident Hunters	Nonresident Hunters	All Hunters
Commercial transportation (airline, bus, car rental, train)	\$13.65	\$116.11	\$37.45
Other transportation costs (gas or oil for car, truck, boat, ATV, etc)	\$267.80	\$278.30	\$270.24
Groceries	\$180.53	\$127.45	\$168.20
Restaurants and bars	\$50.59	\$91.22	\$60.02
Lodging (cabin, motel, lodge, rental, campground, etc)	\$204.16	\$335.52	\$234.67
Equipment rental	\$6.51	\$1.00	\$5.23
Fees (highway tolls, land access fees)	\$13.05	\$43.24	\$20.06
Guide fees	\$11.95	\$726.98	\$178.03
Baits, lures, scents, ammunition	\$33.14	\$40.81	\$34.92
Other day-to-day items (heating/cooking fuel, ice, etc)	\$60.14	\$64.66	\$61.19
Hunting gear (guns, gun cleaner, gun case, scopes, bows and arrows, decoys, calls, knives, tree stands, etc)	\$135.05	\$64.28	\$118.61
Scouting expenses prior to the hunt	\$78.51	\$115.88	\$87.19
Maps	\$5.80	\$4.71	\$5.55
Repair of hunting equipment	\$5.86	\$0.85	\$4.70
Taxidermy and mounting	\$75.71	\$100.30	\$81.42
Clothing used only for hunting (blaze orange, camouflage)	\$36.19	\$56.22	\$40.84
Meat cutting	\$282.98	\$272.72	\$280.60
Other	\$26.76	\$80.79	\$39.31
ATV, trailer, accessories (MAINE)	\$12.95	\$0.00	\$9.94
Boat, motor, trailer, accessories (MAINE)	\$6.88	\$0.00	\$5.28
Travel trailer, tent trailer (pop-up), pickup camper, motor home (MAINE)	\$15.86	\$0.00	\$12.17
Vehicle purchased to use for hunting (MAINE)	\$262.16	\$193.32	\$246.17
Recreational property purchase (MAINE)	\$671.72	\$0.00	\$515.70
Recreational property utilities and maintenance (MAINE)	\$15.10	\$0.00	\$11.59
Camping equipment (tent, sleeping bag, stove, compass, etc) (MAINE)	\$10.13	\$24.39	\$13.44
Binoculars, camera (MAINE)	\$16.32	\$0.00	\$12.53
Clothing used for hunting and other outdoor recreation (such as cold weather gear) (MAINE)	\$40.26	\$34.42	\$38.91
Other hunting-related equipment (MAINE)	\$50.53	\$27.94	\$45.28
Total	\$2,590.29	\$2,801.12	\$2,639.26

Table D 7. Small game hunter spending profile

Type of Spending	Resident Hunters	Nonresident Hunters	All Hunters
Commercial transportation (airline, bus, car rental, train)	\$11.75	\$20.15	\$12.74
Other transportation costs (gas or oil for car, truck, boat, ATV, etc)	\$212.40	\$175.54	\$208.03
Groceries	\$119.65	\$102.98	\$117.68
Restaurants and bars	\$67.66	\$59.69	\$66.71
Lodging (cabin, motel, lodge, rental, campground, etc)	\$41.04	\$122.45	\$50.68
Equipment rental	\$1.85	\$1.54	\$1.81
Fees (highway tolls, land access fees)	\$8.16	\$20.74	\$9.65
Guide fees	\$0.00	\$47.47	\$5.62
Baits, lures, scents, ammunition	\$53.96	\$39.62	\$52.26
Other day-to-day items (heating/cooking fuel, ice, etc)	\$50.52	\$57.34	\$51.33
Hunting gear (guns, gun cleaner, gun case, scopes, bows and arrows, decoys, calls, knives, tree stands, etc)	\$233.17	\$92.68	\$216.53
Scouting expenses prior to the hunt	\$25.69	\$22.13	\$25.27
Maps	\$3.66	\$4.64	\$3.77
Repair of hunting equipment	\$6.38	\$1.71	\$5.83
Taxidermy and mounting	\$12.37	\$10.25	\$12.12
Clothing used only for hunting (blaze orange, camouflage)	\$61.19	\$50.92	\$59.97
Meat cutting	\$8.42	\$4.06	\$7.91
Other	\$20.41	\$25.69	\$21.04
ATV, trailer, accessories (MAINE)	\$118.23	\$72.44	\$112.80
Boat, motor, trailer, accessories (MAINE)	\$24.68	\$0.52	\$21.82
Travel trailer, tent trailer (pop-up), pickup camper, motor home (MAINE)	\$61.25	\$0.00	\$54.00
Vehicle purchased to use for hunting (MAINE)	\$155.90	\$59.93	\$144.54
Recreational property purchase (MAINE)	\$0.00	\$95.80	\$11.34
Recreational property utilities and maintenance (MAINE)	\$31.97	\$65.99	\$35.99
Camping equipment (tent, sleeping bag, stove, compass, etc) (MAINE)	\$15.76	\$15.11	\$15.69
Binoculars, camera (MAINE)	\$40.36	\$3.07	\$35.95
Clothing used for hunting and other outdoor recreation (such as cold weather gear) (MAINE)	\$67.09	\$32.05	\$62.94
Other hunting-related equipment (MAINE)	\$72.21	\$23.30	\$66.42
Total	\$1,525.73	\$1,227.82	\$1,490.45

Report on the Resolve to Establish a Task Force to
Examine the Decline in the Number of NonResident Hunters
Chapter 51, LD 792, 125th Maine State Legislature



Executive Summary

In Maine, the numbers of Nonresident hunting license buyers have dropped from a high in the last decade in 2002 of 41,538; to 37,925 in 2005, down to an all-time low of 27,898 in 2010. This decline in Nonresident hunter numbers has created a considerable economic impact, particularly in the rural regions of our state; and is more significant than the national trend would suggest.

In a series of 3 meetings and countless emails, this Task Force has arrived at many recommendations that require collaborative marketing strategies with the Maine Office of Tourism, consideration and action required by MDIFW, and consideration and action required by the Legislature.

Throughout the country, hunter numbers are declining as a long term trend on a national level. This raises serious concern about the future of conservation - how will fish and wildlife conservation be funded if hunting revenues continue to decline?

Overall, the top 5 recommendations generated by the Task Force might be summarized as follows:

- MDIFW must work collaboratively with the Office of Tourism to develop a marketing plan promoting Maine as a destination for Nonresident hunters; and in all areas of outdoor recreation.
- Funding should be allocated to survey current and recently lapsed Nonresident hunters, using a qualified market research firm specializing in natural resource and outdoor recreation issues; to find out what these customers want, why they have lapsed, and what barriers there are for travel to Maine as a hunting destination.
- Based on the data generated from this market research, marketing tools, strategies and training must be provided to Maine's hunting industry partners, including guides, outfitters, sporting camps, B & Bs, and other state agencies such as Office of Tourism and Department of Conservation; to multiply the effect of the marketing plan.
- New hunting licenses, 'repackaged' licenses, or licenses that feature new privileges or opportunities appear to be one of the greatest factors with the potential to positively affect any kind of license sales. The Legislature and MDIFW must take a closer look at ways to accomplish and implement this initiative in a timely manner.
- Maine must do more to promote its lands open to hunting statewide, and the ease of access to them. Paper collateral such as maps and brochures, and online information that can be shared by state agency and hunting partners' websites, must be developed, distributed and kept current.

Many more specific recommendations are included in the following pages. The minutes of each of the three meetings are available online on the homepage @ www.mefishwildlife.com; as are the electronic links to current data and research used in the preparation of this report.

The members of this Task Force collectively hope that you, as Legislators, will give due consideration to, and initiate action on, these important recommendations.



Report on the Resolve to Establish a Task Force to Examine the Decline in the Number of Nonresident Hunters

Chapter 51, LD 792, 125th Maine State Legislature



Background:

A Task Force was convened by the Maine Department of Inland Fisheries and Wildlife (MDIFW) to examine the decline in numbers of Nonresident hunters. Three meetings and a volume of email contributed to the following conclusions.

The Task Force did the following:

1. Reviewed the numbers of Nonresident hunters over the last 5 years
2. Reviewed national trends regarding Nonresident hunters over the last 5 years
3. Considered marketing possibilities to increase Nonresident hunter numbers
4. Considered changes to existing laws and rules that may increase Nonresident hunter numbers
3. Developed recommendations to increase numbers of future Nonresident hunters

The Problem:

The Task Force recognizes that overall, hunter numbers are declining as a long term trend on a national level. This raises serious concern about the future of conservation - how will fish and wildlife conservation be funded if hunting revenues continue to decline?

Maine's decline in Nonresident hunter numbers has created a considerable economic impact, particularly in the rural regions of our state; and is more significant than the national trend would suggest. Maine must work on encouraging an increase in numbers of available Nonresident hunters to add this state as their hunting destination. Many states within our drive market have significant numbers of hunters (for instance PA has one million) that could be encouraged to see Maine as a destination hunting experience.

Discoveries:

1. Numbers of Maine Nonresident hunters have dropped from a high in 2002 of 41,538; to 37,925 in 2005, to an all-time low of 27,898 in 2010.
2. Numbers of Alien hunters have dropped from a high in 1995 of 1885 to 232 in 2010.
3. After reaching a peak in 1982, sales of hunting licenses across the US have steadily declined on the national level, according to the US Fish and Wildlife Service (USFWS) 2006 National Survey of Hunting and Fishing. (the next USFWS Survey will become available Spring, 2012)

Task Force Recommendations are divided into the following categories:

- a. Develop Collaborative Marketing Strategies with Maine Office of Tourism to target the Nonresident hunter audience
- b. Department Actions recommended
- c. Legislative Actions recommended

Task Force Recommendations:

Collaborative Marketing Recommended:

- An annual marketing plan should be developed, with assistance from Maine Office of Tourism, to increase the numbers of Nonresident hunters; this plan should be updated each January to review progress and ensure agency implementation. Any marketing plan should include measurable goals that can be readily gauged.
- The Nonresident hunting audience must first be surveyed to find out what these potential and lapsed customers want; based on marketing research that to date has not been utilized. An independent research report will identify market potential, market areas, potential products, market demands and the like. In an overall declining market, research is THE KEY to carefully and scientifically determine if and how strategic investments can be made to increase targeted participation.
- Marketing tools and training for Maine's hunting industry partners must be provided; such as guides, outfitters, sporting camps, B&Bs, and other state agencies
- All state promotions should include information about Maine's world class resources, ease of access, available and open lands, and outdoor experiences
- Targeted marketing and communications towards older hunters must be developed and implemented
- Maine's Tourism regions should be encouraged to participate in marketing hunting
- Targeted marketing should be implemented towards youth and family hunting participation
- The creation and promotion of family hunting packages should be explored
- Species other than moose, deer and bear must be promoted; emphasizing turkey, waterfowl, upland birds, rabbits and coyotes. Marketing efforts of MDIFW, MOT and Department of Conservation should be complimentary and collaborative to every extent possible.



Legislative Actions Recommended:

- Law change to allow Nonresidents to hunt on opening day of the firearms deer season. Eliminate the "residents only" opening day of deer season to demonstrate a more welcoming attitude toward Nonresident hunters.
- Remove Wild Turkeys from the Big Game license category and categorize them as Small Game.
- Create and sell 3-day Wild Turkey licenses.
- Eliminate the word 'Alien' throughout Title 12 and replace with Nonresident. A separate classification for Nonresidents from another country is not in place for anglers - only for hunters.
- Eliminate the law that requires any 'Alien' hunter must hire a Guide to hunt.
- The Nonresident youth fishing license should be eliminated: it should be on par with resident youth fishing; no license required for 15 and under. (this was not really the purview of this task force but came up in our analysis).



MDIFW Actions Recommended:

- The Nonresident hunting audience, both current and lapsed, must be surveyed as a part of an independent research report to find out what our customers want; basing marketing efforts, new license packages and new license opportunities on scientific research
- "Ease of access" has been identified as a primary issue in much of current research. Maps and internet sites showing public lands statewide that are open to hunting should be developed, promoted, and kept current.
- The Maine Department of Inland Fisheries and Wildlife modernize the "MOSES" online licensing system.
- Paper and online Moose Permit Applications should be made available year 'round
- The Moose Lottery drawing should be moved to January
- The Moose Lottery must be made fairer to Nonresidents: 26% of total moose applications are from Nonresidents, however just 10% of the permits are allocated to Nonresidents. At least 25% of Moose Permits should be allocated to Nonresidents.
- A designated number of Moose Permits should be offered and sold to Registered Maine Guides to provide moose hunt packages to their customers
- Hunting should be promoted for species other than moose, deer and bear; turkey, waterfowl, upland birds, rabbits and coyotes offer significant opportunities.
- Positive change and messaging on deer herd improvements must be implemented and kept current
- Positions for a designated Deer Biologist and Moose Biologist must be created and funded
- The current Apprentice Hunter/Mentor program must be more heavily promoted
- The creation of a family hunting license should be explored



- Sunday hunting was much discussed by task force members; the group was evenly divided on whether to recommend a revisit to this contentious issue.
- Weekly regional wildlife biologist's reports during hunting seasons to provide current information about statewide hunting opportunities should be reinstated.
- Email addresses should be requested on all license applications, both paper and/or online; so they can be used in regular information email blasts from MDIFW or Maine Office of Tourism
- All license agents statewide must be required to sell both Resident and Nonresident licenses at all times and in all categories

Summary:

We recognize that hunter numbers are declining as a long term trend on a national level. This trend raises serious concern about conservation funding in the future. The decline in Nonresident hunter numbers has had a significant economic impact in the rural regions of our state. Maine's decline in Nonresident hunter numbers is more significant than the national trend would suggest. There are significant hunter numbers in the drive to market that may be encouraged to add Maine as a hunting destination. We recommend that the legislature implement our recommendations to have every out of state hunter add Maine to their "bucket list" of destinations to hunt.

A coordinated marketing effort will yield significant results over time. Nonresident hunter numbers have responded to the significant lack of marketing effort over time, exacerbated by a drop in the whitetail deer population and a sluggish economy. According to Responsive Management, an internationally recognized public opinion and attitude survey research firm specializing in natural resource and outdoor recreation issues, changes involving licenses appear to be one of the greatest factors with potential to affect license sales.

Appendix A Members of the Task Force

Legislation required the following Task Force membership:

1. Three guides and 3 outfitters selected by an organization identified by the department that represents professional guides

3 Guides

Steve Wilcox	Maine Guide
Jeff Bellmore	Maine Professional Guides Association
Don Kleiner	Executive Director, Maine Professional Guides Association
Tenley Bennett	Maine Guide, Sporting Camp Owner, Regional Tourism Representative

3 Outfitters

Wayne Plummer	Maine Guide and Tourism Region Representative
Steve Wilcox	
Jim Yearwood	

2. One representative of the Maine Tourism Commission selected by the Department of Economic and Community Development

Sarah Medina	Maine Tourism Commission Representative
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3. One person from each tourism region selected by the Department of Economic and Community Development, Office of Tourism

Wayne Plummer	
Jim Yearwood	
Tenley Bennett	
Mac McKeever	LL Bean and Tourism Region Representative
Denise Murchison	Maine Professional Guide and Tourism Region Representative
Alvion Kimball	Bed & Breakfast owner and Tourism Region Representative

4. One marketing director from the Department, selected by the Commissioner of Inland Fisheries and Wildlife

Edie Smith	Former Director, Division of Information and Education, DIF&W
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Other MDFIW representatives:

Mike Favreau	District Game Warden, Greenville
Ralph Brissette	Information Center
Lisa Kane	I&E
Mark Ostermann	Supervisor, Data Processing Group

5. The Director of the Office of Tourism within the Department of Economic and Community Development

Carolann Ouellette	Director, Maine Office of Tourism
Denise Murchison	
Elaine Vandenaïse	

6. One nonresident sportsman selected by a statewide sportsmen's organization; and be it further

David Maynard	Nonresident landowner and hunter; member of SAM, Brockton, MA
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Others participating:

Aron Semle	Youth Fish and Wildlife writer
Garrett Sughrue	Youth Fish and Wildlife writer
Carolyn Manson	Maine Tourism Association

Appendix B

Nonresident Hunter Task Force Data, References and Minutes
available online at:

www.mefishwildlife.com

Public Law 51

Agenda Oct 2 Meeting

George Smith Downeast Column

Supersport Statistics

2010 License Sales Summary

Any Deer Results First Choice Winners WMD

Any Deer Lottery Data

2006 Stats

Increasing Hunting Participation

Issues Related To Hunting Access

National Hunting License Report

Outreach and Marketing

Factors Related To Hunting and Fishing Participation

Licenses sold by State of residence in 2003

Licenses sold by State of residence in 2010

Written comments received from hunters as of Oct 23, 2011

Minutes of the October 2nd meeting

Agenda Oct 23 Meeting

Agenda Nov 20 Meeting

Written comments received from hunters as of Nov 16, 2011

Minutes of the October 23rd meeting

Minutes of the November 20th meeting

Final Report (PDF)



Report on the Resolve to
Establish a Task Force
to Examine the
Decline in the Number
of NonResident Hunters

Chapter 51, LD 792
125th Maine State Legislature



The Honorable Paul R. LePage, Governor
Chandler Woodcock, Commissioner

January 2012

Maine Inland Fisheries Management Program

2002 Review

Prepared by the
**Management Assistance Team
of the International Association of Fish and Wildlife
Agencies**

December 2002



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FOREWORD

The following report is a summary of the intent, methodology, findings and recommendations of an independent review of the Inland Fisheries Management Section (IFM Section) and its program within the Maine Department of Inland Fisheries and Wildlife. Initiated at the request of the Maine state legislature (S.P 401-L.D. 1317), the review was begun by the Management Assistance Team (MAT) in September 2002 and completed in December 2002. The intent of the review was to conduct an assessment of the IFM Section, providing a thorough critique of the present program, its strong points and needs for improvement.

MAT is a unique consultancy working exclusively for state fish and wildlife agencies. It is based upon the premise that one way to increase the effectiveness of fish and wildlife restoration is through better agency management practices. Since funding is provided by a multi-state conservation grant, state fish and wildlife agencies do not need to pay any additional costs for MAT staff time, travel or per diem. MAT was selected to conduct the review through a request for proposals process implemented by the Maine Department of Inland Fisheries and Wildlife.

The scope of the review included a comprehensive look at the IFM Section's legislative mandates and associated responsibilities, resource monitoring and management methods and capabilities, program planning and implementation, fisheries management opportunities, policies, funding levels/budget process, structure and staffing, management decision processes, public involvement processes and accountability, public outreach, internal agency relations and relations with external publics. In addition, agency work culture and paradigms as well as information processes, employee development processes, and reward systems were investigated to assess the best leverage points to increase the program's effectiveness.

Recommendations were requested at two levels: 1) Within existing constraints of funding and staffing levels and 2) With additional resources in a prioritized fashion. The focus of the review was neither to enumerate all of the fisheries section's strengths nor to identify every area of weakness. The focus of the review reported here, as in any program undergoing a comprehensive review for the purpose of improving its effectiveness, was to focus on *finding the leverage points for improvement* thus ensuring a greater return on the agency's investment of time, dollars and human resources.

It was the effort of many people and a spirit of true collaboration that enabled this review to be completed. The Management Assistance Team thanks all who had a part in this endeavor, and acknowledges the courage exemplified by the frank and honest responses received to all focus group and interview questions.

Executive Summary

The Maine Inland Fisheries Research and Management Section and its program (referred to as IFM Section) like many of its counterparts across the United States is at a transition point as it begins to address the emergent issues of the 21st century. Some of these issues are driven by consumptive pressure. Others are driven by environmental variables, and yet others are driven by the need for fiscal efficiencies. This 2002 comprehensive review of the IFM Section captures the present dynamic and creates a baseline of information, both of a perceptual and empirical nature, upon which a 21st century strategic imperative can be built.

The Management Assistance Team finds that ***the overall system of resource management within the IFM Section's program is functioning acceptably.*** Naturally, some parts of the program's system are stronger than others. There are some specific parts that require immediate change less they continue to block the effectiveness of the rest of the system. These are discussed in the full report.

There are two fundamental dimensions of the IFM Section: (1) Technical resource management, and (2) Organizational management. Findings of the review indicate that technical management is working well. Sound science principles and methodologies are applied in carrying out the inland fisheries program. Conclusions from the review are that Maine's inland fisheries are biologically well managed within the limitations of the Division's financial resources. It is apparent that some resource needs are going unmet, for example, river and stream management and habitat protection in some areas. Along with other needs these can be addressed only by additional funding and staffing.

Most of the thirty-six (36) recommendations for improvement offered in this report focus on the organizational management dimension.

The Commissioner's ideas and directives to improve the IFM Section are strategic and timely. The IFM Section is also very fortunate to not only have very experienced and competent fisheries professionals, but ones who have insight into the program's institutional history and evolution. This becomes exceptionally critical when making decisions to address present emerging issues, as well as those of the future — Issues which must be grounded in knowledge of the agency's past policy, practice, and structure.

Three areas within the IFM Section are found in greatest need of improvement. Discussed in detail as chapters in the full report, these areas are in order of priority as follows:

- ◆ Leadership and Personnel Management
- ◆ Decision-Making Processes
- ◆ Communications

Five Critical Imperatives

Five critical imperatives or calls to action emerge from the study and are targeted in the recommendations. ***The first imperative is to plan for the timely transition of current senior science professionals.*** Critical to this transition is the passing along of both institutional memory and current best practices to the next generation of scientists responsible for the fisheries resource and serving the attendant needs of the public. Structure, staffing and supporting systems of the IFM Section need to insure that personnel who have unique insights, identified as critical to the transition, be reassigned.

The second imperative is that the 21st century will place demands on fisheries resources in unprecedented intensity and uniqueness, making critical ***the need to identify the overarching current goals and their next evolution.*** Findings of the review show an *absence of functioning overarching guidance* within the Division for the IFM Section, connecting all parts to the whole system. Ancillary to this is the prioritization of programs and actions, potentially unique to each region, to be aligned with this evolution of goals. *Caution must be taken to avoid thinking of the newly forming strategic plan as a panacea for such guidance.*

The third imperative is that scientists, particularly senior scientists, continue to engage the publics to develop a short and long-term strategy for managing and renewing fishery resources. Critical will be the identification of potentially new skill sets which must be introduced into the scientific community along ***with the evolution of more effective guiding philosophies such as in customer service and public involvement.***

The fourth imperative is to institute means of insuring greater accountability for the execution of directives at the administrative levels, and tracking performance at the field level.

The fifth imperative is to garner the support necessary to get the funding to expand the program to address unmet resource needs.

Recommendations

Adjustments to support/leverage the continuation of current best practices, as well as to improve areas found in need by the review are listed in relative order of priority; however, it is strongly suggested that the Department begin acting immediately on any of the recommendations considered doable rather than moving sequentially through them. The achievement of small successes as quickly as possible should not be undervalued.

INTRODUCTION

Background

The Inland Fisheries Research and Management Section (IFM Section) is part of the Fisheries and Hatcheries Division (Division) of the Bureau of Resource Management (Bureau) within the Maine Department of Inland Fisheries and Wildlife (Department). Although the origins of the Department date back to the 1830's, it wasn't until 1951 that the (Inland) Fisheries Research and Management Division was organized and funded.

The Division, and hence the IFM Section, assumes it's primary focus or responsibility from that of the overall Department, which is derived from statutory mandates included in 12MRSA, Part 10, Chapters 701-721, and related subject matter. The basic mandate (Chapter 702, Section 7011) that guides the IFM Section is: "to preserve, protect and enhance the inland fisheries and wildlife resources of the State; to encourage the wise use of these resources; to ensure coordinated planning for the future use and preservations of these resources; and to provide for effective management of these resources." In Section 7013, paragraph 2, fisheries management is specifically charged with "...management of the inland fisheries resource in the public waters of the State for their preservation, protection, enhancement and use."

Aquatically speaking, Maine is rich. Referred to as a "wet" state, Maine has approximately 5,800 lakes and ponds of one acre or more in size, totaling over 992,000 surface acres, and over 31,000 miles of rivers and streams. This abundance of aquatic habitat includes 2,772 great ponds (lakes of 10 acres or more) totaling over 982,000 surface acres, mostly under public ownership.

Maine's freshwaters are currently home to at least 61 fish species. Species numbers may change as new species are added to the list through unauthorized and/or accidental releases. Twenty freshwater species are classified as sport fish and are actively managed by the Division for roughly 270,000 annually licensed anglers. And, many more anglers hold lifetime licenses or are license-exempt.

Overall, the Department has 327 authorized staff positions. The Fisheries and Hatcheries Division has 61 positions; 25 of those are in the IFM Section. The supervisor for the Section is based in Augusta, two research staff are located in Bangor, and the remaining 22 positions are located around the state in seven regional offices with a focus on field work. The Department's overall budget expenditures for fiscal year 2002 were \$27,012,000. Of this amount \$2,867,000 was spent on the Inland Fisheries Management Program.

The IFM Section strives to base its management strategies on the most current information available, operating under a strategic plan that includes long-range

species management priorities, goals, and objectives. The current strategic planning effort includes management plans, or assessments, that cover nineteen species. Specific data and information needed to assess the current status of individual fish species are collected at the regional and state-wide level and are used to formulate management recommendations and regulation proposals. When possible, research studies have been conducted and results applied to gain a more complete understanding of the life histories, habitat requirements, and limiting factors affecting management of fish species. Surveys and inventories are also conducted to gain information on human use of the fisheries resource and to assess trends in land and water use practices that might impact fish species and associated management programs.

The regulation setting process is one of the key means of managing the fisheries resource. Many of the goals and objectives in the fisheries strategic plan are implemented through this process. Part of the management program for inland fisheries relies on a fish stocking program for selected species. This helps meet the growing demand for sport fishing in many parts of the state. The budget process is also a primary means by which the Division tries to address the IFM Section's goals and objectives. Recently, emphasis in the regions has been on improving quality (defined by catch rates, quantity and size) of fishing and providing geographic distribution of diverse fishing opportunities.

The IFM Section is characterized by a dedicated and hard working core of biologists. Many have considerable tenure in the job. Likewise, they work with an active and interested public constituency. Many have considerable tenure in sport fishing and/or avid and diverse interests in sport fishing matters. Some constituents are organized into a number of different sportsmen's, conservation, and other user groups that actively participate in the public processes associated with inland fisheries management decision-making.

The number and type of fishing waters, the mix of fish species, coupled with the large constituent base make management of the sport fisheries resource an interesting and challenging undertaking in all regions of the state. Added to this is the overlap of management responsibilities associated with other state and federal agencies. Those at the state level, especially the Department of Environmental Protection, Department of Transportation, Atlantic Salmon Commission and Land Use Regulatory Commission seem to have the most direct influence on some aspects of the IFM Program.

Many state fish and wildlife agencies across the country are finding or will discover shortly the losses of many of their management personnel due to retirements. Maine's IFM Section is poised to be in the same position. The average time on the job for biologists in the IFM Section is over 21 years. Many have 30 or more years of service.

Methodology

A four-tiered approach was used for conducting a comprehensive review of the IFM Section and its program. The tiers consisted of three phases for collecting data and one phase for developing recommendations:

- Phase I: Scoping**
- Phase II: Interviews**
- Phase III: Examination of Documents**
- Phase IV: Recommendations**

MAT coordinated a six-member review team: Three reviewers concentrated entirely on the biological aspects of fisheries management; and the other three reviewers concentrated on the organization development and related aspects of the program.

Analyzed data collected from the first three phases was triangulated for convergence of reoccurring themes, or congruencies, to identify the core areas for leveraging effectiveness of the fisheries program. These congruencies were then used to develop recommendations for improvement. It is important to note that without dealing first with these primary core areas, attempts to improve other areas would most likely resemble a band-aid approach, addressing symptoms rather than the root problems.

A guiding objective held by investigators during the data collection phases of the review was to look for areas that could be leveraged to improve the effectiveness of the program — areas of strength as well as areas of weakness.

An **Internal Feedback Group** composed of five IFM Section employees, widely respected by their peers as trustworthy and able to receive and pass on concerns from others, was used to mitigate influences of the rumor-mill and function as a conduit directly with MAT conducting the review. It provided valuable process feedback.

PHASE I: THE SCOPING PHASE

Phase I consisted of a preliminary review of agency documents (organizational charts, legislative mandates, mission and strategic plans) and a series of four approximately two-hour, facilitated focus groups.

The Scoping Phase was the initial process for narrowing down all the possibilities of things the review *could* examine to those of greatest importance for leveraging results. Incidentally, the scoping process helped to augment obtaining greater support from employees for the review itself. Such stakeholder support, or buy-in, is a critical factor for any organization undergoing a review and later attempting to implement improvements.

Focus Groups

Focus Group 1 was a heterogeneously composed group of twenty participants representing a stratified, randomly selected sample of all agency employees from each region and the headquarters office. The sample represented a vertical and horizontal cross-section of agency employees in terms of geographical location, management level and discipline, including fisheries management personnel.

Focus Group 2 was composed of twenty administrative staff or supervisor/managers from all levels across the agency, excluding fisheries.

Focus Group 3 was composed of fourteen participants representing external fisheries constituents, coming from both organized groups as well as individual IFM Section constituents.

Focus Group 4 was composed of five individuals from the IFM Section, five individuals from the Fish Hatcheries Section, the Fisheries Resource Planner, the Bureau Environmental Coordinator, a Fisheries Research Biologist, and the recently retired IFM Supervisor.

Each of the focus groups were asked the same following set of trigger questions and then asked to prioritize their responses:

- ◆ *What are we doing right in the IFM Section program? Why?*
- ◆ *What are we not doing very well in IFM?*
- ◆ *How can we address our weaknesses and leverage our strengths in IFM?*

Results of the focus groups produced the following seven areas of concern from which the interview questions were developed: *Funding and Staffing, Internal Communications, External Communications, Public Involvement, Politics/Administrative Support, Policy and Direction Setting, and Personnel Management.*

To protect the anonymity of the focus group participants as well as all other individuals who participated in the review, all reporting was done in group aggregate form.

PHASE II: INTERVIEWS

Interviews are generally most effective when conducted within a defined framework with a goal of determining core issues — in this case for the IFM Section. The seven key problem areas of concern affecting the IFM Section effectiveness that emerged from the Scoping Phase were, like many broad view studies of organizational performance, a profile of problems described in symptomatic terms. In Phase II, these six areas were confirmed, prioritized, and/or disconfirmed through direct personal interviews with biologists, administrators, Advisory Council members, and constituents of the IFM Section.

MAT's three fisheries experts visited regional offices, conducted interviews, examined documents, and met with groups of biologists to discuss biological programs and related issues. This information was later triangulated with data obtained by the other half of the MAT review team.

Focusing on organizational development issues, MAT conducted a total of 46, approximate 1½ to 2-hour structured, direct interviews using open-ended questions. Interviewed face-to-face were the Commissioner, Deputy Commissioner, all of the fisheries biologists and administrative staff in the IFM Section, and a sampling of IFM Section public constituents and cooperators. In addition, nine of the Advisory Council members were interviewed via telephone using the same set of interview questions.

Data Management

Dr. Gary Geroy, a professor of Human Capital and Economic Development at Colorado State University, performed a qualitative, cross-case analysis on the narrative responses collected from the open-ended questions of the interviews. Emergent themes and notions from each question were compared and areas of congruence and conflict recorded.

III. EXAMINATION OF DOCUMENTS

MAT reviewed the following documents:

- ◆ Legislative and informal mandates from legislature, Governor's Office, and/or the Commissioner
- ◆ Public Input Processes
- ◆ Department Mission Statement, Strategic Plan, and Operational Plans
- ◆ IFM Section's strategic, operational, species management plans
- ◆ Department Budget Documents (including process outline, Department budget with IFM Section's budget identified), and budget history relevant to any changes within the last 5 years.
- ◆ Department Organizational Charts

- ◆ Public Involvement Plan/Guide
- ◆ Public Involvement Survey Data
- ◆ Department Policies/Policy Manual
- ◆ IFM Policies/Policy Manual
- ◆ Employees Union Information
- ◆ Final reports from any previous Department reviews or evaluations.

IV. RECOMMENDATIONS

Results from analyzing data collected from (1) the focus groups, (2) the Review Team, and (3) informal discussions and examination of the documents were triangulated to identify common themes and to develop a number of leverage points for improving effectiveness on two levels: Within the current budget and within an increased budget.

Personnel Leadership

"One of the burdens of leadership is to be unpopular when necessary."

Current Status

One of the axioms of leadership is: "If you want to know how the leaders are doing, look at how the people are doing." The employees in the IFM Section are dedicated and committed to their jobs. They use good biological methodology and do excellent biological data collection with the resources available to them. However, despite these strong points, problems in other areas of the IFM Section's organizational development are evident.

Consideration is warranted in the area of the philosophy supporting operational paradigms. Among the fisheries biologists, we found the most prevalent paradigm for dealing with their publics to be the belief that *biology should drive all fisheries decisions and the job of a biologist is to give the public biological information until they come around to agreeing with the biologist's point of view*. This approach is too narrow and fails to consider all factors that influence decisions in a real world situation. See Decision Pentagon discussion in *Recommendation #1* of the "Public Involvement" section of this report, Page 24.

The problem of lack of direction for the IFM Section is discussed in "*Planning and Budgeting*", Page 28, and the "*Decision Making Processes*", Page 40. Setting and maintaining direction is an important role of leadership. The Division Director seems to do an acceptable job of using peer reviews for biological decisions and having set protocols for recommending regulation changes. However, this is a small part of the whole spectrum of what the IFM Section does. Section goals and priorities are unclear and regions set much of their own direction. In contrast, the Commissioner has set direction regarding IFM Section use of public involvement, use of work plans for accountability, etc; however, the implementation of the Commissioner's directives at the Division Director level can be characterized as grudging and halting in execution at best, nonexistent at worst.

Advisory Council members, Department administrators, several constituents and all IFM Section personnel were interviewed and asked if management and supervision of employees in the IFM Section was accomplished professionally and effectively. Fifty-eight percent (58%) of all those interviewed indicated that it was not accomplished professionally. Importantly, 62% of biologists and 80% of administrators felt this way. Reasons given for this perspective included: Some personnel issues have gone unresolved, the appearance that employees pursue personal missions as opposed to a shared Division mission, and that there is little or no accountability required of employees. Thirty-seven percent (37%) felt that

management and supervision were accomplished professionally and effectively, and cited as examples for their opinion: Personnel performance plans that were specific, including accountability factors, and a Division Director and Commissioner open door policy (People are encouraged to express concerns and are treated well).

The review also revealed that staff development training would help the IFM Section staff do a better job. An overwhelming 96% of interview respondents said more training was needed. The top five areas determined to be staff development priorities (in priority order) were:

1. Personnel management
2. Public relations
3. Data and statistical analysis (tied with #4)
4. Computer training
5. Communications

The top three expected outcomes from this training were:

1. Improved public relations
2. Improved data gathering and analysis
3. Improved personnel management processes

The Maine Inland Fisheries Management Section is faced with the same problem that many state fish and wildlife agencies are facing. As the IFM Section and its Division move into the 21st century, they have numerous senior scientific staff eligible for retirement. The ensuing loss of institutional memory and loss of on-the-ground experience poses a serious future threat. This threat needs to be addressed now to prevent major problems in the future.

Discussion

The crux of much of the IFM Section's issues is a problem of administrative leadership, supervision and accountability. As with most problems, there are multiple reasons for their existence. Lack of clear and effective implementation of Commissioner directives in the IFM Section is leadership related and can be attributed to:

- Breakdown and/or blockage in information flow from the Commissioner to the Deputy Commissioner, to the Bureau Director, to the Division Director.
- Failure to hold the following personnel accountable: Deputy Commissioner, Bureau Director, Division Director, IFM Supervisor, and Regional IFM Biologists for communicating and implementing directives and direction set by the Commissioner.
- Adherence to a strong belief in chain-of-command by the Commissioner when direct intervention may be required.

Examples of breakdown and/or blockage in upper administration information flow are represented by those interviewed in their responses to the question: *"In your opinion, does the Inland Fisheries Management Section (or your region) receive or obtain pertinent information from upper Administration on priority issues, new initiatives, policy statements, etc., in a manner that's useful?"* Sixty-nine percent (69%) of all respondents interviewed indicated "no". The Advisory Council respondents were the only sub-group that did not support this view, whereas, biologists, administration, and constituents supported this theme.

Leverage Areas

- Accountability of staff
- Chain-of-Command process
- Reward systems
- Performance development programs that include leadership and supervisory skills training

RECOMMENDATIONS ( means requires additional resources)

#1 Recommendation to Increase Personnel Leadership Effectiveness:

Commissioner needs to hold the Deputy Commissioner responsible for communication and follow through with the Bureau Director regarding implementation of Commissioner policies and directives. Accountability performance indicators must align with this strategy.

**Strategy
Recommendation 1.1**

Deputy Commissioner needs to hold the Bureau Director responsible for communication and follow-through with the Division Director regarding implementation of Commissioner policies and directives. Accountability performance indicators must align with this strategy.

**Strategy
Recommendation 1.2**

Bureau Director needs to hold the Division Director responsible for communication and implementation of Commissioner policies and directives. Accountability performance indicators must align with this strategy.

**Strategy
Recommendation 1.3**

Division Director needs to hold the IFM Supervisor responsible for his role in communication and implementation of Commissioner policies and directives. Accountability performance indicators must align with this strategy.

The culture of the IFM Section is close-knit. Most employees went to the same universities, took the same classes under the same professors, and have worked together an average of twenty-one years. This family-like culture has a number of advantages including making it easier to achieve high levels of interpersonal and organizational trust within the Section. This allows for a pleasant and productive work atmosphere and good performance as long as there are no performance problems. Typically, due to the high professional standards of the fisheries biologists and strong commitment of the employees, this culture is a good fit for the IFM Section. This type of work culture is very common among state fish and wildlife agencies in the United States.

However, one strong disadvantage becomes evident when a performance problem develops. The disadvantage of this type of culture is that it often makes it very difficult for those in supervisory positions to discipline individuals who perform poorly. This is exemplified in statements like, *"I can't do that to; "We have been friends for over twenty years."* Friendships are often so strong that protecting the friendship supersedes one's organizational management responsibilities. This is a difficult situation; however, in the Department, Division, and Section it has

contributed to a general failure of the system to hold people in the chain-of-command responsible. This is true from the Deputy Commissioner's level down to the IFM Supervisor's level. Accountability must be built into the chain-of-command system all the way down to the regional biologists by using effective coaching, training and individual performance evaluation processes.

#2 Recommendation to Increase Personnel Leadership Effectiveness:

Create a special assistant to the Commissioner with responsibility for managing transition of current senior biologists, and passing along both institutional memory and current best practices to the next generation of fisheries biologists in the IFM Section.

This should be a position with limited years of duration. Three years or less will be required to oversee the transition of most senior biologists. The voluntary retirement of senior biologists and consequential filling of those vacancies will open up positions for new biologists in the Division. It is imperative that institutional memory and current best practices be passed along to those new biologists. The task of overseeing this transition requires a person with historical knowledge of the Division, broad fisheries experience, and depth of knowledge of Division practices. Therefore, we recommend the current Division Director be assigned this important duty.

#3 Recommendation to Increase Personnel Leadership Effectiveness:

Institute a system of employee rewards which recognizes competencies and capabilities in supervision and management. (This includes both positive rewards and clearly not rewarding poor performance.)

An axiom of management is, "*You get what you reward.*" The Division's formal and informal reward system needs to be aligned to recognize excellence in leadership and supervisory skills and also to not reward poor supervisory performance. Positive rewards such as monetary rewards in state government are often restricted, but many creative types of positive recognition can be instituted. Examples include: Special assignments, travel approval to attend professional meetings, administrative leave (paid leave), recognition of performance in front of one's peers, a simple word of thanks, a personal note from the Commissioner, formal awards or certificates, etc.

#4 Recommendation to Increase Personnel Leadership Effectiveness:

Create a staff development program for all IFM Section personnel, including training on leadership and supervision skills for supervisory personnel.

Regarding leadership and supervision skills, the task of overcoming the reluctance to discipline a peer who is a friend is difficult at best. It becomes almost impossible if the supervisor has no training in how to evaluate or administer discipline. The goal is not to make the poorly performing employee feel bad, but to help them improve their performance.

Techniques for addressing these sensitive areas of supervisory responsibility should be provided to supervisory personnel through Department training opportunities. Sources for these may include the State Administrative Services or Human Resources segments of state government. In addition, the Management Assistance Team can serve as a resource for this type of training at no cost to the Department. Regardless of the sources, this type of training is highly recommended.

Communications: Internal and External

"Communication is the lubricant that makes it possible for organizations to work."

Current Status

Informal communications are alive and well in the IFM Section in day to day work life. Many years of working together and sharing a common "missionary like zeal" for the resource is manifested in healthy, high levels of trust within the fisheries biologists ranks. Communication is typically direct and honest.

However, in many of the discussions held during the Scoping Phase of the review communication weaknesses with other internal and external groups emerged as an underlying issue. Although this topic area was not included in the "Scope of Work" outlined in the legislative mandate calling for this review, it became apparent that "communications" was an issue that needed to be addressed. Communications issues fell into two areas—internal and external—and the results are presented below.

Internal Communications — In evaluating concerns related to IFM Section's internal communications, interviews showed that 76% overall of the IFM Section staff, Department administration and Advisory Council members felt that the IFM Section has made a reasonable effort to involve and integrate related Department units in planning and decision-making.

In general, the IFM Section staff feels they have good communication and good relationships with the Hatcheries Section and the other divisions in the Department, except perhaps for the Information and Education (I &E) Division. It is also generally agreed that there are two primary ways this communication occurs: 1) informal communication at the individual level, and 2) formal meetings with the other sections or divisions. A third means was through coordination efforts based on specific projects.

Informal personal communication efforts was also given as the reason why half (50% across all groups interviewed) felt that the difference in number, size and configuration of the five law enforcement regions versus the seven fisheries regions did not create confusion or communication difficulties in fish management fieldwork. However, others (46%) felt that these regional boundary differences contributed to communication inefficiencies and some public service inefficiency.

In assessing the effectiveness of communication from the upper administration to the IFM Section there was general agreement among those interviewed that the flow of information from top to bottom needs significant improvement. Among IFM Section biologists, the administration and constituents, 69% overall felt that

field biologists either don't receive information at all or do not receive it in an effective manner. Advisory Council members, as a sub-group, felt somewhat differently in that 44% felt that communications between the Administration and field biologists were effective.

Themes, or characterizations from those interviewed as to why communication processes were poor included:

- 1) that information in the field is obtained via rumors or other indirect methods,
- 2) that variation in fish management practices among regions results from regional biologists not getting enough information and direction from Augusta,
- 3) conflicts in personalities and philosophies at one level or another,
- 4) breakdowns or blockages in information flow from the administration down to the field,
- 5) lack of response to requests or inquiries going up the ladder,
- 6) regional fisheries staffs simply left out of the communications loop.

External Communications—The IFM Section's involvement in public outreach has been evolving over the last 20 years or so. The evolution is due to the realization that, as external publics become more engaged in public resource management issues, public understanding of and support for fisheries programs needs to be more consciously addressed. In recent years, actions have been taken to increase the Division's attention to outreach.

Seventy-nine percent (79%) of those interviewed believed that the fisheries staff in the Augusta office is currently involved in developing and disseminating information to the publics; however, that effort is viewed as being only somewhat effective. Individual requests to the Augusta fisheries staff for information are dealt with in a responsive and effective manner, while broad-based public outreach initiatives by the fisheries staff to increase public understanding of its programs rarely occur. It was generally recognized that the fisheries staff in the Augusta office that interacts regularly with the public consisted mainly of two people, the Division Director and the Division Secretary.

In the fisheries regions, it is very clear from interview data that regional personnel are involved in developing and disseminating information about their fisheries programs to interested publics. Ninety-one percent (91%) of those interviewed perceived this to be the case. Eighty-seven percent (87%) agreed that their regional efforts were effective. Primary outreach efforts include the weekly fishing

report (in newspapers and on website), a fisheries newsletter developed and disseminated in one region, TV news spots in areas where local stations occur, newspaper articles and contacts with newspaper reporters, public meetings, and one-on-one contacts with anglers. Fisheries biologists believe they are making a concerted effort to reach their publics. Those who felt these efforts could be more effective suggested that communications skills needed to be improved or refined, that some biologists' personal views needed to be more tempered in public outreach efforts, and that outreach efforts needed to be more sensitive to the broader interests or needs of the public.

Perceptions of the Department I & E Division's role in developing and disseminating information about inland fisheries management programs and issues were also explored. While it was generally felt that I & E Division efforts had improved over the last several years, ninety-one percent (91%) of those interviewed agreed that the I & E Division could be more effective. One example of what is perceived to be lack of responsiveness from the I & E Division is the time it has taken to produce the 3x4 inch green card about illegal introductions of fish. Biologists expected to have supplies of these cards to use as handouts during ice fishing season in the winter of 2001-02 and still do not have them.

Two predominate themes emerged from the interviews as to how I & E Division involvement in the IFM Section outreach could be improved:

- 1) I & E Division staff should get out into the regions more and see what is going on, and
- 2) Develop a structured communications system between the I & E Division, the Fisheries Division staff in Augusta, and the regions.

Other ideas included: optimizing the website, securing more TV coverage, and improving fisheries program coverage in the Department magazine.

Also, a concern was raised about communication with volunteer anglers who participate in the harvest and angling-effort survey program. Although it is generally felt that this is an important program and that the volunteers need to be nurtured, 50% of the respondents felt that volunteers do not get much if any feedback on their effort. It appears that less than half of the regions follow-through with reports back to these volunteers on how their information was used or how it is related to fish management on the waters involved. Reasons for this in the regions varied from lack of time to importance of the species involved to lack of user-friendly data coming out of the SAS information system.

The primary suggestion for improvement was to develop a standardized report format. Such a format would be all-inclusive, published, posted on the website, and mailed to the individual program participants. Other suggestions from the interviews included making it a policy for each region to give feedback annually

to program participants as well as adopting the Gray regional office model of sending out a newsletter with this information.

As a result of focus group discussions, an additional related area was investigated. This was the concept of "customer service" relative to the IFM Section. Two strong themes emerged when respondents were asked to describe their perspective on the philosophy of the IFM Section toward customer service: 1) across all groups, 50% of respondents indicated the IFM Section's philosophy was to provide for the needs of the angling public as the customer, and 2) 30% indicated that "resource protection" was the IFM Section's guiding principle and did not go on to identify a customer service philosophy. A third theme, satisfying customer needs while providing for the welfare of the resource, was supported by only 14% of respondents.

Discussion

It is clear that both internal and external communications problems are well founded and have significant impact on how effectively business is conducted inside and outside the Department. Internally, the review found that important information simply does not get from the Commissioner's Office to the regional fisheries staff in a timely, clear and meaningful manner. A good example is the way in which the notice and review of the draft "Administrative Policy Related to Fisheries Management" was handled up and down the ladder. Another, timely example is the manner in which the Bureau and/or the Division are handling plans to fill the vacant fish management supervisor position. Fisheries management staff indicate they do not know what's going on, yet filling this position is an key issue to everyone in the Division and Administration. The Commissioner has given instructions to fill this important position. Some actions have been taken to do so. There is significant interest within the IFM Section regarding this position, yet weeks are elapsing with no evident progress or information sharing about the status of the process.

Likewise, there is evidence to indicate that when inquiries and/or requests for information are made up the chain of command from the field, the perception of some field staff is that there is little or no follow-through. Additionally, although for the most part the IFM Section field personnel appear to communicate acceptably among themselves and inter-divisional communication in the field is satisfactory, they would prefer more regular, consciously structured communication and coordination efforts with Augusta based administrators and Divisions.

Regarding public outreach and/or public relations, improvements are needed to insure that timely and important information is clearly communicated to the many publics interested in IFM Section programs and issues on a regular basis. Of particular note is the IFM Section's lack of clarity on what its approach to customer service is. In this arena, the variability found among the fisheries staff when interviewed, and the perceptions of those outside the IFM Section,

indicates that there is no clear philosophy, direction, training, or other guidance on what the staffs' role and responsibility should be regarding customer service. Clear and unified direction on this matter is needed. Other issues related to external communications efforts are discussed under the "Public Involvement" category. Page 22.

Leverage Areas

- The IFM Supervisor position — This is a key position through which a number of communication issues inside and outside the IFM Section, Division and Department can be addressed.
- The roles and responsibilities of the Division Director and the IFM Supervisor, and their relationship to each other — Improved definition of roles and expectations will set the stage for improvement in external and internal communications, especially to the field staff.
- Divisional policies and guidelines for conducting business — Clear policy and direction setting is crucial to obtaining consistency, appropriate implementation of management strategies, and hence to enhanced credibility internally and externally.
- Self-identification of internal communications as a problem — Better execution and more clear, two-way information sharing can avoid and/or minimize internal management difficulties.
- Recognition that public outreach and public support are important — Public support can come from an effective outreach effort.

Recommendations

#1 Recommendation to Improve Communications: Hire an effective leader/supervisor/manager to fill the IFM Supervisor position.

All interviews with the Department's administration, the Division's Augusta staff and the IFM Section's fisheries biologists indicated that the previous situation involving the IFM Supervisor, and the fact that the position was located in Bangor instead of the Augusta headquarters office, contributed to three key problems:

- 1) ineffective communications process,

- 2) lack of effective supervision and leadership, and
- 3) a general lack of accountability in the IFM Section.

The decision to move this position to the Augusta office is a good one. It must be followed with an effective selection process for the new IFM Supervisor, beginning with the knowledge, skills and abilities required for this position in the job announcement and continuing with the selection criteria used in the interview process. Technical fisheries science abilities are of secondary importance for the tasks currently at hand.

#2 Recommendation to Improve Communications: Clarify and define the roles and responsibilities of the Division Director and the IFM Supervisor and their relationship to each other.

The situation with the previous IFM Supervisor required the Division Director to spend considerable time handling communications with and management of the field staff. This situation should be remedied with the selection of an effective communicator and manager for the Supervisor position.

To prevent ambiguity in the area where internal and external communications is concerned, it is important to clarify the roles and responsibilities of these two positions. This step will help clarify expectations and improve accountability. Differential duties and responsibilities should be clearly outlined in and monitored through employee performance evaluations.

Again, to be effective, the suggested approach is to have the Division Director focus upward and outward, working with the administration and the public on inland fisheries management concerns. The IFM Supervisor would focus at the IFM Section level, conferring with the Division Director and communicating regularly with the regional fisheries biologists. Likewise, the regional biologists should then be given clear guidance about keeping regional staff members informed and involved with the Division.

#3 Recommendation to Improve Communications: Clarify Divisional policies or guidelines related to communications and outreach.

Clear policy and direction setting is crucial to obtaining consistency and appropriate implementation of management strategies in all aspects of the division's work, including communications and outreach efforts. A clear statement about the Division and IFM Section's approach to customer service can be a starting point. This should be developed in a participative manner involving all

Division employees. “*People support what they help to build*” is a principle necessary for obtaining critical buy-in from those employees whose work will be affected by the newly clarified philosophy.

Also, as plans are written for both internal communications procedures and for an external communications program (see recommendations that follow), clear guidance must be included in the form of policy/guidelines. Responsibilities and expectations for all staff members implementing the plans need to be explicit. These responsibilities should then be monitored via employee performance appraisals. [Please see the “*Decision Making Processes*” Section for more on policy development and compliance, Page 40.

#4 Recommendation to Improve Communications: Develop and diligently implement an internal Fisheries and Hatcheries Division communications strategy which includes written as well as other formats.

The breakdown in information flow and direction setting related to the IFM Section can best be addressed via a conscious plan to improve. Employees need to understand their role in the communications web, where to look for particularly important communications, and what is expected of them. A Division communications plan should be implemented that includes the Commissioner’s Office, the Bureau of Resource Management, the Division and IFM Section Augusta staff, and regional fisheries offices.

Again, such a plan should be developed using a highly participative approach so that all those affected by the effort have their needs addressed. A good communications plan equips people to send and receive information efficiently and accurately. A written strategy should include elements that:

- Maximize use of available communication technology, such as e-mail and voice mail;
- Establish protocols for distributing communications, abide by them and enforce them;
- Call for prompt and timely dissemination of information;
- Give thorough consideration to identification of which people or which positions (Department-wide) are included in the communications network for various issues;
- Provide for thorough communication of decisions, changes in policy or direction, and other important actions by providing context, reasons, and ramifications—not only does this help employees understand decisions, but it helps them explain decisions to the public;

- Provide a structure or mechanism for staff at all levels to adequately and effectively share concerns, identify problems, and develop solutions; and
- Provide information, and/or training, on how to conduct effective meetings — so that good communication precedes, occurs at, and follows them.

#5 Recommendation to Improve Communications: Fisheries and I & E Divisions collaborate to develop and implement a public outreach plan for the Fisheries Division and IFM Section.

By working directly with the I & E Division to develop an outreach and networking plan, the Fisheries Division and IFM Section can successfully improve public understanding and support for the various aspects of the Inland Fisheries Management Program. Again, recommended is a collaborative planning process involving representation from those expected to implement the plan in whole or part.

Sub-points to consider in the development of an outreach plan are:

- It is clear that the I & E Division needs to give more attention to inland fisheries activities in the field, especially by observing and/or participating in such themselves, and by taking the lead role in the overall outreach effort.
- There is concern that freelance writers now being used to write magazine articles are too removed from fisheries field work to understand it or write about it in a manner that reflects the Division or IFM Section's interests or concerns and/or depth of issues.
- During Phase I and II of the review, an issue was raised about the effectiveness of the Department magazine in conveying important messages about inland fish management to the numerous publics that the IFM Section and Division would like to impact.

Given these points, the following recommendations are also made:

- As a part of the recommended communications planning process, the I & E Division with others from administration should consider an assessment of the Department magazine's effectiveness. Given the evolving nature of user groups in Maine, as in the rest of the country, the Department may want to consider a publication that reaches a larger, broader audience — such as a color quarterly newspaper insert or other more widely distributed periodic publication. It may be time that the Department transition from a magazine to another more effective publication format.

- Given the time constraints and workloads of the fisheries biologists, it appears unwise to use them as writers for popular articles. Unless some other avenue is found, out-sourcing this function is an acceptable approach; although, the oversight provided to contractors needs attention.

Again, to be effective in garnering public understanding and support, the articles written (for whatever format) need to be timely and on target regarding current inland fisheries management activities, challenges and issues. Using contract writers who will travel to, observe, and participate in field activities is preferable.

- Likewise, as a part of the communications plan, I & E Division personnel should travel to, observe, and participate in field activities — to photograph and write stories about them. To facilitate developing a closer connection between I & E Division staff and the IFM Section, as part of the plan they should call periodic meetings in which together they coordinate participation in field activities.

#6 Recommendation to Improve Communications: Align outlying Law Enforcement Sergeant Section boundaries with the boundaries of the Fisheries/Wildlife Management Regions.

Internal communications and public service efforts can be improved at no cost and with minimal disturbance by re-districting the boundaries of the Sergeant Sections in the Law Enforcement Divisions to align with the boundaries of the current administrative regions for the IFM Section and the Wildlife Management Section. It is not realistic to hope that the Department can revert to having seven (7) Law Enforcement Divisions that exactly overlay the resource management regions, hence it is suggested that alignment be accomplished at the Sergeant Section level. This will enhance exchange of information between resource managers and wardens. It will also make it easier to direct public inquiries and requests for assistance to the right person because it will make it easier to determine who is responsible for any given geographic area.

Public Involvement

You either do public involvement in the beginning or you get it in the end!
Anonymous

Current Status

Involving the public, especially via working groups, in the strategic planning process is laudable. Also, the participation of fisheries and administrative staff in numerous public forums around the state has helped gather public input mostly in a non-confrontational manner. One-on-one contact in the field between fisheries staff and anglers is also a golden opportunity to get input and provide information on a one-on-one basis. This opportunity is being used well in most cases. However, in some cases open displays of arrogance, or intolerance for angler ideas, have been detrimental to fisheries program support.

The Legislature has mandated a regulation setting process that includes certain public hearing processes that the Division must follow. A strategic planning process once every fifteen years and a dozen or so open public forums annually added to this are not enough for effective public involvement. When considering the additional hearing process for making regulation changes and the one-on-one contacts between fisheries staff and the angling public, some major gaps are evident in the public involvement philosophy, commitment, and processes used by the Division.

Discussion

Responses from those interviewed showed varied and different views within the Department and the IFM Section as to what public involvement means and how it should be accomplished. However, in practice, the Division and the IFM Section appear to rely almost exclusively on regulation hearings and one-on-one angler contacts as their public involvement process – this is *too* limited an approach.

When asked to describe the philosophy of the IFM Section toward *customer service* three themes emerged with an obvious polarity. The overarching theme was *"The needs of the public as the customer are our priority"* with 50% of the responses aligning under this theme. However, this theme was not supported by the constituent segment interviewed. The second strongest theme was *"resource protection"* with 30% of the interview responses supporting this concept. *"Biologically optimal quality fisheries"* was the third theme with 14% of the interview responses.

Public participation is not “convincing the public to think like we do”. Nor is it giving up one’s management responsibility as a professional biologist nor abdicating management decisions in favor of a vote. A majority of the fisheries biologists believe the public must be served. They also share a relatively limited view of just who IFM Section publics really are. The Review Team suggests they broaden their view of who their constituents are.

Also, there seems to be a strong belief that if “the biology” is explained correctly or long enough, then “people will agree with us”. Nationally recognized authority on citizen participation, Hans Bleiker, eloquently describes this belief as the “*Technical Fallacy : the notion that rigorous technical analysis of complex problems where the solutions affect diverse publics with different values leads to agreement.*” These misconceptions of what public involvement is can be corrected by providing adequate employee training in public participation theories, skills, and experiences. But, unless it is instilled within the culture, training alone is ineffective.

There is a distinct difference of opinion regarding the IFM Section’s use of processes that effectively identify public concerns before they become issues. Overall, 64% of those interviewed indicated that such an effective process does exist. However, this perspective is not universally held across categories of those interviewed: Advisory Group — decidedly “no”; Biologists — decidedly “yes”; Administration — split; and Constituents — decidedly “no”.

The current disconnect between the Sportsman’s Alliance of Maine (SAM) and the IFM Section is a rift that is exacerbated by the lack of a more rigorous public involvement process. In recent years the situation has continued to worsen. A lack of leadership at the Division level to establish a common philosophy, commitment, and approach to public involvement has contributed. In fact, to address this issue, the Commissioner has mandated a more active public involvement effort within the Division.

This rift needs to be repaired through cooperative efforts between SAM and the IFM Section. It is time for both parties to work in concert in the interest of the fisheries resources of the state.

Leverage Areas

- Widely shared Department and Division philosophy and rationale on effective public involvement.
- Data collection on public attitudes, preferences.
- Knowledge and skills in successful public participation strategies and approaches.

- Reward systems that align employee public involvement behaviors with Department/Division philosophy.

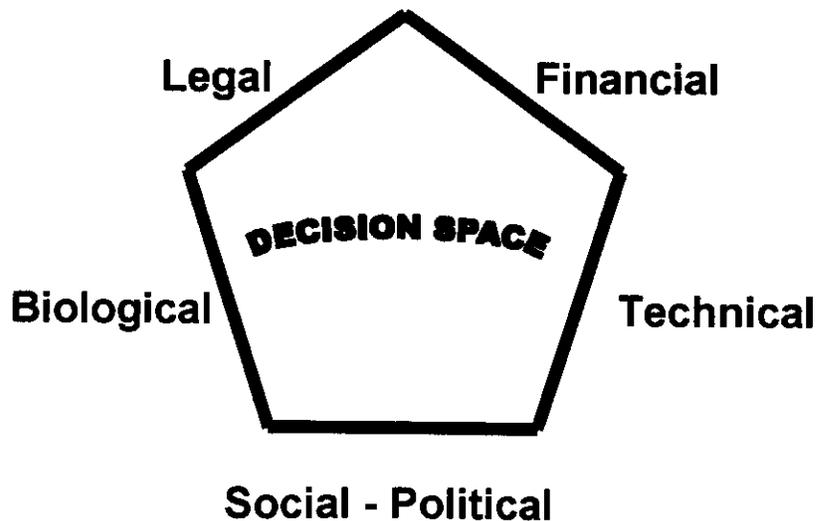
RECOMMENDATIONS ( means requires additional resources)

#1 Recommendation to Increase Public Involvement Effectiveness:
 Establish and promote a written Department/Division philosophy about what public involvement is and what it represents, as well as how it “fits” into the biological management of natural resources.

MAT suggests a philosophy similar to that represented by the decision space pentagon illustrated below.

Effective public fish and wildlife agencies make decisions involving five critical considerations. This five-sided decision space can be thought of as a decision pentagon. The space is first bounded by legal boundaries (Does the agency have the authority for doing this? Is it constitutional? Does it meet National Environmental Policy Act regulations [NEPA], etc.?)

The second boundary is the biological boundary (maximum sustained yield, minimum viable population, etc.). The third boundary is the technical boundary (We can’t use a 5 lb. radio collar on a hummingbird). The fourth boundary is the financial boundary (Can we afford it, etc.?). The fifth boundary is the socio-political boundary (Is this acceptable to our publics, etc.?)



Most biologists understand the biological, technical, financial and legal constraints of decisions. But often they wish socio-political boundaries didn't exist. People generally want to emphasize the boundary that is closest to their area of expertise (financial for accountants, biological for biologists, legal for lawyers).

Socio-political boundaries are just as hard and binding as biological boundaries. Again, this doesn't mean that biologists or other professionals should abdicate their professional responsibilities.

Instead, it is the professional's responsibility to make sure that all publics know and understand the other four boundaries so that the public can make informed choices about setting the socio-political boundary. The fish and wildlife agency professional must not succumb to setting the socio-political boundary for their publics. The professional must make sure the publics and other agency personnel understand the separate roles of the publics and the professionals in establishing the decision space. Citizen participation is the process used by agency professionals to insure that publics have an opportunity to be informed, express their concerns and recommendations, and participate in the decision-making processes effecting management of public resources.

**Strategy
Recommendation 1.1**

Commissioner and Division Director jointly promote a common public participation definition and philosophy.

The Commissioner has attempted to promote a public participation approach through policy development and use of the chain of command to get compliance from the Division. Communication seems to stop at the Division Director's level and complaints of "I didn't know", or "I wasn't involved" are heard. See "*Communications: Internal and External*" recommendations for strategies to remedy this, Page 13.

**Strategy
Recommendation 1.2**

Provide training for all staff in Division administration and the IFM Section on public involvement philosophy, approaches, and techniques.

While a number of the fisheries staff have been exposed to training in public participation with such groups as Hans and Annemarie Bleiker's Citizen Participation workshop, a one-time training is not sufficient for development of a repertoire of successful techniques and approaches. Providing training on this topic not only offers skills for successful public involvement but also provides an

opportunity for the Commissioner, Deputy Commissioner, Bureau Director, Division Director, etc., to promulgate the Department philosophy of public involvement. Noel Tichy, author of *The Leadership Engine*, extols the virtues of organizational leaders such as Jack Welch, former CEO of General Electric, who spent large portions of his time training employees to achieve organizational ends. Tichy goes on to state, "Leadership is the capacity to get things done through others by changing people's mindsets and energizing them to action. Successful leadership must accomplish this through ideas and values, not through coercion or Machiavellian manipulation." Establishing and ingraining a philosophy of public participation is integral to the Department, Division, and IFM Section future management success.

**#2 Recommendation to Increase Public Involvement Effectiveness:**

Add rigorous methods to gather human dimensions data (public attitudes, preferences and desires).

Public forums, one-on-one contacts, citizen working groups, and regulation hearings are good efforts as far as they go. However, information collected from constituent participation in forums, working groups, public hearings, etc., is not statistically defensible. The opportunity for "packing the court" always exists. Advisory Council members often have to question if testimony heard in one of these forums is truly representative of what the majority of constituents think. The Department currently conducts a public survey using mailed questionnaires to a random sample of Maine's citizens about once every five years through the University of Maine. In the last three years I & E Division has contracted telephone surveys of the general public for Department-wide information. This is an excellent effort at the agency level. These telephone surveys include some questions about fisheries but not at the level of detail needed to make informed and specific fisheries management decisions.

Effective public participation, like effective biology, must use defensible and statistically valid methods of collecting information where practical. Representative samples of publics randomly drawn provide valid sampling methodology. In addition, the technique of mail or telephone survey allows for significant sample sizes to establish credible public attitude data. Contracting with organizations like Responsive Management, Southwick Associates, or Universities with Human Dimensions programs such as Cornell or Colorado State are examples of sources for collecting this type of data. Effectively run telephone surveys can provide quick turnaround of data in special cases as was illustrated several years ago when Wyoming Game and Fish conducted a telephone survey on an issue for their legislature in a week's time.

**#3 Recommendation to Increase Public Involvement Effectiveness:
Establish employee rewards for public involvement.**

The axiom in management is *"You get what you reward!"* There are no specific rewards for good public involvement practices in the Maine IFM Section. Establishment of such a reward system is critical to achieving alignment between fisheries employee public involvement practices and Department direction on this subject. In the review, instances of fisheries biologists doing good public involvement were described; however, no one indicated that any recognition has been made of these efforts by the Division. Similarly, in instances where public involvement was done poorly, no consequences to the offending employee(s) were known to have occurred.

Planning and Budgeting

Planning without action is only good intentions.

—Anonymous

Current Status

Currently there is a very active planning effort in the IFM Section. The Section's planner has done considerable work heading up the effort to develop the next fifteen-year strategic plan. Notable are the efforts at public involvement, which principally involved work groups composed of representatives from a cross section of publics. It is an excellent component of the planning process and shows good use of this one public involvement technique.

General goals and strategy development are in the final stages of completion, and hope is expressed by many within the IFM Section that this strategic plan will be a benefit, helping with current controversies, e.g., the Sportsmen's Alliance of Maine (SAM) dissatisfaction on some issues.

Efforts have been made to write statewide goals, strategies, and objectives in terms, which the general public understands and to which they can relate. This seems to be an improvement over the last strategic planning effort fifteen years ago. However, fisheries constituents relate most to what is happening on their favorite bodies of water. While necessary planning tools, statewide goals reflecting statewide catch rates, etc., have a limited reality for constituents.

The current draft strategic plan was developed from the top down. Statewide goals for each species of fish were developed first. At this point in the process the Section has not yet stepped down the plan to apply it to each region's species management practices or annual work plans. We strongly encourage this step because it is the only way to have the strategic plan implemented at the level where the fieldwork is done. Currently, it is unclear how or if the strategic plan will be successfully tied to the Division's budget, but using work plans that include a requested budget can be an effective vehicle for making this connection.

At present in each region annual work plans consist of developing a list of waters that the biologists intend to work on during the following year along with what work is to be done on each body of water. This list of waters and associated work is then discussed by each regional biologist with the Division Director and IFM Supervisor and approved by the Division Director. These work plans may also include other important fisheries work such as public participation efforts, etc.

Regional fisheries biologists have no information about budget. There essentially is no regional budget. Budget expenditures are all a "black box" of unknown

information with the Division Director holding the key. One biologist stated, "I have no idea if we spend \$50,000 per year or \$500,000 per year." The fisheries budget is developed annually at the Division level by the Division Director and seems to be based upon the old adage common to state government of "You get what you got last year with a percentage adjustment for inflation". This is understandable given the state financial situation and it's essentially flat budget levels over the last number of years. However, even with flat budgets, there should be projects planned with specific time periods (five-year projects, two-year projects, etc.). These projects eventually end and dollars and staff time are then freed up for redirection. Without work plans, this redirection is left to the Division Director to do as he decides.

Discussion

The Management Assistance Team's experience with state fish and wildlife agencies' strategic plans is that many often end up as a document that fails to be implemented in the agency's day-to-day work. Several of those interviewed expressed the opinion that this was the fate of the last fifteen-year strategic plan in the Fisheries Division. The key to stepping down the new statewide goals and objectives to a meaningful level is in development of regional work plans.

A prototype work plan is being developed for lake trout, which is an appropriate way to begin. The draft concept plan for integrating species plans into regional work plans is a good overview of how regional work plans might be "rolled up" to meet statewide objectives, but this concept plan is not sufficient for a work plan. The concept plan must be followed up by instituting a process for development of annual work plans within each region. It is critical that a final annual work plan development process be put in place to include *all* work done by the IFM Section. These work plans should include at a minimum:

1. Project Name
2. Person responsible for the project
3. Number of staff and amount of time each is to work on the project
4. Project schedule showing specific tasks to be accomplished during the budget year with completion dates for each task
5. Cost of the project
6. Measurable results/benefits expected from completion of the project (project objectives and outcomes)
7. How the project's completion will help meet goal(s) or objective(s) of the strategic plan.

Only with this type of work plan is it possible to make a direct tie between the actual work to be done in the field with the overall statewide direction, goals and objectives set forth with constituents in the development of the strategic plan. This approach also allows for quarterly, semi-annual, and/or annual evaluation of what was actually accomplished against what was planned and budgeted. This

accountability should then be reflected in each employee's annual performance appraisal. Currently, neither this level of work planning, budgeting, nor accountability is in operation within the IFM Section.

A proper work plan process also provides ultimate accountability at the Division and Department levels when tying accomplishments to budget expenditures. When asked where the money goes and what was accomplished, it is easily answered if a good work plan process is in place. In addition, state agencies are often asked to explain the impacts of potential budget cuts or possible budget increases. Legislative bodies rightly ask questions of this nature in order to understand what the public will get for budget increases or what will be lost if budget cuts are made. Without a budget and planning process like the one described here, the Department and Division can only relate impacts of budget cuts or increases in the most nebulous and general terms.

Annual work plans should be the basis for development of the Division budget. Work plans should be submitted to fund existing work with each budget cycle. Any plans for new work can be submitted at this same time in case funds are available for redirection or should additional funds be allocated to the Division. The criteria for selection of new project work plans should be developed based upon management priorities established in the strategic plan. Without having work plans, the budget process, and the strategic planning process tied together, the Department and Division can only hope for the best from year to year. In the absence of such alignment there is no assurance of achieving strategic goals and objectives.

The current fiscal management process in the Division has a number of serious disadvantages. First, regional biologists have no idea how much money they have to operate the region and are unable to plan for contingencies or handle unexpected needs. Any purchases, etc., are done on a "*Please, Mr. Director, may I have...*" basis. This makes the regional staff totally dependent upon the Division Director and does nothing to develop their budget management skills for professional advancement within the agency. This system of budget management creates a benevolent dictator of sorts. Regional biologists are totally dependent upon him. Although there is great regard for the Division Director, liking him does not enable regional biologists to function fully in managing all aspects of a complete regional fisheries program.

Leverage Areas

- Strong support from Division Director level up through Commissioner level for the strategic planning and work plan process, and commitment to accountability for its implementation.
- Public involvement at the regional level to develop regional objectives.

- Implementation of a system of annual work plans developed by the regions that describe what will be done by when and at what costs in time and dollars, and description as to how the work relates to goals, objectives and strategies of the Department's/ Division's planned strategic direction.
- Training for regional supervisory biologists on budget development and management utilizing an annual work plan process.

RECOMMENDATIONS

#1 Recommendation to Increase Planning and Budget Effectiveness:

Division Director and other administrative staff express and demonstrate strong support for an annual work plan process that includes all work done in the IFM Section and ties to overall strategic direction.

Critical to success of work plan implementation or any other management change of this magnitude is a strong show of support from the Division Director and administrators above that level. If field staff, who are responsible for implementing work plans, believe that upper management is not serious about the implementation or is "just going through the motions", then little real and lasting implementation is likely to take place.

Demonstration of strong support should occur through multiple actions, which should include but not be limited to:

1. Speaking out in support of the work plans process at every opportunity;
2. Honoring and/or rewarding those who work toward implementation of work plans and counseling those who stall or otherwise inhibit implementation of work plans;
3. Written documents, letters, memos, e-mails, informal notes and other written forms expressing support;
4. Providing clear written direction and examples for developing annual work plans.

#2 Recommendation to Increase Planning and Budget Effectiveness:

Establish a system of annual work plans that covers all work done in the Division and ties back to overall strategic direction.

Strategy**Recommendation 2.1**

Have the IFM Section planner work with regional fisheries staff to develop the final format for annual work plans and coordinate all work plans with the next budget cycle after the strategic plan is completed.

Including field staff in the development of work plans applies the principle, *"People tend to support what they help build."* The use of work plans must not be an option. Funding and staff time should only be budgeted for work that has been included in work plans.

Budget and staff time have already been committed for this fiscal year; thus, work plan development should take place in order to build the regional, Section, and Division budget requests for the next fiscal cycle. Timing is important because budgets are only developed once per year and it is important to not miss this opportunity.

The Division could serve as a model for other divisions in the Department if they are not already on a similar program of planning and budgeting as recommended here for fisheries.

#3 Recommendation to Increase Planning and Budget Effectiveness:

Involve publics within each region in development of regional objectives that address the overall statewide goals/objectives and apply them to specific regional waters.

In order to step down statewide goals, objectives, and implement statewide strategies, each region must develop its own strategies and objectives of how much it can accomplish in the statewide plan. This is where the "rubber meets the road" and is the level where constituents can connect with what will actually happen in their area and with "their" waters as a result of implementing the strategic plan.

Public involvement in setting regional objectives and strategies at this level is important to success. Otherwise, the Division may choose strategies and objectives that their publics do not support even though those same publics may have had a representative on a work group at the statewide level. It is not

recommended that publics be involved in actual development of annual regional work plans. These are the responsibility of the Section. However, work plans should be driven by objectives and strategies developed at the regional level with public input.

Implementation of the strategic plan by relying only on the legally mandated public hearing process when making rule changes or fish stocking changes is not recommended. This approach could lead to surprised and angry publics expressing disagreement with specific regional strategies and/or actions, even though they may tie to the overall state goals and objectives, etc. Constituents relate most to what will happen in their regions rather than to some agreed upon statewide goals and objectives.

#4 Recommendation to Increase Planning and Budget Effectiveness:

Train regional fisheries staff to develop regional budgets based upon annual work plans.

Budget development training can be done at no cost by using in-house Administrative Services Division staff and the fisheries planner to conduct training for the regional biologists. While some regional biologists may have budgeting skills, the current system of budgeting in the Division has done nothing to help the regional biologists understand or improve their skills regarding the budget process required by the Department and the state accounting system. The most important part of this training is developing a budget format for submitting regional project budget requests and helping regional biologists learn how to estimate time and dollar requirements for planned projects.

Staffing and Funding Levels

*"If we don't change our direction, we're likely to end up where we're headed."
– Chinese proverb*

Current Status

The IFM Section has a cadre of employees that are dedicated professionals who are trying hard to protect Maine's fisheries resources and provide quality and sustainable fishing opportunities. When assessing the numbers of waters and myriad of duties necessary to manage the inland fisheries of Maine, it is obvious that the Section is understaffed and inadequately funded. For example, illustrations of understaffing found are as follows:

- Some regional biologists are serving as staff for statewide programs (e.g., species experts, equipment purchasing,) and these responsibilities reduce the time available for implementing fisheries management programs.
- One of Maine's seven regions, Region C, is approximately 80% the size of Connecticut. Region C has only three biologists to manage all fisheries in that region; Connecticut has over 25 state fisheries biologists.
- Fisheries personnel expressed a general level of frustration over the fact that they have major management responsibilities and increasing workloads without adequate staffing. Primarily their frustrations were about their inability to get data on many bodies of water except once every several years (at best) and over their inability to study numerous waters. Forty-two percent (42%) of interview respondents indicated these as their top concerns regarding lack of funding and staff.
- Personal interviews conducted with fisheries staff, Advisory Council members, constituents, and administrators revealed that ninety-one percent (91%) of the respondents said there is a need for more funding and staffing.

Discussion

The current understaffing situation will soon be exacerbated by retirements and loss of institutional memory. The average length of employment for current fisheries management staff is 21.6 years. Six of the current fisheries biologists have been employed at the IFM Section for over 30 years.

In addition, a number of fisheries biologists expressed frustration over the length of time it seemed to take to fill IFM Section positions that were vacant due to retirements, transfers, etc. The perception was that other divisions within the Department were able to fill positions much more quickly and that fisheries was being "ignored."

In reality, it should take no longer to fill fisheries positions than any other division. The causes for this perception appear to be two-fold: 1) Recently some fisheries positions have been held open until the results of this review became available so that less disruption would occur if reorganizing of certain positions was recommended, and 2) Vacancy savings. Perhaps a larger factor is the failure of the Division Director to communicate to the field why positions have not been put forward to the Commissioner's office for filling or the failure to communicate sufficiently between the Director and the Commissioner's office.

Prioritization of work and allocation of resources (money and manpower) in a manner that reflects priorities and strategies are critical areas of management. This is especially critical when the resources of money and manpower are very limited as is currently the case with the Department. Eighty five percent (85%) of the interview respondents indicated that they believed work is prioritized and that resource allocation aligns with those priorities.

Four perspectives on how work is prioritized emerge from the data.

1. The most common theme is "formal meetings." Twenty-nine percent (29%) of the respondents support this theme.
2. The second most common theme is that work priority is driven by upper administrative mandate/directive. Twenty-three percent (23%) of the respondents support this theme.
3. The third most common theme is that work priority is driven by individual informal preference. This theme is supported by sixteen percent (16%) of the respondents.
4. The fourth ranked theme was that "public usage and requests" drove priorities.

Management Assistance Team observations and conclusions are that *regional* priorities currently are developed reasonably well and followed in each region. However, when biologists were asked to name the Division's priority areas of work, responses were "all over the map" with twenty-one different priorities named by 26 biologists interviewed (including the Director). This indicates no clear *statewide* priorities. See "Discussion" sections in "*Decision Making Processes*", Page 40 and "Recommendations" in "*Planning and Budgeting*", Page 28.

Leverage Areas

- Public support – As a public agency managing publicly owned fisheries resources, the IFM Section needs to garner support from its publics for increased funding and staffing levels. Legislative support will follow if a groundswell of public support is generated.
- Increased communication between the Division Director and the Commissioner's office about submission of vacant fisheries positions for filling, and communication between the Division Director and the field about the status of unfilled positions and rational.
- Prioritizing work and allocating money and manpower based upon those priorities – While 85% of fisheries employees believe that their work is prioritized and resources allocated accordingly, improvements in the way this is done will yield greater targeted use of existing resources. See "*Planning and Budgeting*", Page 28.

RECOMMENDATIONS (\$ means requires additional resources)

#1 Recommendation to Increase Staffing and Funding Effectiveness:
Pursue multiple avenues for increasing funding and staffing for the IFM Section.

Improving funding and staffing levels in the current economic climate within Maine's state government will be challenging to say the least. However, this does not diminish the importance of doing it. Personal interviews of constituents, fisheries staff, administrators, and Advisory Council members revealed two primary themes and three secondary themes on how to improve funding and staffing.

1. The overwhelming theme was "total stakeholder involvement in the budget process" with 41% of respondents indicating this was an important step to increasing funding and staffing levels.
2. The second and still strongly supported theme was "larger general fund allocation" with 21% of respondents indicating this as a leverage area.

The three secondary themes were:

- "Use project based funding" (10%),
- "Develop and implement grant seeking and partnership strategies" (7%)
- "Set the hiring of biologists as a state priority" (7%).

The basis for any of these avenues becoming successful will be the general publics of Maine becoming more aware of the significant understaffing and lack of funds for the IFM Section, and the resulting impacts on the state's inland fisheries resources. Once the problem is recognized, then support must be garnered from a majority of publics for fixing the problem. Once this stage is reached, avenues can be pursued such as a greater share of the state's general tax funds, a percentage of the state sales tax, or lottery monies, etc.



#2 Recommendation to Increase Staffing and Funding Effectiveness:

Develop detailed justifications and prioritize IFM Section staffing needs with the goal of adding, at least one, new, full-time fisheries biologist position to each region over the next two years. The duties of these positions should be to work primarily on habitat protection (including riparian areas) and exotic species issues.

AND...



#3 Recommendation to Increase Staffing and Funding Effectiveness: As additional funding becomes available, increase temporary/seasonal help to assist biologists in field data collection activities.

The IFM Section's regional management teams are currently between "a rock and a hard place" within a tightening political vice. What is critical at this stage is that meaningful and positive changes be made to increase Division budgets and administrative programs. Sincere efforts by all who are truly concerned about perpetuating Maine's highly valuable fisheries resources are needed to work together in a more cooperative and productive way.

Ninety-one percent (91%) of all people interviewed agreed that a shortage of fisheries staff existed. An attitude of hopelessness about rectifying the situation was apparent. This was probably due in large part to the state budget deficit and associated financial problems.

Two points to consider are: 1) While the state budget picture looks bleak, it does not mean that an increase in staff and funding is not warranted and could not be achieved with sufficient public support; and 2) Plans should be made now for eventual increases in funding and staffing even though actual realization of those positions and funds are not imminent.

With this type of planning done up front, it is much easier to address legislative and constituent questions regarding the need for budget increases. In addition, public support is much easier to generate if those publics know specifics about how money will be used.

The need is greatest for fisheries staff in the regions to work on stream and river fisheries, habitat protection, as well as exotic species introductions. Much of the work done currently is on population surveys in lakes, etc, and many biologists lamented that not enough time was available to do the long-term work on habitat assessment and improvement that is crucial to maintaining a viable fisheries resource. In addition, illegal introductions of exotic aquatic species is a major concern because of the major biological implications and often irreversible damage to natural ecosystems. Additional fisheries staff must be available for monitoring and better control of these situations. This is a much more critical ecological issue than such things as catching an over limit of fish or poaching deer.

If too many fish are caught or too many deer are poached, the biological situation can be rectified by reducing the number of legally harvested fish or deer. However, when exotic plant species or exotic fish species are thoughtlessly introduced into waters, then the consequences often are irreversible. Bass, walleye, and other exotic species introduced into waters with a healthy native species fishery may decrease the native fishery through competition of various kinds (food, space, spawning areas, etc.). There is usually no suitable way to remove the exotic species to correct the situation.

#4 Recommendation to Increase Staffing and Funding Effectiveness: Fill the position of "IFM Supervisor" as soon as possible and proceed with plans to move the position to the Augusta office to better centralize Division senior management and improve day-to-day communications.

This recommendation is currently being implemented and the Department of Inland Fisheries and Wildlife is to be commended for its efforts in this area. This position is key in the management framework for the Inland Fisheries Research and Management Section. Better leadership, management oversight, and effective supervision of the IFM Section is needed. A consistent theme

from interview respondents was that accountability for what and how well jobs were done was not as high as it needed to be.

The responsibility for maintaining accountability rests with this position. Filling this vacancy and moving it to Augusta will provide a stronger statewide platform from which to oversee management in the Division and improve accountability practices for program accomplishments.

#5 Recommendation to Increase Staffing and Funding Effectiveness:

Hold the Division Director accountable for keeping the field appropriately informed about status of vacant positions and the rationale for filling or not filling them. Also, hold the Division Director responsible for communicating in a timely fashion with the Bureau Director and the Commissioner's Office regarding vacant position needs.

The Commissioner's Office and the Personnel Division indicate that it takes no longer to fill fisheries positions than for other divisions. In some cases it is true that some positions take longer than others to fill due to vacancy saving efforts on the part of the administration. This was the case in the IFM. Similarly, the decision was made to hold some positions vacant until this review was completed.

However, the other more serious problem seems to be a breakdown in the communication from the Division Director up through the Bureau Director to the Commissioner's Office. This breakdown is in regard to the need for filling positions and the timing, as well as a failure of the Division Director to explain status of vacant positions and rationale for such to the field staff. Responses from the Division Director of "I don't know" or "I sent it up the chain and haven't heard" to questions from field staff are insufficient. If a reasonable amount of time has passed after requests for filling positions have been made, the Division Director has the responsibility to seek an explanation and not shrug it off with comments like "I haven't heard anything."

Decision Making Processes (Policy and Direction Setting)

We will either find a way or make one.

—Hannibal

Current Status

Division policies currently revolve around mostly biological matters. The Division has recently received direction from the Commissioner on administrative practices for reporting, communication guidelines, coordination policies, expected behaviors, etc.

It is worth noting that the new “Administrative Policy Regarding Fisheries Management” is the one policy that has met with the most resistance. Those interviewed were asked if they believed the Section or their region was involved in the development of general fisheries policies. Sixty-four percent (64%) of respondents indicated “yes” while thirty six percent (36%) indicated “no”.

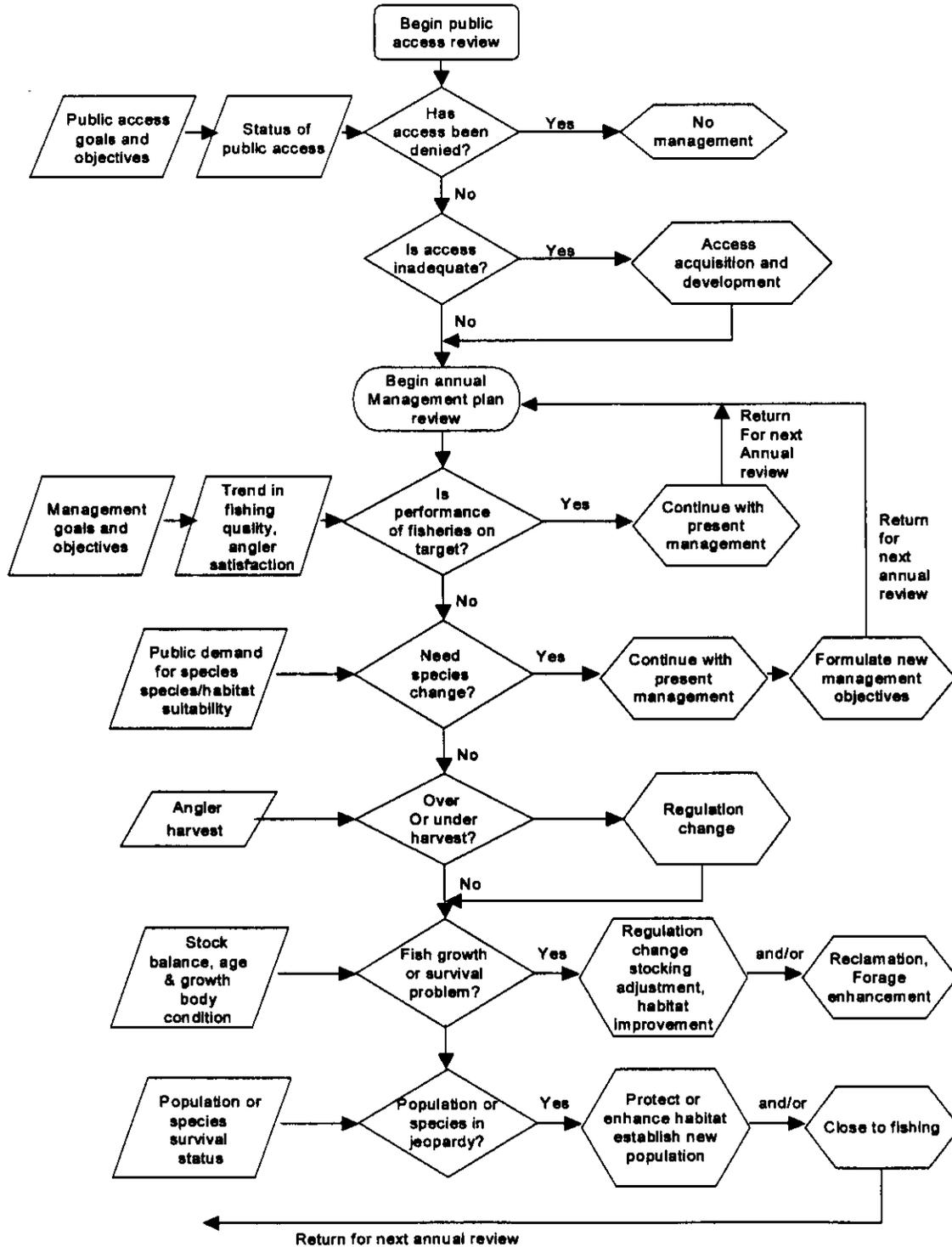
However, there was a significant level of angst among the fisheries biologists over this most recent policy. Fisheries biologists felt that the new policy had been developed without their involvement; some felt that they were asked to comment on it only as an afterthought. Several biologists expressed the concern that the new policy may have been written by the Sportsmen’s Alliance of Maine, SAM, and was “rammed down their throat”. These perceptions have created strong resistance to implementation of this new policy. The Division Director seems to have a “hands off” attitude toward this policy and has done little that we could see to help encourage acceptance of the policy by the field. For example, when the Division Director received the draft policy for comment from the Division, he did not send the policy to regional biologists for review and comment, contributing to a lack of buy-in from the field.

The fifteen-year old strategic plan is currently being updated, but is not yet completed. Thus, currently there are no clearly implemented goals to guide decisions of the Division. In addition, there is a lack of policies to put agreed upon goals into action. This is reflected in the inconsistencies voiced by respondents in these areas:

- 1) Priority areas of work (See discussion in “*Planning and Budgeting*”, Page 28);
- 2) Inconsistencies in what are believed to be major accomplishments;
- 3) Inconsistencies in what is believed to constitute customer service.

Responses from the interviews indicated 74 different activities/projects constituting the Division’s major accomplishments. Whereas recognizing so many different accomplishment activities is great, there was no agreement on what the most significant accomplishments were. This lack of convergent thinking indicates a lack of direction.

Figure 1. Fisheries Assessment and Decision Process (1991)



Maine Department of Inland Fisheries and Wildlife. 1997. Program evaluation report. Government evaluation act.

When biologists were asked to describe the IFM Section's philosophy toward customer service, three different themes emerged: 1) biologically optimal quality fisheries, 2) the needs of the public as the customer are the priority, and 3) resource protection.

The IFM Section's historic "process" for making management decisions is outlined in Figure 1. This "process" is based primarily upon biological criteria with almost no mention of public input or other criteria such as technical limitations, financial limitations, legal limitations, or socio-political limitations.

The IFM Section has a "peer review" process that is usually adhered to when a region wishes to make significant changes such as stocking a new species of fish in a body of water, or major regulation change. The biologists discuss and comment on the change, with final decisions made by the Division Director as to what to propose for regulation changes, etc. In the past there has been a system of up to fourteen different committees within the Division that review information for decisions:

- | | |
|-----------------------------------|----------------------------|
| — Regulations | — Bass Management |
| — Hatchery, Fish Quality | — Data Management |
| — Creel Survey | — Hydro-acoustics |
| — Esocid Management | — River Survey Guidelines |
| — Planning | — Bait Dealers & Licensing |
| — Fishing Derby/Bass Tournament | — Angler Questionnaire |
| — Anadromous-Freshwater Conflicts | — Report Format |

The peer review is a valuable process and provides the "collective wisdom" of all the IFM Section's fisheries biologists on important decisions. Public hearings are mandated by law for regulation changes and these processes are followed with the Advisory Council making the final decision on such issues. When fisheries employees were interviewed, there was unanimous agreement that Department/Division policies existed that governed the IFM Section. When asked if they were familiar with the policies, eighty percent (80%) indicated they were familiar with the policies governing fisheries management. Some employees even produced the policy manual in three-ring binder form. Only twelve percent (12%) of employees indicated they were not familiar with policies governing the IFM Section staff. The few remaining respondents indicated they were only somewhat familiar with the policies. As stated earlier, our observations are that these policies are restricted mostly to biological criteria for decisions.

Eighty three percent (83%) of biologists in the IFM Section indicated that Department/Division policies were followed by fisheries staff. Only one respondent indicated they believed Division policies were not followed but still indicated that general Department policies were followed. Sixty percent (60%) of administrative staff believed that fisheries staff followed policies. While twenty percent (20%) of administrative staff believed policies were not followed and another twenty percent (20%) believed they were followed somewhat.

Discussion

Another indication of ineffective decision-making, policies and implementation processes is the lack of agreement on priority areas of work. High levels of agreement and consistency would indicate consistent decisions, good follow-through, and good communication and implementation processes. When those interviewed were asked to name the priority areas of work, answers were extremely diverse. This is an indication of unclear direction at the Division level. Some priorities were mentioned more often than others with the top three being: 1) Hatchery production and stocking, 2) Cold water fish management, and 3) "Keep Maine fishing good".

All interview respondents agreed that specific areas of emphasis were different between regions. The general consensus was that this was warranted due to regional differences in species of fish, fish habitats, and angling pressure. This makes sense from a purely biological perspective and should apply to biological considerations. It does not fit necessarily with decisions regarding public involvement processes, accountability procedures, etc.

Regional autonomy was an area that came up during the focus group discussions as an area of concern. When interviews were conducted, forty-three percent (43%) of the administrative staff said that they did not feel the regions effectively supported the overall mission and strategies of the IFM Section's Program with the regions current level of autonomy. The Advisory Council had sixty-seven percent (67%) indicating they felt the regions were effectively supporting the Division direction with current levels of regional autonomy while the remaining Advisory Council members (33%) did not. Not surprisingly, eighty-eight percent of the biologists interviewed believed the current level of regional autonomy provided effective support of the IFM Section's mission and strategies.

When the question was asked, "*What drives decision-making processes regarding Inland Fisheries Management priorities*". Eighty percent (80%) of the responses were encompassed by four major themes:

1. Twenty-eight percent (28%) believed public demand drove decisions
2. Twenty-three percent (23%) believed biologists drove decisions
3. Eighteen percent (18%) were in the middle ground believing that public needs tempered by biology drove decisions
4. Thirteen percent believed that politics drove the Section's decisions

These answers indicate an underlying dichotomy of beliefs. There is a struggle between two major factors: either public demand and politics drive fisheries management decisions or biology drives them. Only eighteen percent (18%) of the responses

indicated a paradigm that biology and public demand/politics can work together for better, more informed decisions.

Interviews with Advisory Council members, fisheries biologists, Department administrators, and constituents included the question, "What, if any, policies need to be clarified in regard to setting and pursuing direction for the IFM Section's program?" A majority of Advisory Council members indicated they either didn't know or that no policies needed to be clarified. Forty-eight percent (48%) of the fisheries biologists indicated that no policies needed clarification, twenty-two percent (22%) of the biologists said the new "Administrative Policy Regarding Fisheries Management" needed clarification, and seventeen percent (17%) of biologist responses indicated clarity of the policy regarding management of exotic species was needed.

Responses from Department administrators indicated that sixty-seven percent (67%) believed no policies needed to be clarified. All of the constituents interviewed believed policies needed clarification. The constituents were evenly split in their responses between three policy categories recommended for clarification: 1) Management of invasive species, 2) Management of non-game species, and 3) Stocking of anadromous fish species.

Leverage Areas

- Public participation strategies
- Internal Communication

RECOMMENDATIONS

#1 Recommendation to Increase Decision-Making Effectiveness: Develop a Department/Division policy that establishes criteria and responsibilities for the regulatory process, including a clear definition of "substantial management change" that can be applied across all regions.

There was considerable concern voiced by fisheries staff about the recently enacted legislative requirement for public review of "substantial management changes"; and the requirement for public hearings prior to any such changes. Some confusion exists in the interpretation of "substantial management changes"; although most regional biologists had established personal thresholds based on their interpretation and some official clarifications. The perceived vagueness in this new requirement could be further clarified and reinforced by a Department definition and policy.

#2 Recommendation to Increase Decision-Making Effectiveness:

Implement recommendations 1, 2 and 3 in the "*Public Involvement*" part of this report, Page 22.

The current IFM Section's decision process currently revolves almost totally around application of biological criteria as illustrated in Figure 1. These criteria are embedded in fisheries policy and are followed well as reflected in the biologists' responses to questions about awareness of policies and following of those policies.

Significant weakness in the Division's decision process is not in the policies related to application of biological criteria to decisions. The weakness is that biological criteria appear to be used almost exclusively in making decisions within the Division. Out of twenty-seven boxes in the decision criteria flow chart in Figure 1, only one box (Public demand for species and species habitat suitability) mentions the public as part of the criteria. While biological parameters must be followed, the Division should also consider the other parameters for management decisions regarding a public resource. Specifically, see the parameters listed in the decision pentagon in the "*Public Involvement*" segment of this report, Page 24.

Currently the IFM Section appears to base their regulation and stocking decisions primarily on biological parameters and depend on the public hearing process to settle any disputes. More public involvement and conflict resolution work with publics prior to legislatively mandated hearings would result in better decisions and reduced levels of conflict. See "*Public Involvement*", Page 22, regarding training for fisheries biologists in this area; and, "*Personnel Leadership*", Page 7.

#3 Recommendation to Increase Decision-Making Effectiveness:

Commissioner should mandate communication processes for administrative staff, and hold the Deputy Commissioner, Bureau Director, and Division Director accountable for implementing and following these policies (See *Communications: Internal and External*" segment of this report, Page 13).

When biologists were asked, "*What strategies, systems, or processes do you have to give input to administrators?*", most responded that they passed along information/questions to the Division Director through direct dialogue. There was high trust from the field in the Division Director's decisions on what to pass along. Currently there is little communication between the field and upper administration except for communication to the Division Director from the field. The field biologists expressed

great satisfaction with communication with the Division Director. However, communication upward and downward in the chain of command at the Division administrative level is like “a marble in a water pipe”, restricting flow both upward and downward. See *“Communications: Internal and External”*, Page 13.

Effective implementation of administrative policies and direction regarding public involvement and proper attitudes and behavior for working with publics are greatly inhibited due to lack of communication flow and follow-through. This responsibility should flow from the Commissioner to the Deputy Commissioner to the Bureau Director to the Division Director to the IFM Supervisor and finally to the regional biologists.

The Commissioner believes strongly in using the chain of command and sending directives down through “appropriate channels”. However, the procedure of following chain of command is effective only if each subsequent position in the chain effectively does its part. Currently this isn’t the case. In the short term, the Commissioner will need to follow-up on his directives and break the chain of command when necessary, working directly and often with the new IFM Supervisor.

The result of both upward and downward communication stopping at the Division Director’s level is that field biologists have a strong feeling of disenfranchisement with the Commissioner’s office. Almost ninety percent (89%) of biologists reported they did not feel there was genuine and effective support from the Commissioner’s office for the IFM Section. At the same time, the close contact and communication the Division Director has established with field biologists is responsible for multiple expressions of strong trust and support, as well as dependence on the Division Director.

One hundred percent (100%) of the Advisory Council members and constituents interviewed believed that there was strong and effective support from the Commissioner’s office for the IFM Section. They based their beliefs upon their personal experiences with the Commissioner in public hearings, regulation meetings, and private conversations as well as the Commissioner’s decisions and actions of which they were personally aware. Examples of comments from this group included:

- *“Commissioner believes resources come first above politics.”*
- *“From the Advisory Council perspective, the Fisheries Division seems to be as well supported as any other division.”*
- *“The Commissioner’s Office leadership in the hatchery initiative, improving field equipment and facilities, etc.*
- *The Commissioner comes out publicly with answers he grounds in his people’s data.*

Resource Management Practices

Shun those studies in which the works that result die with the worker.
— Leonardo da Vinci

The Scoping Phase of this review revealed resource management concerns in the following eight areas:

- 1) Regional management philosophy
- 2) Biological limitations to management programs
- 3) Management of illegal or unauthorized introductions (especially of exotic species)
- 4) Aquatic habitat protection
- 5) Function of the research group
- 6) Providing public access
- 7) Biological impacts of practices like bass tournaments and bait fishing
- 8) Proactive versus reactive strategies for identifying biological needs/issues

Findings for each of these content areas will be reported individually below with recommendations consolidated at the end of this section

1. Regional Management Philosophy

Current Status

The common management philosophy throughout all regions can be described as: *“To provide maximum fishing opportunities based upon the biological capabilities of the waters being managed.”* Individual regions have a diversity of aquatic habitats and species, as well as differing public desires and degrees of angling pressure that form the basis for a region-by-region philosophy and varying approaches to management. Hence, the regions operate in a fairly autonomous manner, with apparently few written statewide management policies or directives from the Division’s state office.

Species management plans (most of which are currently under revision) set broad management objectives for individual species, but how or if individual regions contribute to those objectives is essentially left up to the regional biologists in each region. Quality control is maintained in fisheries programs through data collection guidelines, peer review of reports, public review processes, and statewide networking. In general, the biologists reported their “biggest shortcoming” was not being able to always complete written technical reports in a timely manner.

The individual regions are managing their fishery resources by water body or groups of similar water bodies based upon habitat characteristics, recognized important species, principles of sustainability, and public desires. Biological data provide the basis for management decisions and proven regulatory controls (e.g., slot limits) are used to maintain and enhance fishing opportunities. This management approach is biologically

sound, effective, and appears to be working well overall in the regions. However, the regional programs could be strengthened by improved direction and oversight from the Division's state office, increased technical support to regional management, and implementation of a consistent statewide approach for developing written management plans specific to each region's management programs.

Discussion

Regional staff, in concert with public interests, indicate a growing concern about protection of aquatic habitats and fishery resources, particularly protection of wild native fish populations. Regional management programs are, for the most part, strongly oriented towards lakes and ponds where access is easier and fishing pressure the greatest. There is a wealth of biological data, including angling use data, on lakes and ponds (about 80% have been biologically surveyed), but little information on rivers and streams. Other jurisdictional agencies (e.g., Maine Division of Marine Resources) sometimes complicate river and stream management. To collect more detailed biological information on rivers and streams, all regions need additional staff.

Statewide direction for management is generally lacking at present. There is no discernable management framework currently in place and functioning. There is a perceived disconnect between statewide plans, regional plans, and regional programs. This condition is illustrated by the divergence in answers when Division and IFM Section personnel were asked what the IFM Section's priority areas of work were (see sections on "*Decision Making Processes*", Page 40, and "*Planning and Budgeting*", Page 28.

There is a current effort at the state level to update the Inland Fisheries Management Strategic Plan, and, in theory, make it the template that drives statewide and regional management initiatives; however, few biologists seem to be aware of the details of or are supportive of this effort. For example, species management plans are a fundamental component of the strategic plan, but most biologists view the species management plan approach as too broad to facilitate effective management at the regional level. They are correct in that individual fisheries (e.g., large lakes, ponds with similar habitat, rivers, similar type streams) need specific management goals and objectives. However, what they are apparently not aware of is that the next phase in the strategic planning process is to step-down the species management plans into annual work plans that integrate species management in bodies of waters around the state—and that these annual work plans should be used to prioritize work assignments and tie priorities to budget allocations.

Additionally, few, if any, biologists or others in the agency seem confident that the strategic plan will actually be implemented. Related to this theme, many in the IFM Section are aware of a new fisheries management policy, titled "Administrative Policy Regarding Fisheries Management", developed outside of the Division; however, most biologists knew little about its content and don't know when, if at all, it will be implemented. Much disapproval was expressed about the process used to develop this new policy, namely, the perceived total lack of regional involvement in the process. The

issues described here exemplify several recurring weaknesses in the Division and IFM Section: lack of effective communication, lack of effective plan implementation, and lack of effective policy and direction setting.

Other components of regional fish management philosophies investigated were:

1. Effective support at the regional level for the overall mission and strategies of the Division and IFM Section;
2. Whether or not differences in regional management philosophies and approaches lead to inconsistencies or conflicts in management practices;
3. Integration of nongame species in fish management work.

Sixty-two percent (62%) across all groups of respondents said there were inconsistencies between the regions, especially dealing with stocking strategies, management of exotics, and biases about species and habitats types. However, there was 100% agreement in all groups interviewed that there is a need to manage the resource differently in different regions. The universal reasons given for this included differences in: geography, fish species, biology, human population distribution and density, user group needs, and ecology of waters.

Additionally, 32% of respondents indicated that there were management inconsistencies within some regions. These were attributed to politics, lack of direction, lack of experience, serving diverse user needs, and differences in habitat quality and type.

Regarding integration of nongame fish and wildlife species needs, 64% of respondents supported the idea that the IFM Section integrates these species in management strategies either directly or indirectly. This is accomplished through consultation with fish and wildlife staff, and general habitat evaluation and protection work. Eighty-four percent (84%) thought these approaches were effective; however, those who didn't think so sighted biases toward game species, lack of funding and/or time, and resistance to embracing this area of responsibility.

2. Biological Limitations to Management Programs

Current Status

Numerous natural biological limitations (e.g., lack of adequate spawning habitat in some waters, low productivity in others) and man-caused impacts are affecting fishery management programs across the state. The types of limitations and degrees of impact vary from region-to-region and are based upon several factors to include: existing habitat conditions and amount of undisturbed terrestrial and aquatic habitats in a watershed; human population densities and growth patterns; past and present land use patterns; water pollution from surface runoff and point sources; extent of exotic species introductions and competition with native species (e.g., bass expanding into trout waters); and availability of forage fish (e.g., smelt) in lakes and ponds. Recent warming trends, coupled with loss of riparian vegetation and major changes in forest canopies in

some areas, are causing significant changes in summer flows and increasing water temperatures, which are adversely affecting habitat quality in some streams and lakes. Recharge of lakes and streams is also being influenced which can affect spawning and rearing success of certain species and over-winter survival, particularly in small streams and ponds.

Discussion

Exotic species introductions are considered the most significant biological limitation to fisheries management programs; this is closely followed by habitat degradation of streams caused by long-term logging impacts. These impacts limit fishery capability and can require extensive and expensive restoration programs. Regions are trying to manage conservatively given the biological limitations and impacts affecting habitat quality. Much effort is directed at protecting wild fish populations, but biologists are concerned that some segments of the public believe that increased stocking will solve all problems.

Several examples were given where water quality degradation in lakes has altered the natural habitat and resulted in a change in management capability, and, consequently, objectives. For example, in waters that no longer support a lake trout fishery, management has shifted to brown trout that can better tolerate degraded water quality. It is a common belief that cumulative and long-term degradation of aquatic habitats from various sources (e.g., timber harvest and associated road/trail construction, agriculture and irrigation, subdivisions, etc.) are impacting future options. Also, several regions are concerned that Atlantic salmon restoration programs have significantly affected other fishery management options.

3. Illegal or Unauthorized Introductions (Exotic Species)

Current Status

The introduction of exotic species (i.e., non-native to Maine waters) is a major concern statewide, particularly for the relatively recent introduced species that fall within the regulatory category of "illegal". The illegal introduction of exotic warm water species (e.g., largemouth bass, black crappie) is greatly affecting coldwater fisheries. For example, today there are at least 196 more bass waters in Maine than existed in 1991.

All regional staff view illegal introductions as one of the most serious threats to Maine's inland fisheries. They expressed deep concerns with the continuing increase in illegal introductions and subsequent spread of exotics throughout the state, especially near high human population centers. They are knowledgeable about existing adverse effects resulting from these introductions and the growing potential for future impacts to statewide and regional management programs. Exotic species introductions are perceived to drive regional programs by limiting management options and increasing costs, as well as exemplifying failure of minority publics to accept management decisions to exclude exotics from certain waters.

Discussion

Most biologists feel at a loss to deal with this issue, although it is obvious there has been considerable thought and effort directed at this problem and its potential resolution. They recognize that few, if any, management scenarios can really be effective (e.g., eradication) after species have been introduced into large lakes, ponds, and streams. Hence, they are highly frustrated in trying to deal with this threat and have not seen much success even though efforts have been made to increase public education, improve enforcement, and conduct species control in a few small areas. All regions strongly believe that the only hope is for major increases in the Department's I & E Division efforts to improve public awareness and increase law enforcement effort that lead to convictions of violators and stiffer penalties.

A common belief among regions is that some of the fishing guides and private property owners on some lakes are "taking management in their own hands" and participating in illegal fish introductions, particularly bass, to try and expand their fishing opportunities. Most regions feel the need for more definitive policy and program direction from the state office on this issue. In the past, the Department has "sent mixed signals on exotics" by initiating projects like rainbow trout stocking. Also, there is resentment that the prevention program to control exotic milfoil has gained momentum very quickly, when the real issue is the spread of all exotics, a cause that the Division has been championing, with little or no public response.

4. Aquatic Habitat Protection

Current Status

Protection of high quality aquatic habitats is a major concern in all fisheries regions. The Maine Department of Environmental Protection (DEP) and Land Use Regulatory Commission (LURC) are responsible for issuing state permits for development projects and other land use alterations, monitoring construction activities, and enforcing permit conditions. In conjunction with these permitting processes, fisheries staffs in some regions expend a considerable amount of time and energy in providing biological input and recommending mitigation measures. A draft Memorandum of Agreement (MOA) with DEP is being developed in one region to provide standard guidelines for protecting fishery resources that may be affected by development projects.

Discussion

Degradation of rivers, streams, lakes, ponds, and wetlands is increasing statewide and is definitely affecting fishery habitat quantity and quality, as well as fishing opportunities. The type and degree of impact vary depending upon the region. Direct impacts include removal of stream riparian vegetation, road/trail construction in floodplains, and dewatering ponds for irrigation. Indirect impacts include increased surface runoff and

loss of recharge capability, greater siltation of fish spawning habitats, and increased water pollution and temperature.

Compliance monitoring of state permits is not considered a Department responsibility, and no one in the Division has time to do it; however, if apparent violations are observed in the course of conducting other field activities, the biologists contact the landowner and/or appropriate agency to rectify the problem and implement corrective actions. The regions felt that enforcement of permits could be substantially improved, especially on logging activities being conducted under the LURC general standards. A standardized statewide classification system for habitats and a computerized GIS mapping system for fishery habitats would greatly facilitate habitat work in the IFM Section.

5. Function of the Research Group

Current Status

The research group within the IFM Section of the Division is viewed by most regional personnel as two very good people who try to assist the regions as much as possible, but who have little guidance from the Augusta Office with respect to regional management needs and priorities. Although there is a process for submitting research proposals and the regions have in the past provided a list of "research needs," few have been pursued. It is generally perceived that this is due primarily to a lack of adequate funding and research staff. The Maine Cooperative Fish and Wildlife Research Unit at the University of Maine (Co-op Unit) has conducted most of the fisheries research projects that have been accomplished. Many biologists felt that most of the "products" coming out of the Unit provided little information useful for management purposes. Of the in-house research that is being done, most is done at the regional staff level, further eroding staff time available for data collection and implementation of management programs.

Discussion

Currently, there are too few positions on the research team to meet regional and statewide fisheries management research needs. Also, rather than conducting true research, the current function of this group appears to be one of technical assistance. Hence, the term "research" is a misnomer and the organization title should be changed to better reflect the team's primary role of technical assistance. The team could still coordinate the Division's research needs internally with the Co-op Unit, provide oversight of small research projects, assist in management of statewide data, and continue to provide technical assistance to regional management programs.

Technical assistance should include the maintenance of statewide data sets, standardization and development of management techniques, training, classification systems, digital mapping, etc. Given the demands for basic fisheries management

around the state, all research and technical assistance endeavors should directly address management needs.

6. Providing Public Access

Current Status

All regions believed they were proactive in trying to obtain new public access and in maintaining existing access. In recent years, public demands for new access has increased while, simultaneously, many private landowners have taken steps to limit access, particularly on lakes and ponds where new subdivisions and summer homes are being constructed. Looking for viable public access locations, e.g., lake shore areas suitable for boat launching and a parking area, and obtaining easements to gain access across private lands from established public roads and trails requires considerable time and effort on the part of the regional fisheries staff. Once potential access locations have been identified, regional staff biologists work closely with the Department's Federal Aid Coordinator to try and secure each identified sight.

Discussion

Public access is considered to be an important priority in most regions. Emphasis on access acquisition varies by region depending on the regional fisheries team involved, ongoing workloads, and available funding. In general, the acquisition process is clearly defined and roles are basically understood in the IFM Section. The majority of responsibility falls on the regional fisheries biologists, who receive assistance from the Federal Aid Coordinator for funding and final acquisition. A statewide priority list exists and is updated regularly; however, specific projects are usually done on an opportunistic basis. This program used to be a function of the Realty Section within the Department; however, this section no longer exists due to budget cuts.

7. Biological Impacts of Practices Like Bass Tournaments and Bait Fish Harvest

Current Status

Bass tournaments and commercial bait fish harvest are both allowed under Department regulation and applicable statutes. Issues related to these two activities appear to be social as well as biological.

Discussion

Although there is little data, some regional biologists have observed what they believe to be increasing impacts on certain warm water species (bass), in some waters, caused by high mortality of caught and released fish in late summer bass tournaments where water temperatures have warmed substantially. Other concerns related to bass tournaments were the decreased survival of bass caught and held in boat live wells with inadequate aeration and the possible impacts of tournament activities on nesting loon

populations on certain lakes. Except in a few locations, commercial bait fish harvest is not viewed by the biologists as having significant impact on fishery management programs. Management of bait fishing is directed primarily at specified waters that have few or no salmonids.

8. Proactive Versus Reactive Identification of Management Needs

Current Status

A concern expressed during the Scoping Phase of this review was that the fisheries management staff was not proactive on biological issues. Primarily, some members of the Constituency Focus Group voiced this sentiment.

Discussion

The interview process of this review revealed evidence that the fisheries field staff has attempted to be proactive on several key issues, including:

- 1) Protection of wild native brook trout populations in both streams and lakes
- 2) Dealing with exotic species
- 3) Trying to effectively address habitat protection issues
- 4) Identifying research needs
- 5) Stocking strategies in waters where habitat quality for natural reproduction is poor
- 6) Enhancing public access

However, there is a difference between being proactive on issues and being successful in addressing them. Staff and funding limitations still dramatically impact how effectively proactive the IFM Section staff can be on many matters.

Leverage Areas

- Strategic planning, stepped-down to operational planning and annual work plans, and tied directly to budget development and subsequent allocations—this provides the roadmap and the parameters for pursuing priorities.
- Clear policy and direction setting—clarifies expectations and enables accountability.

Recommendations ( means requires additional resources)

#1 Recommendation to Improve Resource Management Practices:

Develop regional management plans consistent with statewide species management plans.

Use the strategic planning process to provide clear policy and direction for development of regional management plans, consistent with statewide species management plans. Regional plans should be focused on specific water bodies (e.g., large lakes) and/or categories of similar water bodies (e.g., wild native trout streams, stocked brook trout ponds, etc.) based on habitat characteristics, available fisheries, and public use. Require each region to develop annual work plans based upon the regional management plan goals and objectives, and consistent with Division statewide requirements and overall priorities. Follow this with annual reporting of work activities and accomplishments relative to the region's approved annual work plans. Continue quarterly regional program review meetings between the Division Director, the IFM Supervisor, and the regional biologists to evaluate work progress with respect to the approved annual work plans and discuss management and administrative issues affecting the regions. See "*Planning and Budgeting*" Section, Page 28.

 **#2 Recommendation to Improve Resource Management Practices:**

Increase biological staffing.

As funding becomes available, increase biological staffing in each region so that biological data collection efforts can be expanded to rivers and streams, and include habitat protection and exotic species responsibilities. See "*Funding and Staffing*" Section, Page 34.

#3 Recommendation to Improve Resource Management Practices:

Continue successful regional public outreach (PR) initiatives.

See "*Communication: Internal and External*" Section, Page 13.

#4 Recommendation to Improve Resource Management Practices:

Seek additional operating funds and use partnerships to address habitat concerns.

Seek funding from a variety of sources to expand stream restoration projects. For example, pursue opportunities with land and water conservation organizations to expand programs to protect stream and lake buffers and provide conservation easements. [See "Staffing and Funding" Section, Page 34. Expand the one regional Memorandum of Agreement with DEP regarding guidelines for protection of fishery resources to a statewide agreement.

#5 Recommendation to Improve Resource Management Practices: Provide clear regulations and procedures to better manage bass tournaments.

Publish a statewide list where bass tournaments will be allowed, based on compatibility criteria. Do not authorize tournaments on any other water body. Promulgate a regulation requiring constant aeration and double aerator systems in live wells of boats involved in bass tournaments. Promulgate a regulation requiring that fish released in bass tournaments be returned to lake locations where originally caught.

#6 Recommendation to Improve Resource Management Practices: Develop an exotic species management program.

Establish a statewide exotic containment/eradication policy on all exotics (including milfoil) and management guidelines for exotic fishes. Intensify the current statewide "Operation Game Thief Program" providing rewards for information on illegal introductions of fish. Greatly expand Department I&E efforts on illegal introductions of exotic fish. The public needs to understand the seriousness of this issue and how, over time, it will result in tremendous impacts to Maine's inland fisheries which are one of the state's most valuable renewable resources. Inland fisheries currently has an economic value exceeding \$250 to \$300 million/year.

Work with the Maine Legislature to pass stiffer fines and penalties for convicted violators of illegal introductions including loss of equipment used (e.g., vehicles, boats), loss of fishing privileges for specified time frames (e.g., first offense-5 years, second-10

years), heavy fines, and jail time. Because of the ecological impacts of illegal introductions, it is important that wardens put greater priority on increasing their field enforcement efforts to apprehend and obtain convictions of persons conducting illegal fish introductions. One suggestion is to expand enforcement efforts and target selected areas during several weeks in the spring to coincide with pre-spawning of bass.



#7 Recommendation to Improve Resource Management Practices:

Redefine the role and function of the research group; add at least two additional staff and rename.

Change the name of the research group to Fisheries Technical Assistance Team, or another more appropriate title. At a minimum, double the size of this support staff, i.e., add at least two biologist positions to increase support in technical assistance for statewide fisheries programs, regional management functions, and coordination of research needs internally, as well as with the Cooperative Fish and Wildlife Research Unit at the University of Maine. It is recommended that all Division database management responsibilities including species management plan data sets be transferred to this Technical Assistance Team for better statewide data coordination.

The regions should continue to provide an annual listing of research needs and recommendations. Approved research projects should be prioritized on a statewide basis and included in the Division's annual work plan as the budget is developed and/or new funding becomes available. All approved research projects should be designed to meet specific, high priority management needs and should provide useful and timely information that benefits fisheries management across regional boundaries.

When feasible, based upon increased staffing and funding levels, approved research projects that may take several years to complete should be conducted "in-house" by IFM Section fisheries biologists assigned specifically to do research. For shorter duration projects (one to two years), the Division should continue to coordinate with the Co-op Unit or contract out to private consultants. This model is suggested to increase expertise within the IFM Section and to fit with the Co-op Unit's general approach to conducting research with graduate students on a limited time basis.

#8 Recommendation to Improve Resource Management Practices:

Continue efforts to improve and maintain public access.

If a new biologist position were added to each region to work primarily on habitat and exotic species issues, secondary responsibilities could include oversight of the region's public access program.

Technical Skills

"Learning is a by-product of productive activity, just as heat is a by-product of friction"
— Monica Aring

Current Status

This component of the review looked at the IFM Section's knowledge, skills and capabilities in collecting and analyzing data and information, and applying resource monitoring and management techniques. Early on, in the Scoping Phase of the review, it was apparent that the IFM Section's fisheries biologists are competent data collectors, and that they work hard at it. This characterization held firm consistently throughout the review.

The Review Team found that, with some minor exceptions, the data management system that is being developed and maintained by the Division is well accepted by the regional biologists. The statewide standardization of data sets and applications is providing adequate data storage and analysis capabilities for biologists. Data collection and storage of statewide information, e.g., creel survey data, is generally well standardized with application manuals and a data management committee to monitor program and project development.

Some regions have modified and adapted data sets to accommodate individual data analysis needs, and some others have utilized alternate software to develop specific applications to assist in regional management programs. These alternate applications do not appear to compromise the statewide data storage and analysis efforts, and, in fact, probably enhance the capabilities of biologists to manage fisheries in their respective regions. Plans exist to enlarge and improve the data management program, adding other data sets to the statewide inventory.

Most of the IFM Section biologists visited by the Review Team expressed a desire to develop a Geographical Information system (GIS) mapping capability for their programs. This is especially appropriate for stream habitat evaluation programs being developed in several of the regions.

There are some concerns that the data "punching" process is often not dependable and inadequate. Data forwarded to the state office for entry into the agency database does not get entered in a timely manner, requiring duplicate entry at the regional level to assure adherence to report timelines. Some concerns were also voiced about the accuracy of the key punching process. Though there has been and continues to be some Department sponsored computer training opportunities afforded biologists, no formal or mandatory programs exist to train biologists.

There was nearly 100% agreement across all groups interviewed (biologists, administrators, Advisory Council members and constituents) that fisheries biologists did the best they could with the staffing and funding available to inventory and survey lakes and ponds. There was similar agreement that the IFM Section did not have enough personnel or funding to collect all the data that might be needed on all waters. Inventory and survey work on rivers and streams (flowing waters) and on some lesser species of game fish were considered especially lacking. Data on nongame fish species is also lacking.

Among the fisheries management staff, administration, Advisory Council members and constituents there was general agreement (58% agreement, with 5% undecided) that the IFM Section regularly sought new information about data collection techniques, best management practices and new management strategies. Statements among those who didn't agree were to the effect that such things were not encouraged, that time didn't allow it, that techniques didn't change, or that things were simply done the way they've been done for the last 20 to 30 years.

Mechanisms that were cited as means for receiving new technical information were: journals, conferences and professional society meetings, peer contacts, division meetings, workshops, the internet, and researching other states' programs. However, only three of the fisheries biologists in the field were found to be members of the American Fisheries Society (AFS), the professional society for fisheries biologists, and no evidence was found that continuing education opportunities in the form of workshops, conference participation, etc. were made available to many fisheries staff on a regular basis.

Discussion

In the review of technical information and data management conducted by the Review Team a number of observations were made:

- Responsibility for the "data management lead" is often delegated to one or several of the more technically astute in each region.
- Some confusion exists about the centralized nature of data storage and the process to obtain data and reports.
- There is a manual for data collection and analysis, but there is no written policy or procedure for management of biological data within the Division.
- Most biologists understand that the current centralized data storage program was developed to support the strategic planning process and some feel the system is not fully meeting regional management needs in the current format.
- Species management plan authors maintain control of data on specific species, e.g., Atlantic salmon.
- Data entering ("punching") is duplicated sometimes up to three times due to some biologist's personal needs and desires as well as mistrust of the

system. Also, fisheries data are perceived to receive a low priority (as compared to wildlife data), often taking considerable time to get "punched" at the state office level.

- A data management committee exists to coordinate data management programs; however, some regions did not feel adequately represented on this committee.
- Department standards for software are Microsoft Suite (MS) applications and Statistical Analysis Software (SAS).
- Regions maintain their own data sets, but are required to send certain data sets into the state office, e.g., creel census, gill netting, stream evaluations, water quality, hydro-acoustics surveys, stocking, commercial fishing, etc.
- Most existing statewide data sets are well standardized.
- Most regions have a large backlog of old data that is being filed electronically on an "as time available" basis. Data from recent years is being recorded, analyzed, and entered into computer databases in a more timely fashion.
- Guidelines exist to modify data sets and authority is granted to do so. SAS modules are not "right protected," allowing biologists to personalize them for their specific needs.
- Some regions desire more flexibility to build databases and data set designs and to select software (e.g., MS Access). Most were content with the SAS applications.
- There is no formal computer-training program. Biologists have received some general training in computers, but feel more would be beneficial.
- There is currently no Geographic Information System (GIS) capability in the Division, and it is felt that this would be valuable to support existing and future management programs.
- Maine's Department of Environmental Protection (DEP) administers a statewide water quality classification system, but there is no formal statewide aquatic habitat classification system tied to fisheries.

Data collection is one of the IFM Section's recognized strengths. Current challenges for the IFM Section in this area involve:

- 1) Finding ways to collect and analyze biological data on more waters, especially rivers and streams, and on more fish species,
- 2) Developing the capacity to inventory and assess stream and river habitats,
- 3) Developing and managing data in a collaborative way to maximize its value and applicability, and
- 4) Provide staff with training and other professional development opportunities to facilitate success in these areas.

It's time for this general aspect of the IFM Section's program to move to the next level.

Leverage Areas

- Standardized procedures for data collection and management supported by written policy
- Computer based database management systems, including Geographic Information System (GIS) capabilities
- Staff development plans (training, professional meetings, etc.)
- Public support for scientific data collection

Recommendations

#1 Recommendation to Improve Technical Skills: Continue to standardize data collection and centralize database management.

The Division and Section are moving in the right direction with their data management system. Efforts should continue to consolidate and refine data collection and management. They can be improved with the following four steps:

- Transfer all Division database management responsibilities including species management plan data sets to the Research Section (renamed Fisheries Management Technical Assistance Team) and provide additional staffing to support this data management function. See "*Resource Management Practices*" Section, Page 47.
- Develop written guidelines for use and adherence to procedures in the data collection handbook. Continue to standardize statewide data and reporting needs, but allow flexibility for regional data management within the standardized statewide system.
- Where standardized data collection forms for specific types of biological information are not in use, develop appropriate forms and corresponding procedures, and apply in all regions. This will help ensure that similar types of biological data are comparable when compiled and analyzed across regions.
- Integrate data from the Wildlife Division Habitat Assessment Section and the fisheries database into a comprehensive agency-wide data management format with full GIS capability.

#2 Recommendation to Improve Technical Skills: Provide additional technical training to IFM Section staff.

Continuing education opportunities are important to maintaining credible and effective fisheries management programs. A commitment to establish and implement professional development plans for each staff member should be made. At a minimum these development plans should initially include:

- A data management and computer training program for regional biologists and assistant regional biologists.
- Stream and river habitat inventory and analysis training, to include training with a newly developed habitat analysis and procedures manual, and an aquatic habitat classification system. See "*Resource Management Practices*" Section, Page 47.
- Opportunities for all biologists to attend professional meetings and conferences on some sort of a regular schedule or plan.
- See "*Personnel Leadership*" Section for more on staff development needs, Page 7.

#3 Recommendation to Improve Technical Skills: Improve inland fisheries habitat assessment abilities and capabilities.

A more complete discussion of aquatic habitat protection needs is found in the "*Resource Management Practices*" Section, Page 47. It is mentioned here because knowledge, skills and abilities in this area need to be enhanced. Not only can biologists benefit from training in this area, but also the IFM Section needs to add more structure and definition to this program area. At a minimum, the Division and IFM Section should develop a flowing water habitat analysis and procedures manual (a "standards" manual) and an aquatic habitat classification system.

CONCLUSION

*"Change is disturbing when it is done to us, exhilarating when it is done by us.
-- Rosabeth Moss Kanter*

This review looked at the Inland Fisheries Management Program in seven (7) areas of concern listed in the Legislative mandate for the review. The Review Team added communications as an eighth area to evaluate. Whereas program strengths and weaknesses were found in all eight areas investigated, three performance areas can be considered key in leveraging actions for improvement — *Personnel Leadership, Communications, and Public Involvement*.

Of the thirty-six (36) recommendations listed in the report, those providing the greatest leverage for improvement involve these five (5) strategies:

1. Hire a competent leader/manager/supervisor for the currently vacant **IFM Supervisor** position,
2. **Move the current Division Director** to the Commissioner's Office as a special assistant in charge of institutional transition,
3. Adopt and commit to an effective **Public Involvement Program**,
4. Implement an effective **Operational Plan** to carry out the new Inland Fisheries Strategic Plan, and
5. Execute effective **employee evaluations** to achieve these results.

Improving performance in these organizational management functions will automatically improve performance in almost all other areas that were identified as needing improvement. Likewise, it will enhance performance in those areas identified as strengths.

This report is submitted with confidence that the Department, Division and IFM Section are prepared and capable through their dedication and the insights gained as a result of this review, to embrace the suggestions contained herein and effectively transition into the 21st century — both as stewards and facilitators of the conservation and utilization of the inland fisheries resources in the state of Maine.

APPENDIX

LIST OF RECOMMENDATIONS

Personnel Leadership

1. Commissioner needs to hold the Deputy Commissioner responsible for communication and follow through with the Bureau Director regarding implementation of Commissioner policies and directives. Accountability performance indicators must align with this strategy.
 - 1.1 Deputy Commissioner needs to hold the Bureau Director responsible for communication and follow-through with the Division Director regarding implementation of Commissioner policies and directives. Accountability performance indicators must align with this strategy.
 - 1.2 Bureau Director needs to hold the Division Director responsible for communication and implementation of Commissioner policies and directives. Accountability performance indicators must align with this strategy.
 - 1.3 Division Director needs to hold the IFM Supervisor responsible for his role in communication and implementation of Commissioner policies and directives. Accountability performance indicators must align with this strategy.



2. Create a special assistant to the Commissioner with responsibility for managing transition of current senior biologists, and passing along both institutional memory and current best practices to the next generation of fisheries biologists in the IFM Section.
3. Institute a system of employee rewards which recognizes competencies and capabilities in supervision and management. (This includes both positive rewards and clearly not rewarding poor performance.)
4. Create a staff development program for all IFM Section personnel, including training on leadership and supervision skills for supervisory personnel.

Communications Internal and External

1. Hire an effective leader/supervisor/manager to fill the IFM Supervisor position.
2. Clarify and define the roles and responsibilities of the Division Director and the IFM Supervisor and their relationship to each other.

3. Clarify Divisional policies or guidelines related to communications and outreach.
4. Develop and diligently implement an internal Fisheries and Hatcheries Division communications strategy which includes written as well as other formats.
5. Fisheries and I & E Divisions collaborate to develop and implement a public outreach plan for the Fisheries Division and IFM Section.
6. Align outlying Law Enforcement Sergeant Section boundaries with the boundaries of the Fisheries/Wildlife Management Regions.

Public Involvement

1. Establish and promote a written Department/Division philosophy about what public involvement is and what it represents, as well as how it "fits" into the biological management of natural resources.
 - 1.1 Commissioner and Division Director jointly promote a common public participation definition and philosophy.
 - 1.2 Provide training for all staff in Division administration and the IFM Section on public involvement philosophy, approaches, and techniques.
-  2. Add rigorous methods to gather human dimensions data (public attitudes, preferences and desires).
3. Establish employee rewards for public involvement.

Planning and Budgeting

1. Division Director and other administrative staff express and demonstrate strong support for an annual work plan process that includes all work done in the IFM Section and ties to overall strategic direction.
2. Establish a system of annual work plans that covers all work done in the Division and ties back to overall strategic direction.
 - 2.1 Have the IFM Section planner work with regional fisheries staff to develop the final format for annual work plans and coordinate all work plans with the next budget cycle after the strategic plan is completed.

3. Involve publics within each region in development of regional objectives that address the overall statewide goals/objectives and apply them to specific regional waters.
4. Train regional fisheries staff to develop regional budgets based upon annual work plans.

Staffing and Funding

1. Pursue multiple avenues for increasing funding and staffing for the IFM section.
-  2. Develop detailed justifications and prioritize IFM Section staffing needs with the goal of adding, at least one, new, full-time fisheries biologist position to each region over the next two years. The duties of these positions should be to work primarily on habitat protection (including riparian areas) and exotic species issues.
-  3. As additional funding becomes available, increase temporary/seasonal help to assist biologists in field data collection activities.
4. Fill the position of "IFM Supervisor" as soon as possible and proceed with plans to move the position to the Augusta office to better centralize Division senior management and improve day-to-day communications.
5. Hold the Division Director accountable for keeping the field appropriately informed about status of vacant positions and the rationale for filling or not filling them. Also, hold the Division Director responsible for communicating in a timely fashion with the Bureau Director and the Commissioner's Office regarding vacant position needs.

Decision Making Processes

1. Develop a Department/Division policy that establishes criteria and responsibilities for the regulatory process, including a clear definition of "substantial management change" that can be applied across all regions.
2. Implement recommendations 1, 2 and 3 in the "*Public Involvement*" part of this report, Page 22.
3. Commissioner should mandate communication processes for administrative staff, and hold the Deputy Commissioner, Bureau Director, and Division Director accountable for implementing and following these policies. (See "*Communications: Internal and External*" segment of this report, Page 13.)

Resource Management Practices

1. Develop regional management plans consistent with statewide species management plans.
-  2. Increase biological staffing.
3. Continue successful regional public outreach (PR) initiatives.
-  4. Seek additional operating funds and use partnerships to address habitat concerns.
5. Provide clear regulations and procedures to better manage bass tournaments.
6. Develop an exotic species management program.
-  7. Redefine the role and function of the research group; add at least two additional staff and rename.
8. Continue efforts to improve and maintain public access,

Technical Skills

1. Continue to standardize data collection and centralize database management.
2. Provide additional technical training to IFM Section staff.
3. Improve inland fisheries habitat assessment abilities and capabilities.

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EXECUTIVE SUMMARY

Foreword

The following final report summarizes the process, findings, and recommendations of an independent, comprehensive review of the Maine Department of Inland Fisheries and Wildlife (MDIFW). The intent of the review was to conduct an assessment of the Division of Wildlife, the Division of Information and Education, the Bureau of the Warden Service, and the Bureau of Administrative Services, providing recommendations for improvement. Initiated at the request of the Maine state Legislature (# 803038), with support from the MDIFW Commissioner's Office, the review was begun by the Management Assistance Team (MAT) in October 2003 and completed in May 2004.

MAT is an organization development and training consultancy exclusively for state fish and wildlife agencies nationwide. MAT is funded by a Multi-State Conservation Grant to the International Association of Fish and Wildlife Agencies, thus there is no additional cost for MAT staff time, travel, or per diem. MAT was selected to conduct the review through a state request for proposals process.

The scope of the review included legislative mandates and associated responsibilities, budget process and allocations, organizational structure and staffing, resource capabilities, program planning, implementation and management, administrative policies, public outreach, public involvement in decision-making, and public accountability. The review was a comprehensive critique of present programs, their strong points, shortcomings, and needs.

Recommendations were requested at two levels: 1) Within existing constraints of funding and staffing levels, and 2) With additional resources in a prioritized fashion. With the ultimate goal of improving the Department's effectiveness, the review focused on identifying the leverage areas for improvement rather than to identify and enumerate strengths and weaknesses.

A review team of nine professionals conducted eleven focus groups, more than 100 interviews and an all-employee telephone survey, producing a wealth of data for analysis. As a result, 57 recommendations for improvement are submitted for consideration. Important to keep in mind is that the recommendations are interconnected, each affecting the whole. The report herein may be most helpful if considered from a holistic perspective rather than addressing each recommendation individually and separately.

It was a strong desire to improve, held by many loyal MDIFW stakeholders both in and outside the agency, which enabled this review. And, unmistakably, it was the efforts of many individuals and a spirit of true collaboration that facilitated the completion of this review. The Management Assistance Team thanks all who had a part in this endeavor

and acknowledges the courage and candor exemplified by all and absolutely requisite for any organization to look seriously at itself and improve. Congratulations, MDIFW!

Background

As one of the oldest state fish and wildlife agencies in the nation, the MDIFW has a proud history for well over a century of fish and game management. Today, Maine constituents are highly pro-hunting. According to a 2003 public survey by Responsive Management, legal hunting was approved by eighty-nine percent (89%) of Maine residents.¹ This figure contrasts with the rest of the country's average public approval rates of seventy-three percent (73%).²

Primary responsibilities and focus for the Department are derived from its statutory mandates found in Title 12, Part 13, Chapters 901-941. Guiding the MDIFW is the basic mandate "to preserve, protect, and enhance the inland fisheries and wildlife resources of the State; to encourage the wise use of these resources; to ensure coordinated planning for the future use and preservation of these resources; and to provide for effective management of these resources."³

The MDIFW operates within a natural resources landscape that is rich in both aquatic and wildlife resources. Maine's citizens place high value on having wildlife around them, and support it with their money.⁴ A 2001 survey shows Maine's wildlife-related economic contribution is fifth in the nation in terms of the percentage of the state's gross state product.⁵ More money comes into Maine's economy from wildlife-related recreation than any of the other recreation industries.⁶ In 2001, out-of-state travelers contributed four billion dollars to Maine's economy. Twenty-one percent (21%) of those travelers took overnight trips associated with eco-tourism and spent money in Maine accordingly.⁷

The Department has 316.5 full time equivalent staff positions and a total budget of \$29,189,483 for fiscal year 2003. Funding for the Department comes from a variety of sources, for example, general state tax revenues, excise taxes on hunting and fishing equipment, a portion of the existing tax on motorboat fuel, and hunting, fishing, and motorboat license fees. Hunters and anglers contribute the lion's share, a sixty-four percent (64%) contribution to the budget.

MDIFW employees are, to a person, dedicated and hard working, possessing the well-documented fish and wildlife cultural characteristic of working with a "missionary like zeal" for the resource. The MDIFW is commended for its apparent courage and commitment to self-improvement. Fundamental paradigms, as well as structural, cultural, and strategic aspects of the organization must be addressed if lasting improvements are to be achieved. Increased legislative directives, budgetary illusions, new executive leadership, and an apparent lack of a broad, diligent, organized advocacy to consistently champion the Department's needs — these are important

factors for establishing a dynamic context in which culture and infrastructure renewal must be seriously examined, and changed where needed.

Recommendations

Information from the three data collection phases of the review was compared and analyzed for congruencies. Inferences drawn from the identified congruencies generated a comprehensive list of overarching issues and recommendations for improvement for the Department overall and each of the divisions and bureaus, excluding Fisheries since the Fisheries Management Program was comprehensively reviewed last year. These recommendations are organization development interventions that could leverage the MDIFW efforts aimed at increasing its overall effectiveness.

Discussion of the 57 recommendations in the Final Report is divided into five chapters: Department Overall, Division of Wildlife, Division of Information and Education, Bureau of Warden Services, and Bureau of Administrative Services. Data is presented electronically in an attached CD on the back cover of the Final Report.

Recommendation priorities were assigned relative to agency need. Those recommendations with "A" priority are the most critical to the agency. "A" level priorities are requisite to addressing other issues, and resolution is vital to agency function. "B" priorities are more critical to agency success than "C" priorities.

The following is a prioritized list of all the recommendations, some of which require additional funding and others that do not.

1. **Department Overall Recommendation # 1:** Have all employees develop prioritized work plans to mitigate mission creep.
Additional Funding Required: No
Priority Level: A

2. **Department Overall Recommendation # 2:** Have the Division/Bureau Directors work with the Commissioner's Office to establish strategies for seeking increased funding and staffing with the Legislature.
Additional Funding Required: No
Priority Level: A

3. **Department Overall Recommendation # 3:** Develop a clear, succinct vision for the Department, including funding strategies and what types of work will be de-emphasized in the interim, and articulate regularly by top management including how the MDIFW will strategically get there.
Additional Funding Required: No
Priority Level: A

4. **Department Overall Recommendation # 4:** Work with constituent groups (SAM, Audubon, etc.) to establish a strong advocacy voice for the Department by utilizing techniques from other states such as a conservation congress or creating a foundation, etc.
Additional Funding Required: No
Priority Level: A

5. **Department Overall Recommendation # 5:** Create a new Bureau of Habitat responsible for land acquisition and all engineering as indicated in Suggested Organization Structure, Diagram 2, Chapter: Department Overall.
Additional Funding Required: Yes
Priority Level: A

6. **Department Overall Recommendation # 6:** Restructure the agency to eliminate the Bureau of Resource Management and reclassify the Bureau Director position to Wildlife Bureau Director. The current Wildlife Division Director position should be reclassified as an Assistant Bureau Director position for the Bureau of Wildlife. The current Director of Fisheries Operations should be promoted to Director of the Bureau of Fisheries. The current Fisheries Program and Development Director should be promoted to Assistant Bureau Director of Fisheries. The Computer Services and Environmental Coordinator Positions reporting to the current Bureau of Resource Management should be aligned to report to the Bureau of Administrative Services and a new Bureau of Habitat respectively (See Suggested Organization Structure, Diagram 2, Chapter: Department Overall). Reclassify the Divisions of Information and Education, Fisheries, and Wildlife as Bureaus to reflect equal positions at this level within the organization.
Additional Funding Required: Yes
Priority Level: A

7. **Department Overall Recommendation # 7:** Create a Department Land Acquisition Committee to evaluate and prioritize potential land purchases.
Additional Funding Required: No
Priority Level: A

8. **Department Overall Recommendation # 8:** In the future, change the positions of Deputy Commissioner, Director of Bureau of Information and Education, and the Colonel of the Bureau of Warden Service from positions appointed by the Governor to positions hired according to regular Department procedures.
Additional Funding Required: No
Priority Level: A

9. **Department Overall Recommendation # 9:** Provide effective supervision training for all supervisors in the Department.
Additional Funding Required: No
Priority Level: C

10. **Department Overall Recommendation # 10:** Have I&E and Personnel Divisions work together to define their specific responsibilities and roles in managing internal communications pending resolution of their mutual staffing needs
Additional Funding Required: No
Priority Level: C

11. **Department Overall Recommendation # 11:** Enhance intranet capabilities so that relevant news, policies, and communications are available to all employees more time efficiently, especially as the Department works towards increasing computer and internet access to remote employees.
Additional Funding Required: Yes
Priority Level: C

12. **Department Overall Recommendation # 12:** Review current selection process and establish guidelines and criteria for selection of new Advisory Council members.
Additional Funding Required: No
Priority Level: B

13. **Department Overall Recommendation # 13:** Have the divisions and bureaus budget to the project level with a standardized definition of what constitutes a "project."
Additional Funding Required: No
Priority Level: A

14. **Department Overall Recommendation # 14:** Have division and bureau budget requests emphasize new project proposals prioritized against existing work. Any projects (existing or new) that cannot be funded are then used to build a

justification for budget increases by showing specifically what would be done with additional funding.

Additional Funding Required: No

Priority Level: A

15. **Department Overall Recommendation # 15:** Have the Bureau of Administrative Services' Division of Accounting implement expenditure tracking at the project code level with funding codes as part of the project code identification.

Additional Funding Required: No

Priority Level: A

16. **Wildlife Division Recommendation # 1:** Have the Wildlife Division Director work with the Commissioner's Office to establish strategies for seeking increased funding and staffing from the Legislature. One strategy suggested is to have facilitated meetings of Commissioner's Office and Bureau/Division Directors to brainstorm ideas and develop strategies to pursue different funding efforts.

Additional Funding Required: No

Priority Level: B

17. **Wildlife Division Recommendation # 2:** If additional resources can be gathered for the Division of Wildlife, consider the best approaches for filling staffing needs for the Management Section and the Resource Assessment Section as well as for the management of WMA lands such as timber harvest, boundary surveys, etc.

Additional Funding Required: Yes

Priority Level: C

18. **Wildlife Division Recommendation # 3:** Broaden the MDIFW veterinarian's duties so he is shared by both the Wildlife and the Fisheries Divisions.

Additional Funding Required: No

Priority Level: C

19. **Wildlife Division Recommendation # 4:** Have the Wildlife Division Director work with the Commissioner's Office and Division employees to establish priorities for work. During quarterly work planning, have the Wildlife Division Director work with staff to reconcile time required for projects with the amount of available staff time.

Additional Funding Required: No

Priority Level: A

20. **Information & Education Recommendation # 1:** From existing I&E staff, assign liaison/counterpart relationships between I&E and each of the following: Wildlife, Fisheries, and Licensing and Registration Divisions.
Additional Funding Required: No
Priority Level: B

21. **Information & Education Recommendation # 2:** Conduct an exhaustive internal review of I&E as a precursor to an I&E specific comprehensive plan. The comprehensive plan would serve as a combination strategic/operations document detailing I&E priorities: activities, forecasted staffing needs, and budgets.
Additional Funding Required: No
Priority Level: A

22. **Information & Education Recommendation # 3:** Fill at least three new positions in I&E to meet needs: webmaster/graphic designer, an additional public relations writer/editor, and a public relations specialist dedicated to the Warden Service.
Additional Funding Required: Yes
Priority Level: A

23. **Information & Education Recommendation # 4:** Strategically place I&E generalists in regional offices to work more closely with field personnel on communications and public outreach and to better serve the strategic needs to be laid out in the I&E Comprehensive Plan and Department-wide Communications Plan.
Additional Funding Required: Yes
Priority Level: B

24. **Information & Education Recommendation # 5:** Develop a Department-wide communications plan using participation from across the agency. The plan would identify the highest priority information, key messages, and delivery strategies. The entire plan must be shared with all agency employees to be most effective.
Additional Funding Required: No
Priority Level: B

25. **Information & Education Recommendation # 6:** Integrate a Department-wide marketing approach.
Additional Funding Required: No
Priority Level: B

26. **Information & Education Recommendation # 7:** Consider using the Federal Aid apportionment available for aquatic education to enhance the aquatic education programs in I&E.
Additional Funding Required: No
Priority Level: C
27. **Warden Service Recommendation # 1:** Conduct a pay parity study and argue to bring the Warden Service to State Troopers pay level.
Additional Funding Required: Yes
Priority Level: C
28. **Warden Service Recommendation # 2:** Purchase computers with high-speed Internet access for each warden; develop in-vehicle wireless data capabilities; provide training for appropriate software; develop a law-enforcement specific component within the recommended Department intranet to enhance information flow and accountability.
Additional Funding Required: Yes
Priority Level: B
29. **Warden Service Recommendation # 3:** 1) Adjust the focus of warden training to go beyond meeting minimum requirements and 2) Refocus promotions/advancements according to initiative, training, performance, etc., rather than solely on rank and seniority.
Additional Funding Required: No
Priority Level: A
30. **Warden Service Recommendation # 4:** Fund an overtime budget from a new outside source to compensate wardens for ATV enforcement, thus avoiding mission creep; Use existing grant program for enhanced patrol by local agencies.
Additional Funding Required: Yes
Priority Level: A
31. **Warden Service Recommendation # 5:** Obtain a \$400,000 funding package from the Legislature using general funds to pay for all Bureau of Warden Service overtime compensation (includes Search and Rescue and regular overtime).
Additional Funding Required: Yes
Priority Level: A

32. **Warden Service Recommendation # 6:** Conduct a communications study to determine conclusively that the \$300,000 paid to the state troopers provides a minimum of 90-95% radio coverage for the wardens.
Additional Funding Required: No
Priority Level: C
33. **Warden Service Recommendation # 7:** Establish computer-aided dispatch for wardens, comparable to that of the state troopers, for electronic, efficient data management, and retrieval of duty and time.
Additional Funding Required: No
Priority Level: B
34. **Warden Service Recommendation # 8:** Determine and write all work within the Warden Service into work plans, prioritize, and use this process for decision-making particularly when any new work is added.
Additional Funding Required: No
Priority Level: A
35. **Warden Service Recommendation # 9:** Have the Commissioner formally approve priorities and support wardens when they must say “no” to public requests that fall outside the set priorities.
Additional Funding Required: No
Priority Level: A
36. **Warden Service Recommendation # 10:** Continue with due diligence to promote the balance between “catch ‘em and nail ‘em” and proactive, customer service paradigms within the Advanced Warden Training and the Warden Service overall.
Additional Funding Required: No
Priority Level: C
37. **Warden Service Recommendation # 11:** Reevaluate what the Landowner Relations Position needs to accomplish, what the performance measures are, and what the relationship should be between the Landowner Relations Position and the Warden Service. Then, inform the rest of the Department what this position is designed to do, solicit feedback and needs from throughout the Department and external stakeholders, and keep them informed with regular progress reports; Reevaluate in one year.
Additional Funding Required: No
Priority Level: C

38. **Warden Service Recommendation # 12:** Restore two, ideally three, lieutenant positions and reconfigure the geographical regional areas he/she would supervise to regain an effective span of control.
Additional Funding Required: Yes
Priority Level: A
39. **Warden Service Recommendation # 13:** Provide effective supervision training for all warden supervisors.
Additional Funding Required: No
Priority Level: C
40. **Warden Service Recommendation # 14:** Establish an internal affairs or investigation unit/position which would deal exclusively with investigation of all internal and external complaints.
Additional Funding Required: Yes
Priority Level: A
41. **Warden Service Recommendation # 15:** Evaluate workload and to what degree the current supervisor of the Covert Operations Unit is actually involved or needed in the operations.
Additional Funding Required: No
Priority Level: C
42. **Warden Service Recommendation # 16:** Tighten control and increase accountability concerning unity of command within the warden service; petition state human resources to change lieutenants to confidential employees.
Additional Funding Required: No
Priority Level: A
43. **Warden Service Recommendation # 17:** Have I&E provide wardens training in working with the media.
Additional Funding Required: No
Priority Level: C

44. **Warden Service Recommendation # 18:** Recommend staff reviews by first line of supervision for probable cause determination and have new Inspector General evaluate all staff reviews. Re-evaluate the investigation process and procedures with voluntary input from all wardens; redesign, if warranted, under the guidance of the new Inspector General following the requirements of the Maine State Employees Association Collective Bargaining Contract for Law Enforcement.
Additional Funding Required: No
Priority Level: B
45. **Warden Service Recommendation # 19:** Assess instructor performance within the Advanced Warden Training School using anonymous feedback from candidates in the school; provide “train-the-trainer” training for the school’s instructors as needed; highlight examples of customer-service excellence in the training curriculum.
Additional Funding Required: No
Priority Level: C
46. **Warden Service Recommendation # 20:** Require all Field Training Officers to have appropriate preparatory training in order to become a Field Training Officer.
Additional Funding Required: False
Priority Level: B
47. **Warden Service Recommendation # 21:** Identify individuals from within the Warden Service who are qualified and capable of instructing in-service training for other wardens and solicit their help to make such training opportunities available.
Additional Funding Required: No
Priority Level: A
48. **Administrative Services Recommendation # 1:** Add one permanent, full-time Personnel Specialist position, with primary duties focused on improving internal communications, to serve as the Department-wide training coordinator and the Department’s employee health and safety officer.
Additional Funding Required: Yes
Priority Level: C

49. **Administrative Services Recommendation # 2:** Conduct a conclusive study of salary comparables and, if warranted, upgrade the Department's Personnel Officer's status in grade and pay to a level commensurate with Personnel Officers in other Maine state government departments who have similar duties and responsibilities.
Additional Funding Required: No
Priority Level: C
50. **Administrative Services Recommendation # 3:** Open lines of communication with the Legislature and key constituencies to ensure that proposed changes to licensing are feasible, economical, and efficient. Communicate the costs in dollars and/or dropped service.
Additional Funding Required: No
Priority Level: B
51. **Administrative Services Recommendation # 4:** Maintain current staffing levels in Licensing and Registration, even following implementation of MOSES. Continue to contract data entry until backlogs are eliminated.
Additional Funding Required: No
Priority Level: B
52. **Administrative Services Recommendation # 5:** Upgrade all MDIFW computers to Windows XP or replace non-XP compatible computers to facilitate remote administration, increasing efficiency for IS staff. Minimally, all computers should run on operating systems supported by their manufacturer.
Additional Funding Required: Yes
Priority Level: B
53. **Administrative Services Recommendation # 6:** Provide computers or computer access to all MDIFW employees to include appropriate software and training. Sufficient funding must be allocated annually to pay for Internet connections and technical support for the additional computers.
Additional Funding Required: Yes
Priority Level: B
54. **Administrative Services Recommendation # 7:** Analyze and re-write the legacy software, particularly the lottery hunts.
Additional Funding Required: Yes
Priority Level: A

55. **Administrative Services Recommendation # 8:** Develop with input from representative budget managers, a standardized, electronic spreadsheet for tracking monthly operational expenditures for use department-wide.
Additional Funding Required: No
Priority Level: A
56. **Administrative Services Recommendation # 9:** Implement central tracking for partner contributions and other non-tracked revenue sources.
Additional Funding Required: No
Priority Level: A
57. **Administrative Services Recommendation # 10:** Increase the Engineering and Realty's operating budget to a level that provides for a "minimum maintenance" funding level for MDIFW facilities, particularly dams; complete upgrades to those dams that are seriously deteriorated and could potentially threaten public safety and/or result in significant damage to downstream private properties or state infrastructure.
Additional Funding Required: Yes
Priority Level: A

¹ Duda, Mark D.,. *2003 Public Opinion on Fish and Wildlife Management Issues and the Reputation and Credibility of Fish and Wildlife Agencies in the Northeast United States*, p viii. Harrisonburg, VA: Responsive Management

² Duda, Mark D. 1990. *Factors Relating to Hunting and Fishing Participation in the United States*. Harrisonburg, VA: Responsive Management.

³ Chapter 702, Section 7011, State of Maine Inland Fisheries and Wildlife Laws.

⁴ Duda, Mark. 2003. *ibid*.

⁵ *Citizens Advisory Committee to Secure the Future of Maine's Wildlife and Fish*, January, 2001. 119th Legislature, Second Regular Session.

⁶ *Passing the Buck: A Comparison of State Fish and Wildlife Agency Funding and the Economic Value of Wildlife-Associated Recreation*. Izaak Walton League of America. 1999.

⁷ *Travel and Tourism in Maine, 2001 Visitor Study*. Maine Office of Tourism. Prepared by Longwoods International.

METHODOLOGY

MAT's nine-member review team collected and analyzed data and developed 57 recommendations. A guiding objective held by investigators during the data collection phases of the review was to look for areas that could be leveraged rather than every possible area in need of improvement. The reviewers looked at where and how to improve the effectiveness of the MDIFW – areas of strength as well as areas warranting improvement focusing on the Division of Wildlife, Division of Information and Education, the Bureau of Warden Service, and the Bureau of Administrative Services as requested.

A four-tiered, phased approach was used. The tiers consisted of three phases for collecting data and one phase for developing recommendations as follows:

- Phase I: The Scoping Phase
- Phase II: Telephone Survey
- Phase III: Final Structured Interviews
- Phase IV: Recommendations

Data

Data collected from the scoping phase was analyzed and also used to develop questions to ask employees in the subsequent all-employee telephone survey. Telephone survey responses were analyzed by Responsive Management and used by MAT in the development of additional questions to ask in the final structured interviews, providing an enrichment of understanding.

Z Scores for all telephone responses were also produced. The Z Score for a particular question indicates responses to other questions that are statistically most closely related. When trying to understand more about people who answered a particular way, it can be very informative to look at the questions with the highest Z Scores for that issue. It will tell you other issues that are important to that group of respondents.

The data summaries and analyses collected from the focus groups, interviews, telephone survey and the Z Scores are found electronically stored in a CD marked *DATA* attached to the back cover of the Final Report.

Confidentiality

The confidentiality of those who shared their opinions and perspectives was held in utmost regard. All measures possible were taken to safeguard anonymity and confidentiality of contributors. All raw data from focus groups and face-to-face interviews was deleted and shredded. All group discussions were reported in aggregate form only.

Quality Control Team

An internal Quality Control Team composed of five MDIFW employees, widely respected by their peers, served to receive and pass on concerns from others as well as to mitigate influences of the rumor-mill. They functioned as a conduit directly with MAT during the process of the review. These employees provided valuable process feedback.

Phase I: The Scoping Phase

The Scoping Phase was the initial process for narrowing down all the possibilities of things the review could examine to those of greatest importance for leveraging improvement efforts – identifying what would give MDIFW “the biggest bang for the buck” when implementing change interventions.

The scoping phase consisted of a preliminary review of agency documents (organizational charts, legislative mandates, strategic plans, regulations, newspaper articles, and research surveys and reports by other investigators). Also included in the scoping were focus groups and one-on-one interviews.

Focus Groups

The focus groups consisted of a series of eleven, approximately two-hour facilitated focus groups asking 15 – 20 participants per group the same open-ended questions.

Two focus groups were heterogeneously composed representing a stratified, randomly selected sample of all agency employees from each region and the headquarters office, including fisheries. The sample represented a vertical and horizontal cross-section of agency employees in terms of geographical location and management level and discipline. A third focus group was composed of administrative staff or supervisor/managers from all levels across the agency, excluding fisheries.

A fourth focus group was composed of stratified, randomly selected employees within the Wardens Service; the fifth focus group was composed of external constituents of the Wardens Service.

A sixth focus group was composed of a stratified, randomly selected group of employees within the Division of Wildlife; a seventh focus group was composed of external agency constituents of the Division of Wildlife.

Employees of the Information and Education Division made up the eighth focus group, and constituents of I&E, external to the agency, composed the ninth focus group.

The tenth focus group was composed of employees randomly selected from the Bureau of Administrative Services; the eleventh and final focus group was composed of constituents of Admin Services from outside the Department.

Each one of the focus groups was asked the same following set of trigger questions:

- ◆ What is the Department of MDIFW doing well?
- ◆ What is the Department not doing very well that could be an opportunity for improvement?

Focus Group Key Findings

Wildlife Division top focus group issues were: the MOSES system not working, budget cuts from the Legislature, the cost accounting system, the budget process for the Department, a disconnect with the new administration, and a lack of clarity of direction.

Information and Education Division top issues were: MOSES needs to be fixed and still lacks data mining capability, internal communication issues including the need to consult with staff when regulations change, ATV issues and changing enforcement priorities versus the Department mission, funding, and un-funded mandates from the Legislature. The Wildlife Park, the Warden Service's customer-service approach, and youth educational programs were also listed as divisional strengths.

Warden Service Bureau top focus group issues were: non-funded mandates, the budget, and lack of direction/clarity, followed by the lack of advocacy for the Department with the Legislature and the need to improve internal and external communications.

Administrative Services Bureau top issues expressed during the focus groups were: MOSES not working, licensing staff working overtime and "maxed out," budget and staff inadequacies, storage and space needs, and related critical building maintenance needs.

Overall, five initial, common themes emerged when all of the responses during the focus groups were combined and qualitatively analyzed. These early themes from the data were common to all the focus groups except Administrative Services as follows:

1. Legislature micromanagement
2. Funding
3. Leadership and directional clarity
4. Accountability, including budget and accounting
5. Communications, both internal and external

Unstructured Interviews

The scoping interviews, in the fall of 2003, consisted of sixty-four face-to-face interviews using open-ended questions similar to those asked of the focus group participants. Scoping interviews asked, "*What is working well within your bureau?*", "*What could be improved?*," and "*What are the obstacles to effectiveness?*"

Collective interview responses were independently analyzed both by MAT and an outside contractor. The double analysis served as a check for bias, counteracting the potential of misinterpretation. MAT used a stratified, random process employing computer generated numbers by the website random.org to select employees to be interviewed. Others from the Department, by virtue of their management positions, as well as representatives of constituent groups, were also selected.

The qualitative analyses of these initial interviews identified reoccurring elements and produced six broad issue categories as follows:

1. Communication
2. Legislature
3. Funding/Salary
4. Vision/Goals
5. Management/Leadership
6. Media and Public Relations

(See Data: *Combined Summary of 61 Initial Interviews*, Rosalind Bahr, Lehi, Utah, in MAT Review Report, DATA, stored electronically in a CD attached to the back cover of this report).

Triangulation of Data in the Scoping Phase

Information obtained from the review of documents, the analysis of the focus groups, and the initial interviews was compared and produced the following overarching areas of concern on which to concentrate the remainder of the review process:

1. Advocacy
2. Accountability
3. Program and Performance Efficiencies
4. Direction Clarity

Phase II: Telephone Survey

Responsive Management conducted a telephone survey in February, 2003, for the Management Assistance Team. All employees were asked to rate the same set of ninety-six structured questions. One open-ended question was also asked inviting participants to add any comments they wished. (See Data: *Maine Department of Inland Fisheries and Wildlife Employees' Survey*, Responsive Management, in MAT Review Report, DATA, stored electronically in a CD attached to the back cover of this report).

- ♦ MAT Web Page – To facilitate employees, a web page was made available by MAT to the Department employees for electronically sending to MAT whatever they wanted to share, anonymously if so desired. MAT received approximately 15 individual transmissions of comments from this web page.

Phase III: Final Interviews

In March, MAT interviewed by telephone all of the Advisory Council members and a sampling of other stakeholders and employees before returning to Maine in April to

interview 60 employees of the Department. Some individuals interviewed were chosen by virtue of their positions, while others were randomly selected. Interviews were conducted at the Augusta and Bangor Offices. The interview responses were sent to Dr. Gary Geroy, Ft. Collins, CO, who performed a qualitative analysis and data report (See Data: *Final Interviews – Data Analysis Report*, Dr. Gary Geroy, in MAT Review Report, DATA, stored electronically in a CD attached to the back cover of this report).

Phase IV: Report on Findings and Recommendations

At this point, the mountain of data, along with the various analyses and summaries, were translated into fifty-seven (57) recommendations for improvement. These recommendations are discussed in separate chapters, first in Department Overall, then separately by bureau or division, and presented in the following chapters of this report.

THE DEPARTMENT OVERALL

The number one area of agreement within the Maine Department of Inland Fisheries and Wildlife is the Department's unquestionably, exceptional workforce. Their outstanding experience, skills, and extreme dedication to both the natural resources of Maine and the Department are an irrefutable strength for the Department. The MAT Review report would mean little without this enormous strength as a backdrop when considering recommendations for improvement.

The telephone survey found eighty-seven percent (87%) of all employees were satisfied with their job and seventy-three percent (73%) responded they feel valued by the Department. These are very high ratings, especially considering their current overworked, under-funded work context. It speaks to the aforementioned well-documented "missionary like zeal¹" characteristic of the workforce in state fish and wildlife agencies.

Employees were somewhat split regarding whether declining morale within the Department has affected their job performance (45% agreed and 54% disagreed). Budgetary cuts within any organization are potentially troublesome to effectiveness and efficiency, and exhausting to employees doing double-duty. A healthy budget alone will not fix low morale. Morale issues are solved by restoring trust and providing recognition to employees that they as individuals and their work contributions are valued. Among types of awards, telephone survey respondents reported that they favored special recognition the most. Second most preferred was a plaque, and cash awards were third.

According to the telephone survey, ninety percent (90%) of all employees agreed the Department's performance in managing and protecting fish and wildlife resources was excellent or good. Ninety-six percent (96%) reported from the telephone survey that the Department is professional when interacting with the public and seventy-eight percent (78%) responded that the Department presents a unified front when responding to the public, even when internal consensus did not exist. Sixty-two percent (62%) agreed when asked in a public survey that the Department effectively balances the interests of anglers, hunters, conservation groups, and the general public. When asked the same question, eighty-one percent (82%) of MDIFW employees agreed. These are very high ratings of overall Department performance!

The Management Assistance Team was tasked to assess two bureaus and two divisions of the Maine Department of Inland Fisheries and Wildlife. These are discussed in subsequent chapters of the report. Eight areas that relate to the overall Department are discussed in this chapter along with 15 recommendations for improvement. The issues are interconnected and overarching; improvement in these key areas would leverage improvement efforts throughout the Department.

Key Issue: Expanding Mandates/Mission Creep

A large majority of employees indicated they were aware of and understood the Department's direction (75%) and their bureau's direction (76%); however, some employees in the focus groups and interviews indicated concern that the Department or their bureau was at risk in losing its direction. Such a perception can become corrosive, eating away at the bureau or Department's cohesive strength and exacerbated by legislative directives independent of Department plans and budgets. Unexpected legislative requests can interfere with on-going projects, requiring redirection of personnel, time, and scarce Department dollars. Employees are impacted and confusion is created as to overall Department or bureau direction.

To keep "the boat on course," strong leadership is required. On the bureau level it means effective bureau or division directors; on the Departmental level strong leadership from the Commissioner's Office. The Commissioner and Deputy Commissioner are generally perceived as growing into their new positions. It will be important in the future for the Department's leadership to continue to speak with utmost clarity regarding the tradeoffs of adding new work with no new resources. Clarity is critical when agency plans are diverted. The cost consequences must be made perfectly clear in terms of what can no longer be provided by the Department or what the Department will need in terms of funding and personnel to enable implementation of legislative requests.

Prioritization of work, via annual work plans with budgets and hours required, is a key tool to enable the Department to communicate clearly with the Legislature or other external stakeholder groups. Without prioritized work planning, effective communication from the Department is jeopardized. The level of necessary clarity would not be possible. Such clarity is needed to effectively communicate what lower priority projects must go undone to free up the dollars and hours to take on new, unfunded assignments.

Two other reasons for instituting written work plans Department-wide are: 1) they provide a means to clarify Department expectations of employees and thus, illustrate the employee's value to the Department, and 2) work plans provide a mechanism for holding employees accountable for their work performance. Of those surveyed who agreed their work was planned and documented in written work plans, the characteristics most strongly associated with their responses were that "He/she was valued by the Department" (Z Score 5.21) and that "Employees at all levels throughout the Department are held accountable" (Z Score 3.78).

Somewhat less than a majority of all employees (40%) responded in the telephone survey that their work is planned and documented annually in some type of written work plan. In addition, there were important differences found among position types: biologists and I&E employees were the most likely to respond to having such annual work plans (See Chapter: Wildlife Division, Key Issue: Current Need for Prioritization).

Department Overall Recommendation # 1:

Have all employees develop prioritized work plans to mitigate mission creep.

Key Issue: Funding

The Maine Department of Inland Fisheries and Wildlife is a virtual “Mother Lode” for the state, economically speaking. Total figures for participation in hunting and wildlife watching recreation in Maine combined are 942,000 participants with expenditures totaling \$508,345,000 in 2001². By comparison, farms in Maine generate \$240,000,000 per year, agricultural services \$486,000,000, and furniture and fixtures manufacturing \$169,000,000³.

The Department’s budget has been cut and ceilings on staffing enforced for over two decades. The Wildlife Division expenditures alone amount to approximately less than one percent of the wildlife watching and hunting revenue generated! While shortfalls in general funds are a reason for cutting state government, cutting an agency with such a high return rate on investment may need to be reconsidered by government leaders. The old saying, “You can’t starve yourself into prosperity” applies. The Maine Legislature may wish to consider even more rigorous mechanisms to invest in one of Maine’s most lucrative industry segments.

Potential additional funding sources will need to be identified and support generated from Maine citizens in order to achieve this goal. While leadership of this task should be taken by the Legislature and the Commissioner’s Office, Bureau and Division Directors should provide much of the staff work and advice on this critical leadership effort. The best way for MDIFW to begin this effort is to use the collective synergy of the staff in one or more group meetings to develop ideas and strategies. MDIFW has several strong supportive groups of Maine citizens already, for example, the Sportsmen’s Alliance of Maine (SAM) and the Audubon Society. Working closely with conservation and sportsmen’s groups, the MDIFW can incorporate as many other groups as possible in order to build a coalition of support for the sorely needed Department funds and staff additions.

Employees and external stakeholders of the Department suggested a number of different strategies to increase funding. Some of these have been recommended in previous studies/reviews of the Department. Some have been tried unsuccessfully. The challenge remains and opportunities are there. Diligence, creativity, and the right timing will enable the development of new funding sources for the agency. Because something was tried in the past and did not succeed should not prevent continuing similar efforts.

Examples of suggested strategies are a bond referendum, user fees for milfoil control or paddlers use of MDIFW sites, partnerships with paddlers groups, etc. Some excellent

funding strategies for the Department were reported in a previous funding review for the Legislature in 2001.⁴ These strategies are presented in the *Final Report of the Citizen's Advisory Committee to Secure the Future of Maine's Wildlife and Fish*, January 2001.

Other state fish and wildlife agencies across the country (Arkansas, Arizona, Virginia, Colorado, Illinois, and Missouri) have successfully obtained supplemental funding⁵ and their success may provide clues for Maine's approaches.

Department Overall Recommendation # 2:

Have the Division/Bureau Directors work with the Commissioner's Office to establish strategies for seeking increased funding and staffing with the Legislature.

Strategy: Have facilitated meetings of Commissioners and Division/Bureau Directors to brainstorm ideas and develop strategies to pursue different funding efforts.

Burnout

A bill promising general funds for eighteen percent (18%) of the Department's budget was nixed. For many it felt like a promise taken back. Significant anxiety among the ranks resulted and reportedly affected the rest of the Department as well.

In effect, the MDIFW is trying to produce the same level of products and services with fewer resources and having to rely on the commitment of staff to accomplish it. While this is effective to a point, over an extended period of time the workload may become too burdensome, and several negative effects may occur due to staff burnout.

Short-term Focus

Short-term focus is another consequence of lack of staff and funding. Organizations typically exhibit this in a lack of staff time devoted to strategic thinking and planning efforts. When there are too few employees, there is not enough time to focus on the long-term planning and work necessary for tomorrow's success. Instead, the focus is only on short-term crisis management. This is a self-perpetuating cycle because lack of time for planning ahead creates tomorrow's problems and crises. One can never seem to get ahead of the curve, and a siege mentality often develops resulting in unwillingness to take on new tasks, take risks, change to new approaches, or explore new possibilities.

Such a pervasive and "hidden" work-cultural evolution can result from long-term lack of staff and funds and failure to cut products and services. Publics or legislative bodies often are not close enough to the agency employee population to be aware of this cultural degradation. When products and services are maintained, the assumption by governing bodies is often that things are working acceptably. However, the long-term

effects eventually become very evident in lost productivity, unwillingness to evolve with changing publics, etc.

While these pitfalls to chronic lack of staff and funding at the Department are not key issues at the moment, it is unrealistic to expect successful avoidance of these pitfalls indefinitely. The descent is gradual and occurs over a number of years, lulling Legislatures, administrators, and governing bodies into a false sense of security that “it won’t happen to them.” The situation is similar to the “boiled frog syndrome” — if the change in temperature of an open pot of water holding a frog is sufficiently slow, the frog will sit in the water until it is boiled, even when it could have jumped out. Action is urged now to address the MDIFW’s lack of resources.

The well-documented “missionary-like zeal” of fish and wildlife employees ultimately contributes to fish and wildlife agencies, more than other types of state agencies, becoming susceptible to the pitfalls resulting from continued budget and staffing cuts. Fish and wildlife employees’ commitment to their job and the state’s natural resources inhibits their willingness to “just say no”, refraining from doing all the work they consider important. When these employees continue to work on their own time and over an extended period of years, the effects can be very negative for the individual employees and for agency effectiveness. Because of their unique zealousness, Legislatures and governors may wish to consider state fish and wildlife agencies as special cases or “indicator agencies” of impacts of continued budget cuts.

Formal direction for prioritization of work for each bureau is needed from the executive leadership of the Department. The next step is to communicate what work will be discontinued without accompanying funding.

Department Overall Recommendation # 3:

Develop a clear, succinct vision for the Department, including funding strategies and what types of work will be de-emphasized in the interim, and articulate regularly by top management including how the MDIFW will strategically get there.

Key Issue: Advocacy

There is no perceived, consistent, external champion for the Department. A strong external advocacy group is warranted. This advocacy group should be a large, diverse body of people who would represent a cross-section of stakeholder interests, representing both consumptive and non-consumptive users, and who would actively work to help the Department. Such a body of people could broaden and leverage the positive help from such groups as the Sportsmen’s Alliance of Maine and the Audubon Society. Some state fish and wildlife agencies across the country have established

foundations to do this. Others have established annual events to pull large diverse groups together for such common purposes as described here.

Individual conservation groups understandably may have specific issues with MDIFW regulations or operations. However, if those conservation groups spend more time nitpicking MDIFW operations than helping to address the overall lack of staffing and funding, then their actions could be likened to rearranging the deck chairs on the Titanic. Overall, advocacy and solution to the lack of staffing and funding is the most critical issue that must be addressed first!

Department Overall Recommendation # 4:

Work with constituent groups (SAM, Audubon, etc.) to establish a strong advocacy voice for the Department by utilizing techniques from other states such as a conservation congress or creating a foundation, etc.

Key Issue: Structure

Personal interviews, telephone interviews, and focus groups consistently indicated that the current structural arrangement could be improved. In addition, under the current structure, the division and bureau directors do not have equal position of authority and line of reporting to the Deputy Commissioner (See Diagram 1 on the next page). A structural reorganization is recommended to better disperse the workload, increase efficiencies of decision-making, and increase effectiveness of operations.

Suggested Organizational Structure

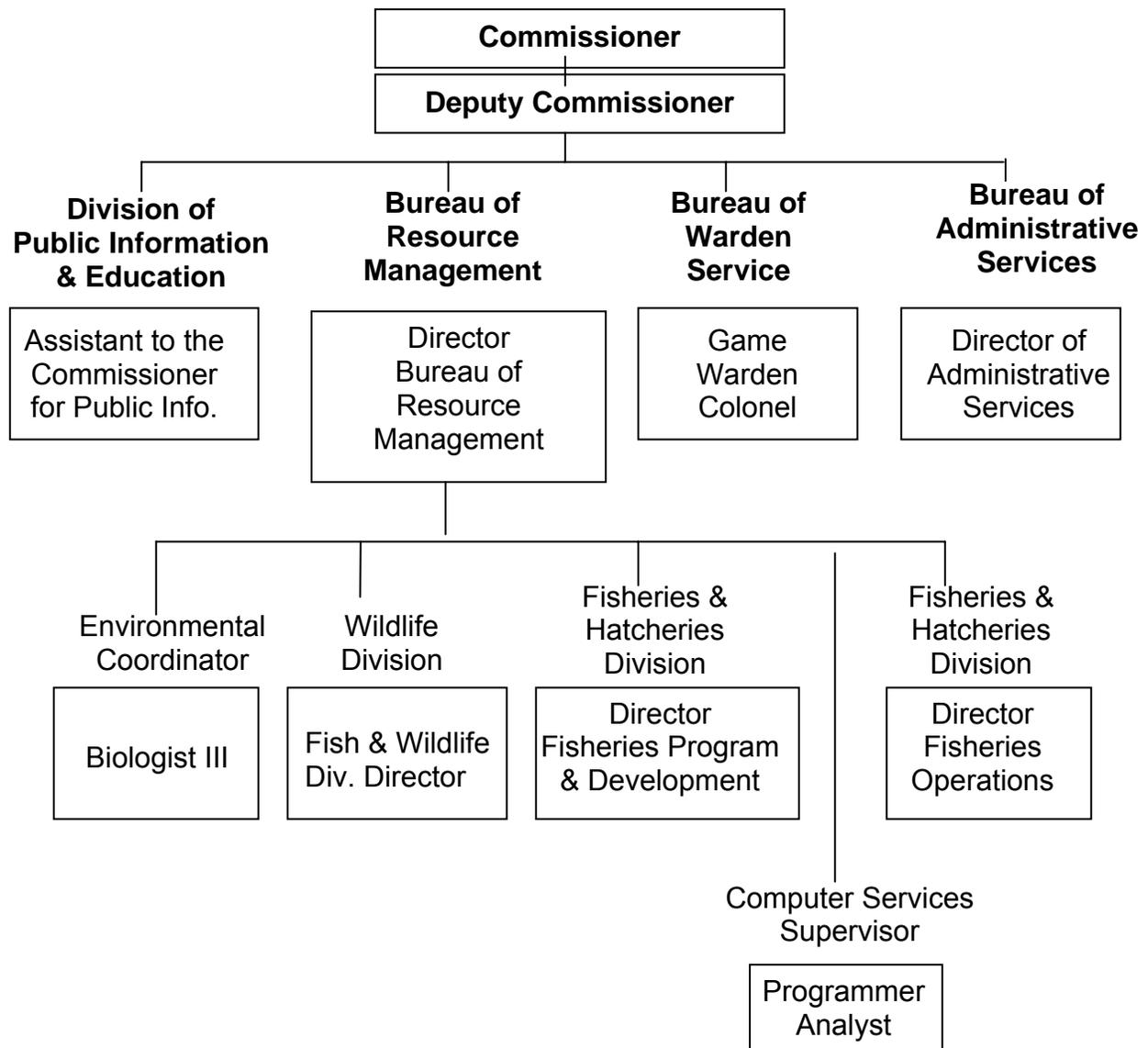
An improved agency structure to consider is one in which Wildlife, Fisheries, Warden Service, Information and Education, and Administrative Services all report directly to the Deputy Commissioner and are at the same organizational level. Having a Bureau of Resource Management layer of organization inserted between the wildlife and fisheries divisions prohibits equal access to the Deputy Commissioner and promotes less than equal organizational footing between the fish and wildlife divisions and the other bureaus/divisions.

To facilitate a restructure and enable it to work would require first changing the Deputy Commissioner position from appointed to permanent. The Deputy position is critical to the coordination function that will be required of the proposed restructure. It would require a legislative change⁶ (See *Recommendation #8* in this section).

The current structure has the added disadvantage of burdening the existing Director of the Bureau of Resource Management with too many responsibilities that should be divided between the fisheries and wildlife divisions. The situation is untenable for the long-term and has created a vast work overload for that position. The Fisheries Division

currently has a relatively new position, Director of Program and Development, which could serve effectively as an Assistant Director of Fisheries. Wildlife needs to have a similar Assistant Director position so that there is sufficient staff to take on the workload assumed by the Division if the Bureau of Resource Management is eliminated.

Diagram 1. Current Agency Organizational Structure



Lands acquisition is a priority within the MDIFW, but cutbacks in staff have reduced the number of people to work in this area. Currently, the brunt of lands acquisition falls upon the Federal Aid Coordinator and takes away from his ability to devote more time to other Federal Aid administration and accounting issues. Moving the Federal Aid Coordinator to the Bureau of Administrative Services enhances the direct connection of the Deputy

Commissioner to the bureaus and divisions and facilitates the Deputy Commissioner's working in management coordination.

Lack of staff to handle real estate work for the Department makes stream access and wildlife habitat purchases slow and inefficient, directly impacting the Fisheries and Wildlife Divisions' accomplishments. This is particularly problematic when dealing with grants such as the North American Waterfowl Plan where it is difficult for the MDIFW to get a grant completed and closed in order to begin the next grant cycle. MDIFW runs the risk of losing these federal grants to another entity such as an NGO that would agree to administer them in a more timely fashion.



Department Overall Recommendation # 5:

Create a new Bureau of Habitat responsible for lands acquisition and all engineering as indicated in Diagram 2. Suggested Agency Organization Structure.

Strategy: The Federal Aid coordinator would report to the Director of Administrative Services.



Department Overall Recommendation # 6:

Restructure the agency to eliminate the Bureau of Resource Management and reclassify the Bureau Director position to Wildlife Bureau Director. The current Wildlife Division Director position should be promoted and reclassified to an Assistant Director position for the Bureau of Wildlife. The current Director of Fisheries Operations should be promoted to Director of the Bureau of Fisheries. The current Fisheries Program and Development Director should be promoted to Assistant Bureau Director of Fisheries. The Computer Services and Environmental Coordinator Positions reporting to the current Bureau of Resource Management should be aligned to report to a new Bureau of Habitat. The Federal Aid Coordinator would report to the current Bureau of Administrative Services (See Diagram 2. Suggested Agency Organization Structure). Reclassify the Divisions of Information and Education, Fisheries, and Wildlife as Bureaus to reflect equal positions at this level within the organization.

The new Bureau of Habitat should have additional staff as soon as funding and staffing levels permit. The additional staff is needed for permitting and for lands purchases. Much of the fieldwork for permitting is done by the Division biologists and at least two or three additional staff will be needed in the Bureau of Habitat to assume this workload. In addition, another data management person (programmer/analyst) is recommended when funding is available so that one could work primarily on fisheries data management and one on wildlife data management. Once there is a data manager for fish and one for wildlife, then those positions could be moved into the respective bureaus.

The suggested structural changes will provide much needed assistance for lands acquisition particularly by creating a Bureau of Habitat and adding two new positions: 1)A Bureau Director, and 2) A position to handle lands acquisitions. The chief engineer would be placed in this bureau. In addition, the programmer analyst would report to this bureau since the analyst serves primarily fisheries and wildlife data management, license lotteries, etc. as well as managing Warden Service records. As part of the Bureau of Administrative Services, the Federal Aid Coordinator would coordinate with the lands acquisition position but assume more of a role in overseeing and managing federal aid monies and insuring projects meet Federal Aid requirements.

These changes in structure are based on function and logic of reporting not on personnel performance. Additional training may be needed for supervisors with new, added responsibilities. The suggested restructuring would include changes as follows:

- ◆ Eliminate the Bureau of Resource Management; its Director becomes Director of the Bureau of Wildlife.
- ◆ Reclassify and promote the current Wildlife Division Director position to Assistant Director of the Bureau of Wildlife.
- ◆ Reclassify and promote current Director of Fisheries Operations to Director of the Bureau of Fisheries.
- ◆ Reclassify and promote the current Director of Fisheries and Program Development to Assistant Director of the Bureau of Fisheries.
- ◆ Create a Bureau of Habitat. This bureau would be responsible for lands acquisition and all engineering efforts (dams, buildings, etc.). The Engineering and Realty section would report to this new bureau.
- ◆ The Federal Aid Coordinator would report to the Director of Administrative Services.
- ◆ Add two new positions: One as a Chief and the second as a lands acquisition position in the newly formed Bureau of Habitat.

- ♦ The Computer Services Supervisor position would report to the Bureau Habitat Director since computer services serves primarily the data management of both wildlife and fisheries.
- ♦ The Environmental Coordinator position would report to the Bureau of Habitat since this position handles environmental permitting, etc. for both the fisheries and wildlife divisions.

Optimal functioning of this suggested restructuring is dependent upon making all the recommended restructuring changes as a package. To make some and not others would not work. For example, the creation of a Fisheries Bureau and a Wildlife Bureau needs to be followed with having assistant bureau director positions in each bureau or the delegation of work suggested will not work. In addition, Department Overall Recommendation #8 (Deputy Commissioner position becomes a non-appointed position) is integral to continuity over various political administrations. This continuity has been addressed in the past by having the Bureau of Resource Management Director as a non-appointed position.

If this restructure is implemented, the Directors of Wildlife and Fisheries Bureaus will need to personally coordinate with each other more than in the past where the coordination role was fulfilled largely by the Bureau of Resource Management Director. If differences exist that cannot be resolved with this level of coordination, then the Deputy Commissioner will need to become involved to resolve coordination issues.

Lands Acquisition Departmental Committee

Currently, both the Fisheries and Wildlife Divisions have their own internal lands acquisition committees. These serve their divisions well, and the current Bureau of Resource Management Director makes the decisions as to which lands to push forward for purchase.

Lands acquisition decision-making could reflect more of a Department-wide perspective if elevated to a Department level with input from all Department bureaus/divisions and final approval by the Commissioner's Office. Creating a Department committee for lands acquisition is one way to make this more of a departmental process. Developing a way to better handle land acquisition decisions is particularly important if MDIFW implements Recommendation # 6 in this section for restructuring, i.e., eliminating the current Bureau of Resource Management.

Department Overall Recommendation # 7:

Create a Department Lands Acquisition Committee to evaluate and prioritize potential land purchases.

Strategy: This committee should be chaired by the new Bureau of Habitat Director and include representatives from all bureaus/divisions. The Habitat Bureau Director would

be responsible for coordination of all bureaus and divisions in land purchases. If coordination issues cannot be resolved, then the issues would be resolved by the Deputy Commissioner.

Key Issue: Leadership

The Commissioner's Office has demonstrated to many employees that the new leadership is growing into their roles for the Department. Initial concerns over management styles and organizational cultural differences to which the staff was not accustomed have lessened with a growing recognition of the executive leadership's intent to support the agency and do the best job they can.

Personal visits from the Commissioner and Deputy Commissioner with the Regional Offices have been appreciated by staff. Sit-down visits directly with work groups within the Department have done much to show employees the commitment to the Department from within the Commissioner's Office. In addition, the Commissioner's Office seems to be working satisfactorily with the Advisory Council.

When all employees were asked if they agreed that access to top management was good, sixty-five percent (65%) agreed and thirty-four percent (34%) disagreed. This could be reflective of several things: First, initial confusion surrounding the Commissioner's "open door policy", and, secondly, lack of established trust relationships between managers/directors and the Commissioner's Office. This can be explained in part by the fact that the Commissioner and Deputy have not been in office long enough to develop trust levels sufficiently.

It is interesting to note that past budget cuts and ensuing layoffs in MDIFW have undoubtedly contributed to a paradigm within the Department's work culture that all things political are by their nature bad. This paradigm needs to change if the Department is to successfully leverage the political context in which it must operate.

In states where there are a large number of governor appointed top leadership positions in the fish and wildlife agency, there are also consequential weaknesses and ineffectiveness due to short tenures, often of four years or less. Continuity is lost and focus becomes short-term, not transcending the current administration's term of office. Legislative action is required to change the way top leadership positions are filled. It is beyond the control of the MDIFW.

Department Overall Recommendation # 8:

In the future, change the positions of Deputy Commissioner, Director of Information and Education, and the Director of the Bureau of Warden Service from positions appointed by the Governor to positions hired according to regular Department procedures.

Supervision

While sixty-six percent (66%) of all employees responding to the telephone survey reported that they were satisfied with the supervision they were receiving, almost one-third of the employees responded they were not satisfied (33%). The Z Scores of this unsatisfied latter group give statistical clues to other characteristics also strongly associated with those individuals. Knowing such characteristics can be extremely helpful in trying to understand supervision issues in the Department. The individuals not satisfied with the supervision they were receiving also tend to disagree that employees at all levels throughout the Department are held accountable for performing their job duties. They tend to agree that declining morale within the Department has affected their job performance. They tend to not feel that they receive information (excluding budget information) when they need it and do not receive the information they need to do their job effectively. They tend to not understand their job duties and the expectations of their supervisor with regard to those duties. They tend to disagree that their access to top management is good. They tend to be dissatisfied with their job overall and tend to not believe that trust is high.

Department Overall Recommendation # 9:

Provide effective supervision training for all supervisors in the Department.

Effective supervision training can serve as a refresher for those who are doing well and a valuable intervention for those who are not.

Key Issue: Communication

Communication issues are typically a symptom rather than a cause. However, it emerged in the data as an area of weakness to numbers of individuals in various areas of the Department. During interviews many responded that internal communications were less than desirable. Furthermore, the analysis of the final interviews revealed that those without access to computers and e-mail felt significantly limited in their access to Department information.

The I&E Division shares internal communications responsibilities with Administrative Services. However, the Bureau of Administrative Services handles the majority of the official internal communications. Because internal and external communications should be consistent and coordinated, I&E should logically be a key partner in coordinating the external with the internal communications.

Both Personnel and I&E Divisions lack the adequate staffing to effectively manage internal communications. Both Personnel and I&E are understaffed to the point that neither group can manage this issue alone or cooperatively. Recommendations and discussion for addressing staffing needs in Personnel and I&E Divisions are addressed in the Chapters of Bureau of Administrative Services and I&E Division, respectively.

Department Overall Recommendation # 10:

Have I&E and Personnel Divisions work together to define their specific responsibilities and roles in managing internal communications pending resolution of their mutual staffing needs.

Enhanced Intranet

The perceived lack of internal communications, especially for dispersed operations personnel, may underlie some morale issues as well as undermine agency cohesiveness. Interestingly, not all of the employees share this perception. According to the telephone survey, a majority of all employees (73%) indicated that they receive the information they need (excluding budget information), when they need it, to do their jobs effectively; however, twenty-eight percent (28%) of the employees disagreed. While the reasons are unclear, some employees may have supervisors who are more diligent than others at keeping their employees informed. And, some employees indicated that they like the freedom of fieldwork and that they would not wish to be tied to phone or e-mail, yet some of the same people may complain that they find out about major agency changes “in the newspaper.” To improve overall agency effectiveness, MDIFW will need to address communication needs for the Department’s workforce overall.

An enhanced employee intranet would help the Department increase access to important information and relevant news. If I&E involves a full-time webmaster (See Chapter: Information and Education, Recommendation # 3), the case for developing an employee intranet becomes stronger. Intranets are powerful tools to cultivate knowledge sharing among employees, ensuring that the latest news is readily available to all employees. The MDIFW needs to ensure that all employees have reliable computer access (See Chapter: Administrative Services, Recommendation # 6).

Currently, wardens in remote districts are unlikely to have computer access, and this poses the most significant limitation to this type of information sharing. Until those wardens have reliable internet access, the sergeants’ role in facilitating Departmental communication will remain vital, and a potential Departmental weakness when and if the sergeant fails to communicate or is absent.



Department Overall Recommendation # 11:

Enhance intranet capabilities so that relevant news, policies, and communications are available to all employees more time efficiently, especially as the Department works towards increasing computer and internet access to remote employees.

The telephone survey found that slightly more employees agree (63%) that communication down the chain of command was often used compared to 58% of employees who agreed that communication up the chain of command was often used.

In addition, employees are somewhat split in their view of the ease and effectiveness of the flow of communication within the Department, whether up or down. Noteworthy is that this is a common area in need of improvement among state fish and wildlife agencies across the country. This may be comforting to a degree, but should not constrain the MDIFW from trying to improve in this area.

A majority of all MDIFW employees (61%) agree that the Department uses staff input in decision-making; however, a substantial percentage (38%) disagrees. The Department may want to look further at how to leverage the knowledge, ideas, and input of staff. Listening is a major key in effective communication.

Department Management Team

In the Fall of 2003, one MAT recommendation would have been that the Commissioner's Office develop a Management Team which would include the Commissioner and Deputy Commissioner, all of the Bureau Chiefs, Director of Fisheries, Director of Wildlife, and Director of Information and Education. They would meet regularly, provide input for decision-making, and then communicate downward to appropriate employees the information they learned. The Commissioner's Office is to be commended for already implementing such a team. This change appears to be well received.

Key Issue: The Advisory Council

The MDIFW Advisory Council, while not a Board of Commissioners, serves the Department well, collecting information, opinions, and identifying needs as part of the regulatory process. Along with the Species Planning Groups, it provides a satisfactory public input process. However, the Advisory Council could be improved through strengthening its membership selection criteria and process as well as clarification of the Council's purpose and importance.

Members of the Advisory Council are currently not all clear on the selection process for new members. When a vacancy opens up, it may be more time efficient for the Commissioner to select individuals that he deems a good fit to be on the Council, but unfortunately, this can be viewed as "stacking the deck." The Advisory Council benefits from the synergy of different perspectives, creating lively discussion and debate. Therefore, an objective, clear selection process for its members is critical.

Department Overall Recommendation # 12:

Review current selection process and establish guidelines and criteria for selection of new Advisory Council members.

Strategy: If legislatively establishing such guidelines and criteria is not possible or practical, then, at the least, have the Advisory Council and the Commissioner and Deputy Commissioner work together to clearly define what the selection process is, publicize the process and criteria, and then adhere to it.

Key Issue: Accounting

Financial accounting in its most basic form has two major components: 1) Budget preparation and 2) Expenditure tracking. Each will be discussed separately.

Budget Preparation

Currently, different divisions and bureaus budget at different levels of detail. For example some divisions prepare their budgets based on project level detail with projects defined as small units of work for which one person can be held accountable. Other divisions/bureaus may base their budgets on very large “projects” at a level where a project would encompass many small units of work with multiple people responsible. Other bureau/divisions base budgets on larger program level detail without any work or funding specified down to the project level of detail.

Department Overall Recommendation # 13:

Have the divisions and bureaus budget to the project level with a standardized definition of what constitutes a “project.”

Strategy: The project level budgeting used by the Wildlife Division is a good example for consideration.

Currently, budgets are often prepared within bureaus/divisions by essentially repeating the previous year’s budget, the justification being there is no new money. While much less work, this approach has significant drawbacks: It promotes focusing backward instead of looking ahead, and it is very shortsighted. It will never provide a sufficient rationale for obtaining new money and staffing.

A more effective way to submit budget requests is for the bureaus/divisions to include project level proposals for new work. These new work proposals are prioritized against existing work already described at the project level. It may be that some new proposals would rank higher than some of the existing work. Such new work proposals would be funded instead of the lower priority existing work. Work projects that remain unfunded

provide a project-specific basis to request more funds. This is a much more defensible base from which to request funds and staffing than a general undefined request for more positions and money.

Department Overall Recommendation # 14:

Have division and bureau budget requests emphasize new project proposals prioritized against existing work. Any projects (existing or new) that cannot be funded are then used to build a justification for budget increases by showing specifically what would be done with additional funding.

Expenditure Tracking

Approximately fifty percent (50%) of the budget managers in MDIFIW described expenditure tracking as difficult if not impossible. This view was prevalent among those who wished to track expenditures at a project level of detail and at the funding source level of detail. Dissatisfaction with expenditure tracking reports was strongly associated with biologists (Z Score of 2.93). Those satisfied with a much more general level of detail often felt that their needs were being met.

Three factors reportedly thwart attempts by budget managers in different bureaus/divisions to be more accountable in managing budgets: 1) The general level of expenditure tracking reports provided by Administrative Services, 2) The lag time in getting reports from Administrative Services, and 3) Report formats from Administrative Services that were confusing.

To track expenditures to desired levels, many MDIFW employees keep their own set of expenditure records. This ranges from a small project manager using a ledger notebook to track expenditures to division and bureau directors using electronic spreadsheets to track hundreds of thousands of dollars in expenditures. This is duplicative, and unnecessarily requires valuable employee time in an environment where staffing and funding are already in short supply. The Bureau of Administrative Services' Division of Accounting is encouraged to better meet employee expenditure tracking needs with timely and understandable reports of expenditures down to the project level, including funding source codes with project number identification.

Department Overall Recommendation # 15:

Have the Bureau of Administrative Services' Division of Accounting implement expenditure tracking at the project code level with funding codes as part of the project code identification.

Operational expenses are tracked in Accounting after MDIFW budget managers submit to them their invoices, receipts, etc. The Accounting Section should prepare standardized electronic spreadsheets for bureau/division budget managers, permitting those managers to submit their operational expenses monthly to Accounting and then track them (See Chapter: Administrative Services, Recommendation # 8).

¹ Kennedy, J. J. and J. A. Mincolla. 1982. Career evolution of young 400-series U.S. Forest Service professionals. Career Development Project Report 1. Logan, Utah: Utah State Univ. Dept. of Forest Resour.

² U.S. Department of Interior, Fish and Wildlife Service, U.S. Dept. of Commerce, and U.S. Census Bureau. *2001 National survey of fishing, hunting, and wildlife-associated recreation-Maine.*

³ Bennett, Tom (President of the International Association of Fish and Wildlife Agencies.) Keynote presentation at 2003 IAFWA Annual Meeting in Madison, Wisconsin.

⁴ State of Maine, 119th Legislature, Second Regular Session, Joint Standing Committee on Fish and Wildlife required by Resolve 1999, chapter 86.

⁵ Kolus, C., Zimmerman, D., Ebert, V. & Guynn, D. 1999. *Broadening the Constituencies of State Fish and Wildlife Agencies: Some Successful Strategies.* Management Assistance Team, 698 Conservation Way, Shepherdstown, WV 25443, 304-876-7988.

⁶ Maine state statute 12 MSRA, Part 10, Chapter 702, subchapter 7013.

DIVISION OF WILDLIFE

Overview

In a state as large as the remaining New England states combined, Maine's habitats range from coastal, freshwater, and upland to riparian with 32,000 miles of streams and rivers. Coastal habitat of Maine is over 3,000 miles long with 4,613 islands between Kittery and Eastport.

One-third of the state's area is comprised of freshwater wetlands, including hardwood floodplains, freshwater marshes, and dense assemblages of vernal pools. Maine is the most heavily forested state in the United States, but also contains some of the most significant grassland and agricultural lands in the Northeast.¹

The myriad of different habitats composing Maine's land base supports a correspondingly large variety of wildlife species including 226 species of breeding birds, 60 species of mammals, 17 reptile species, 18 species of amphibians, and over 1,500 species of invertebrates. Responsibility for their management is vested in the Division of Wildlife and its 46 employees.

The Wildlife Division recommends regulations for hunting and trapping, e.g. seasons, bag limits, methods of take, etc. The Division manages 50 - 60 Wildlife Management Areas around the state and works with private landowners and communities on habitat preservation and management.

Popular outdoor activities among Maine residents in 2003 were watching wildlife with sixty-eight percent (68%) of the population participating, freshwater fishing (36%), and hunting (19%).²

According to the U.S. Fish and Wildlife Service "2001 National Survey of Hunting and Wildlife-Associated Recreation," 164,000 people hunted in Maine in 2001 spending \$162,397,000.³ Hunting trip and equipment expenditures by nonresidents in Maine equaled \$42,305,000 of the hunting expenditure total. In addition, 778,000 people participated in wildlife watching with total expenditures of \$345,948,000. Wildlife watching trip and equipment expenditures by nonresidents in Maine equaled \$105,914,000 of the total wildlife watching expenditures. Maine's wildlife-related economic contribution is fifth in the U.S. in terms of the percentage of the state's gross state product. Wildlife-related recreation brings more money (\$1.4 billion) into Maine's economy than do other recreation industries such as downhill skiing (\$250 million) or snowmobiling (\$225 million).⁴ The Division budget expenditures for 2003 totaled approximately \$6,588,333 compared to \$6,491,686⁵ in 2001. Wildlife Division annual expenditures amounted to less than one-half of one percent of the 114 billion dollars of wildlife-related recreation revenue brought into Maine's economy! (See Chapter: Department Overall, Key Issue: Funding).

The Wildlife Division is well respected and is particularly admired for their biological expertise and use of wildlife science. According to a state-wide survey conducted by Command Research of South Harpswell, ME, for the Sportsmen's Alliance of Maine, biologists have high credibility among Maine residents.⁶ In another recent survey by Responsive Management⁷, findings showed high public support and approval of Department performance. The Wildlife Division does excellent biological data collection with the resources available to them. Leaders within the Division have done a good job of maintaining a statewide program and trying to meet public needs and expectations even though they have experienced increased work demands with concurrent dwindling budgets and flat or reduced staffing levels over most of the last twenty years.

As reported in the Department Overall chapter of this report, ninety percent (90%) of all MDIFW employees in the employee survey rated the job the Department does in managing and protecting fish and wildlife resources as excellent or good. In addition, the employee survey revealed that eighty-two percent (82%) of all the Department employees agreed that the Department effectively balances the interests of anglers, hunters, conservation groups, and the general public. The general consensus can be summed up by one interview participant's statement, "By and large things are going well." However, there is a pervasive frustration among the biologists (and to some degree their publics) that "we can't do all the things the public wants because we don't have the funding or staff to accomplish it."

A dedicated and hard working core of biologists characterizes the Wildlife Division. They are similar to other state fish and wildlife agency personnel across the nation in their commitment to their work and to protecting and managing the natural resources of their state. During personal interviews and in focus groups this strong commitment was evident in the wildlife biologists even in the face of job layoffs, reduced funding, and fewer personnel. Ninety-one percent (91%) of wildlife biologists reported a high level of satisfaction with their jobs in the employee telephone survey and interviews.

The assessment of the Wildlife Division and recommendations for its improvement are divided into seven key issues: Resources, Staffing and Structure, Current Need for Prioritizing, Planning and Budgeting, Accountability, Public and Division Perception of Program Performance, and Public Input. Overall, the Wildlife Division is doing a very good job given their budget constraints. However, this assessment would be of little assistance if all it said was "very good job." It would have failed to provide any suggestions for improvement. While the following discussion focuses on some areas for improvement, we caution the reader to remember that overall the Wildlife Division is being managed well.

Key Issue: Resources

Lack of funding and staffing is not new to state government or the MDIFW. Over two decades of budget cuts and staffing cutbacks have taken a toll on the Department. The MDIFW has worked hard to buffer its publics from reduced services and products.

MIDFW employees have continued trying to do all their work as in the past by working harder. This results in thousands of extra, unpaid hours worked by dedicated MDIFW employees each year. The workload has reached the point that many employees believe they cannot contribute more.

Stress levels and burnout are common results from this type of situation. The situation is exacerbated by the commitment that MDIFW employees have for the natural resources of Maine and their jobs of managing those resources. In effect, as mentioned earlier, the MDIFW is trying to produce the same level of products and services with less and having to rely on the commitment of staff to accomplish it.

Wildlife Recommendation # 1:

The Wildlife Division Director should work with the Commissioner's Office to establish strategies for seeking increased funding and staffing from the Legislature. One strategy suggested is to have facilitated meetings of Commissioner's Office and Bureau/Division Directors to brainstorm ideas and develop strategies to pursue different funding efforts (See Chapter: Department Overall Recommendation # 2).

While leadership of this task should be taken by the Commissioner's Office, the Bureau Directors should provide much of the staff work and advice on this critical leadership effort (See Chapter: Department Overall, Recommendation # 2).

The State of Maine prohibits its government employees from lobbying and engaging in certain political activities. However, supporters of MDIFW are encouraged to come to the aid of the agency and the natural resources they manage. These supporters could seek information from the MDIFW and possibly advice on the extent of the agency's needs, etc.

In addition, groups like the Advisory Council are closely associated with the MDIFW but are not state employees, thus not bound by laws forbidding lobbying, etc. Already begun are the near successes of gaining general fund support for the MDIFW in recent legislative sessions. SAM and Maine Audubon are encouraged to take a leadership position in this effort because of their political influence and record of interest. It is recommended that MDIFW continue to work with SAM, focusing more attention on the overall pressing need for staffing and funding.

Key Issue: Staffing and Structure

Lack of staffing creates significant problems for the Wildlife Division. For example, timber management and timber harvest practices performed to meet wildlife goals on WMAs have the potential to generate income for the Division through timber sales while improving wildlife habitat. The Wildlife Division has recently added a staff person to manage this effort and we applaud their initiative in this recent move.

In addition, Wildlife Division has essentially the same number of employees since the 1980s, but the Division has had tremendous work demands added since the 1980s. The additional work includes:

- ◆ Nongame and endangered species program established (1985)
- ◆ Establishment of first turkey season (1985)
- ◆ Increased emphasis of species planning and development of management systems for all game and Endangered and Threatened (E&T) species (1986)
- ◆ Legislature established Essential Habitat provisions for E&T species (1988)
- ◆ MDIFW assumes responsibility for the zoological portion of the Natural Heritage Data Management System (1988)
- ◆ Comprehensive Planning and Land Use Regulation Act (Growth management) (1988)
- ◆ Natural Resource Protection Act (1988)
- ◆ Legislative clarification that MDIFW has responsibility for conservation of invertebrates (1989)
- ◆ Legislative mandate for MDIFW to address oil spill response and rehabilitation (1991)
- ◆ Significant vernal pools added to NRPA Significant Habitats (1996)
- ◆ Expanded E&T species list (1997)
- ◆ Expanded special concern species list (1998)
- ◆ Canada lynx listing by federal government (1998)

Better balancing of work with staff positions and reorganization of the Division is required (See Chapter: Department Overall, Recommendations # 5 and # 6).



Wildlife Recommendation # 2:

If additional resources can be gathered for the Division of Wildlife, consider the best approaches for filling staffing needs for the Management Section and the Resource Assessment Section as well as for the management of WMA lands such as timber harvest, boundary surveys, etc.

The veterinarian in the MDIFW has a vast array of training and skills applicable in both fisheries and wildlife. Currently, the veterinarian works solely on fisheries projects and fish health issues. The expertise in this position could also be used in dealing with

wildlife health issues, a growing concern in many parts of the U.S. as well as other work such as capture work, etc.

Wildlife Recommendation # 3:

Broaden the MDIFW veterinarian's duties so that he works for both the Wildlife and the Fisheries Divisions.

Key Issue: Current Need for Prioritization

Sixty-nine percent (69%) of wildlife biologists responded in the telephone survey that their work each year is planned and documented in written form. Biologists were more strongly associated with this response than any other category of employees (Z Score of 3.8). One influence may be the federal requirements that Federal Aid projects have written documentation. The Division leadership also does an excellent job of meeting with each region's wildlife staff and determining quarterly work plans, etc.

The number of hours necessary to accomplish the tasks for the quarter is not reconciled with the number of staff hours available. Personal interviews revealed that stronger direction and priority setting was a desire of many Wildlife Division employees to enable balancing of available staff hours with work plans.

This situation is exacerbated by two decades of flat or decreased funding and a continual loss of dollars and staffing positions. Prioritization of work is easier if there is adequate funding and if different levels of importance for work projects can be more easily established. However, after years of cutbacks, all that is left is "high priority" work. The Division and its publics are at the point of having to start cutting some of these programs and services; this means a series of prioritization efforts for work formerly considered too important to cut. The quote by Richard Koch is worth remembering, "*If everything is important, then nothing is important... some things need to be emphasized or it all ends up as noise.*"⁸

The Wildlife Division faces two prioritization difficulties:

1. The Wildlife Division's publics may often separate the general budget cuts in state government from the specific reductions in services of the Wildlife Division. It is akin to publics being in favor of a perceived general benefit of "less government" but not accepting a specific cut in services, which affects them personally. The concept of less government seems good until the personal price of lost services becomes evident.

This situation often plays out in the workplace of fish and wildlife agencies across the country when decisions are made to cut some services due to a lack of resources. For example, staff may no longer be tasked to pick up dead

deer along highways or to answer calls to deal with nuisance animals (raccoons in attics, etc.). This may appear to be a positive step of prioritization and is implemented successfully until Senator “X,” or Congressman “Y,” or a close friend of the Governor, etc. calls and, for example, wants someone from the agency to pick up a dead deer on the road in front of their driveway. It is at this point that the commitments of field biologists and agency supervisors to prioritizing work are tested. The affected public typically wants the “cut” in services to come from “somewhere else” and not cut the service they need right now.

2. Due to their high level of commitment to the natural resources and their careers, wildlife biologists often find it difficult to psychologically and emotionally implement a lowering of priorities on work that is personally felt to be “important.” In this sense, establishing lower priorities for work that has formally been considered “important” feels like selling out one’s values. It’s not that the work is any less important. It is a matter of not having the resources to be able to accomplish it.

The common response is to personally work long hours and weekends in attempts to do all the “important” work in spite of budget and staff cuts. This resistance to prioritization leads to general cries from the biological staff for someone in the supervisory chain of command to prioritize the work for them and tell them what not to do.

Wildlife Recommendation # 4:

Have the Wildlife Division Director work with the Commissioner’s Office and Division employees to establish priorities for work. During quarterly work planning, have the Wildlife Division Director work with staff to reconcile time required for projects with the amount of available staff time.

Process Suggestions for Accomplishing Recommendation # 4:

The Division Director asks for any sideboards from the Commissioner’s Office (specific program areas to be preserved, program areas for close scrutiny for deleting work, any criteria from the Commissioner’s Office for making these decisions, etc.). With these “umbrella” sideboards, the Division Director then adds specific sideboards relating to priority setting (statewide guidance, planning and strategy priorities for the Division, species plan guidance, etc.) These priorities will need to be supported by both the Commissioner’s Office and the Division leadership once they are finalized.

While sideboards and guidelines for determining priorities are set for employees by the Commissioner’s Office and the Wildlife Division Director, specific work priorities would not be dictated to Wildlife Division employees. Once guidelines from the

Commissioner's Office and the Division Director are known to all wildlife employees, all wildlife biologists meet and develop suggestions for work that should be deleted due to lack of staff and funding. All biologist supervisors would then meet with Augusta staff to discuss their suggestions. Based on this input, decisions could then be made at the Division level as to finalization of priorities.

Key Issue: Planning and Budgeting

The Wildlife Division develops its annual budget request at the appropriate project level within the MDIFW by assimilating budget requests within each section of the Division. Supervisors prepare their budgets within each section and modify them from the previous year's budget. This process is well handled and has a number of strengths. However, two areas for improvement are: 1) Realistically allocating staff time required for each project (See Chapter: Wildlife, Recommendation # 4), and 2) Considering all new work to be done each budget cycle, including project proposals for this work, and then comparing it to ongoing work. Since budgets have been relatively flat for the last four or five bienniums, the tendency is to put in for the same things that were done in the previous year (See Chapter: Department Overall, Recommendation # 14).

Key Issue: Accountability

Fiscal Accountability

The Administrative Services Bureau closely monitors fiscal accountability. They oversee budget expenditures, earmarked accounts, and insure that budgets are balanced and earmarked monies are not used for other than intended purposes. If the above work plan and budget process is to be effective, there are Administrative Services improvements that must occur in the budget process that are beyond the authority of the Wildlife Division to address.

Budget management in the Wildlife Division is difficult due to three Administrative Services related problems: 1) Complicated budget procedures in Administrative Services, 2) The moving of monies between accounts that makes reports difficult if not impossible to understand, and 3) The fact that outstanding bills are difficult if not impossible for a division director to track. There are also reported long lag times for monthly financial reports and charges billed to divisions such as overhead, cell phone charges, and vehicle costs that are not known to the Wildlife Division Director as they occur and show up "unexpectedly" on Division ledger sheets. These issues are discussed in the chapters on the Administrative Services Bureau and the Department Overall.

Program Accountability

This review is not an accounting review, but a management and program review. Therefore, the focus here is on program accountability, which essentially means work efforts and their effectiveness in terms of accomplishments. Overall, the Wildlife Division

program accountability is to be commended due to the close work of the Division with the public Species Working Groups. The Advisory Council also provides some degree of program oversight and approval based on public input.

The Division is to be complimented on its effective use of public involvement in the Species Working Groups, which is widely recognized by all the divisions in MDIFW as an excellent example of involving publics. The public input enables the Wildlife Division to account back to the public for the direction set for each species addressed. In addition, the Wildlife Division produces an annual report for its publics entitled *“Research and Management Report.”* This report details progress toward goals and objectives for each species plan.

In addition, highly commendable is the work of the Division Director with wildlife staff establishing quarterly goals and direction. It allows the Division Director to control employee efforts to achieve overall direction statewide as established with Species Working Groups and other public inputs. In addition, it provides an effective tool for the Wildlife Division Director to review work progress, budget tracking, etc. at the project level. This is an excellent process. Perhaps due to the effects of these efforts, seventy-seven percent (77%) of the wildlife biologists indicated strong agreement with the statement, “I am held accountable for accomplishing my work.”

Direction setting with publics, developing work plans with staff, and tasks accomplished by staff (outputs) are part of the program accountability picture. The other component is the results of completing the work tasks, “outcomes,” and the Division’s accountability to their publics for these accomplishments.⁹

Federal Aid projects are required to have annual reports submitted to the U.S. Fish and Wildlife Service and a project completion report whenever a project ends. The Wildlife Division does an excellent job of reporting in this format.

An example of the excellent job by the Maine Division of Wildlife is reflected in the comments of John Organ, U.S. Fish and Wildlife Service Division of Federal Aid:

“Maine’s approach to wildlife management is highly regarded. They have by far the best planning process and have innovated an approach that develops management systems that chronicle how species will be managed. No other state has such an advanced approach.”¹⁰

Public and Division Perception of Program Performance

The end results of the Wildlife Division’s efforts are the core of program accountability. A comparison of responses between MDIFW wildlife biologists and Maine residents to telephone survey questions regarding agency performance is shown in Table 1. There is close agreement on “Enforcing Fish and Game Laws.” Sixty-six percent (66%) of Maine residents ranked MDIFW performance as Excellent or Good compared to sixty-nine percent (69%) of MDIFW wildlife biologists.

Biologists' ratings of "Managing Wildlife Populations" were noticeably higher than Maine residents with one hundred percent (100%) of wildlife biologists ranking performance as Excellent or Good whereas only fifty-seven percent (57%) of Maine residents ranked performance as Excellent or Good. The other area where biologists ranked performance noticeably higher than Maine residents was "Restoring Native Fish and Wildlife Species to the State." Seventy-seven percent (77%) of biologists ranked performance as Excellent or Good compared to only forty-five percent (45%) of Maine residents. Biologists may have ranked these categories higher than Maine residents because biologists are closer to the work and more knowledgeable about the input of effort and accomplishments than residents. A possibility for biologists' higher ranking is a natural bias to assess accomplishments higher when the individual doing the rating is responsible for the performance outcomes.

Table 1. Comparison of MDIFW Wildlife Biologists and Maine Residents Regarding Agency Performance.

Percent who rated the Department's performance as <i>Excellent or Good</i>:		
Area of Accomplishment	Wildlife Biologists	Maine Residents
Providing hunting opportunities.....	86%	66%
Enforcing fish and game laws.....	69%	66%
Providing opportunities for the general public to view wildlife.....	29%	62%
Protecting and preserving wildlife habitat.....	77%	61%
Protecting Endangered Species.....	80%	58%
Managing Wildlife Populations.....	100%	57%
Providing educational programs regarding fish and wildlife.....	29%	46%
Restoring native fish and wildlife species to the state	77%	45%

Wildlife Biologists n=35 Maine Residents n=405 Duda, 2004

Two of the areas of performance were rated noticeably lower by biologists than Maine residents: “Providing opportunities for the general public to view wildlife,” and “Providing educational programs regarding fish and wildlife.” Possible explanations for each performance are discussed separately as follows:

“Provide opportunities for the general public to view wildlife” did not directly refer to activities such as habitat work, species protection, etc. Such activities result in producing wildlife viewing opportunities. Maine residents may have been considering the end products of the Department’s efforts to make wildlife available to view. They may have considered the number and variety of species that they had seen recently, not focusing on specific MDIFW activities such as construction of viewing facilities and purchase of lands specifically to provide viewing opportunities. Biologists, on the other hand, may have considered the amount of Department activities for game habitat work versus nongame habitat work. They may have rated the benefits provided lower

because their knowledge of the amount of funding for game versus nongame. The majority of Division funding is provided from hunting license sales. Thus, the majority of work currently focuses on game species.

While the Department conducts some significant nongame work, the lack of general funds, or a mechanism to generate funding from nonconsumptive users, prevents much of the work biologists desire to conduct in this area. License buyers normally expect a majority of their dollars to be spent on managing species for which they buy licenses. Frustration of biologists in not being able to do more in the nongame area may be partially responsible for the biologists' lower rating of their Department in this area of performance (29% of biologists ranked performance as Excellent or Good compared to 62% of Maine residents).

The performance area "Providing educational programs regarding fish and wildlife" was also rated considerably lower by wildlife biologists than by Maine residents. Educational efforts are one of the most visible activities that the MDIFW does for Maine residents. This high visibility may be partially responsible for residents rating performance in this area higher than biologists (29% of biologists ranked performance as Excellent or Good compared to 46% of residents).

Key Issue: Public Input

The MDIFW has a good mechanism for public process in regulation setting through their Advisory Council and Species Planning Meetings. Citizen groups assist the Wildlife Division in developing goals and objectives for specific species, ultimately resulting in the Division's species plans. The Division completes assessments on the status of individual species and provides these assessments to appropriate citizen planning groups. This ensures they have the most current biological data available when assisting the Division in setting goals and objectives. To prevent the regulation setting process from becoming a tool for manipulation by anti-hunting or other special interest groups, adherence to process guidelines is critical.

¹ Matula, Jr. G.J. (Editor) 2003. Wildlife Division Research and Management Report. Maine Dept. Inland Fisheries and Wildl., Augusta, ME.

² Duda, M. D., DeMichele, P.E, Zuraski, C., Jones, M., Yoder, J.E., W. Testerman, A. Lanier, S. J. Bissell, P. Wang, and J. B. Herrick. 2003. Public opinion on fish and wildlife management issues and the reputation and credibility of fish and wildlife agencies in the northeast United States. Responsive Management. Harrisonburg, VA.

³ U.S. Department of Interior, Fish and Wildlife Service, U.S. Dept. of Commerce, and U.S. Census Bureau. 2001. 2001 National survey of fishing, hunting, and wildlife–associated recreation

⁴ Citizens Advisory Committee to Secure the Future of Maine’s Wildlife and Fish. 2001. Final report to the state of Maine 119th Legislature Second Regular Session. Office of Policy and Legal Analysis. Augusta, ME.

⁵ MDIFW financial reports fy 2001 and fy 2003.

⁶ Command Research. 2003. Survey of Maine Residents. South Harpswell, ME.

⁷ Duda, Ibid.

⁸ Koch, R. 1998. The 80/20 principle. Doubleday NY, NY.

⁹ Osborne, D. and T. Gaebler. 1992. Reinventing government. Addison-Wesley pub. NY, NY.

¹⁰ Organ, J. F. 2004. Managing moose, bear and deer. Maine Dept. Inland Fisheries and Wildl.

DIVISION OF INFORMATION AND EDUCATION

Overview

The Information and Education (I&E) Division staff at MDIFW is a talented and dedicated workgroup. They are well trained and generally high functioning. Seventy-one percent (71%) of 405 individuals of Maine's public, interviewed in the fall of 2003, rated providing Maine fish and wildlife educational programs as "very important" for the Department.¹

According to the employee interviews, there is a general recognition that the I&E Division is severely under-resourced relative to their mission, and many interviewed from the Warden Service, Wildlife Division and Fisheries Division wanted more service from I&E. The review participants from the media and other agency outsiders showed that I&E had continuously improved its performance over a five-year period.

Immediately prior to the beginning of the MAT review, I&E changed leadership through political appointment and this leadership change was a significant factor MAT considered during the review of the I&E Division. Strong staff loyalty to the outgoing I&E Director probably exacerbated the staff's adjustment process. Furthermore, many in the agency questioned the value of maintaining the policy of politically appointing the I&E Director. The turnover process is inefficient because of time and cultural realignment in the short-term (See Chapter: Department Overall, Recommendation # 8).

The following discussion presented in this chapter will address six key issues facing the Division of Information and Education. Seven recommendations are presented for consideration as follows:

Key Issue: I&E Departmental Role

The entire Department is at a crossroads in how it balances wildlife and fisheries management with Maine's changing demographics and culture, especially in southern Maine. In the employee telephone survey, only six percent (6%) of all employees felt that public relations and/or education were the highest priority for MDIFW. The plurality of all employees (37%) felt that managing fish and wildlife resources was the highest priority for MDIFW. I&E can play a much bigger role in more effectively managing wildlife and fisheries in Maine through information and outreach efforts designed to meet the needs of twenty-first century Mainers. MDIFW needs to place greater emphasis on information and outreach efforts in order to meet the agency mission long into the future.

Employee Perceptions

The I&E Division is viewed by many employees as outside the agency mainstream. This is a typical perception found within many state fish and wildlife agencies. The telephone

survey found that eighty-three percent (83%) of all employees in the Department saw the primary role of I&E as support services to the Department. Many employees interviewed from the Wildlife and Fisheries Divisions and the Warden Service felt that I&E should “serve the other divisions.” This is another common attitude within state fish and wildlife agencies. I&E is often perceived as professionally unequal to the agency resource bureaus. I&E would require additional staff and funding to functionally meet the demands from across the agency.

In contrast, public relations programs can best achieve excellence when they are integral to the agency’s core leadership, participating in strategic-decision making.² In organizations that treat their public relations and outreach programs as a core organization function, those programs thrive.

I&E lacks a clearly articulated mission and priorities that are well understood outside of I&E. While doing their best to be responsive to demands from within the Department, I&E does not have a planning process to prioritize their workload and effectively manage agency-wide information needs. To complicate the matter, employees across the agency have diverse (and sometimes divergent) perceptions and expectations of I&E. However, the interviews and telephone surveys indicated that I&E employees knew their jobs and what was expected of them by their immediate supervisors.

I&E plays a critical role in the Department’s success, equal to that of any other Departmental entity. The Department’s ability to most effectively interact with its customers is limited by the employee misperceptions of I&E as an internal service provider. A more successful I&E program will further mature with broader internal recognition that I&E functions are equal to resource management, law enforcement, and licensing (administration) functions of the Department. This perceptual shift may better enable the Department to leverage conservation success through customers who are more aware and participative. This is in part why I&E should be elevated to the bureau level (See Chapter: Department Overall, Recommendation # 6)

Defining the Role of I&E

A consistent message from the interviews was that employees hoped I&E could provide additional services to other parts of the agency. The Warden Service, in particular, has significant public relations needs that I&E is unable to meet primarily due to insufficient staffing. I&E recognizes the additional needs for their services and is frustrated that they simply cannot meet the requests for I&E services from across the agency.

To maximize I&E effectiveness for the agency, I&E and the other bureaus and divisions need to work cooperatively to prioritize outreach efforts, better ensuring that MDIFW products and services best serve the agency mission and customer needs.

The thematic analysis of employee interviews revealed that understaffing in I&E was one of the overall Departmental weaknesses, and many employees reiterated that I&E did not have sufficient staff to serve the public relations and information and outreach demands from the public.

I&E is in a “Catch-22,” whereby the resource bureaus want more media coverage and communications from I&E, yet there are common complaints that requests from I&E for information felt like an unjustifiable burden. For example, some biologists complained that the weekly reports they were asked to provide to I&E for the media were an unnecessary burden, yet the media reported in the focus groups that the biologists’ reports were highly valued and that the information was routinely published, sometimes verbatim.

A greater effort to communicate priorities and provide sufficient information to the I&E staff will facilitate the Departmental ability to work with the public and media. Furthermore, the idea expressed by some that I&E can and should do all of the public relations efforts without contribution by biologists and wardens is probably symptomatic of the attitude that I&E “serves” the rest of the agency. The Department cannot expect success from I&E unless biologists and wardens are willing to contribute to MDIFW public relations and outreach efforts.

Incorporating outreach functions in every employee’s work plan is one way to improve overall Departmental communications. I&E should play a coordination role by providing tools to help the biologists and wardens fulfill their I&E responsibilities including coordination of key messages, maintaining Departmental media relationships, and providing access to information tools such as websites, posters, and fact-sheets, etc.

Wildlife Partners is an excellent example of I&E cooperation with other parts of the agency. This mobile outreach unit is widely viewed both in and outside the Department as an important outreach tool. It was developed through cooperation between the Warden Service and I&E, and it helps wardens more effectively deliver their outreach messages.

Coordination with Other Divisions

Because of the general misconceptions within the agency over the I&E role, capabilities, and priorities, it is important to create improved linkages between I&E and other Departmental entities. Liaison/counterpart relationships between Wildlife, Fisheries, and Licensing and Registration Divisions would help facilitate improved cooperation and understanding on the most important public relations issues.

A suggested model would be for I&E to designate liaisons - from existing staff - for wildlife, fisheries, and licensing and registration. The I&E liaisons would work cooperatively with a designated counterpart from each of those divisions. The liaisons would not be responsible for providing comprehensive I&E services to the partner division. Instead, the liaison/counterpart relationship would open a conduit so that the cooperative needs of both entities could be more appropriately addressed on a priority basis. Liaisons and their counterparts would also participate in each other’s staff meetings.

The Warden Service Public Relations Specialist would serve as the I&E liaison while also providing public relations services to the Warden Service.

I&E Recommendation # 1:

From existing I&E staff, assign liaison/counterpart relationships between I&E and each of the following: Wildlife, Fisheries, and Licensing and Registration Divisions.

Key Issue: I&E Comprehensive Plan

The I&E Division lacks a cohesive plan outlining overall priorities and relationships to the rest of MDIFW. I&E should conduct an exhaustive internal review to assess its effectiveness and priorities. Because I&E has limited funding and personnel relative to the needs of the agency, they need to make every effort to ensure that they are getting the highest return on their effort. A successful I&E plan would be created with major participation from across the entire agency.

The comprehensive planning process would prioritize activities, forecast staffing needs, look at desired outcomes, and link budgets to the priorities. This is a critical process to ensure that I&E staff and funds are targeting the most critical needs of the agency and its customers.

Additionally, all I&E staff should develop annual work plans for projects based on the priorities of the comprehensive plan. The result will be a tool that permits I&E to better match time and budgets to the priorities of the comprehensive plan and MDIFW overall needs.

I&E Recommendation # 2:

Conduct an exhaustive internal review of I&E as a precursor to an I&E specific comprehensive plan. The comprehensive plan would serve as a combination strategic/operations document detailing I&E priorities: activities, forecasted staffing needs, and budgets.

Key Issue: Staffing

The I&E Division is significantly understaffed to meet the demands of the public and the agency. I&E personnel appear competent but understaffed to serve the diverse and dispersed outreach demands of the Department. Several key positions are missing from the I&E staff such as webmaster, graphic designer, writer/editor, Warden Services

Public Relations specialist, and regional I&E generalists. In other similar sized fish and wildlife agencies, these positions play critical roles in meeting the information demands from the public. This is especially true as outreach efforts are increasingly leveraged to help achieve conservation goals.

Webmaster

Currently, the MDIFW website is managed part-time, and the webmaster responsibilities fall largely to an individual who has many other primary responsibilities and lacks broad webmaster experience and in-depth training. While it is fairly easy to post a simple website, it is very difficult, and requires significant experience, to develop an information architecture and user interface adequate for an organization such as MDIFW. While there is recognition that the MDIFW website has improved over time, the website falls short of meeting the in-depth information needs demanded by MDIFW customers. To meet these needs, I&E requires a website specialist with sufficient background in design, copywriting, and knowledge management.

Graphic Designer

Additional resources are also required to produce informational materials that can be used by non-I&E employees to assist them in fulfilling their outreach responsibilities. This would require a single staff member, highly trained and skilled in graphic design. Some organizations are able to fill the graphic designer and webmaster roles with a single person. This may work well for MDIFW in the short-term because several I&E staff members already have experience using professional level desktop publishing software. In the long-term, two separate FTEs are probably required to fill the combined webmaster/graphics needs of the MDIFW.

Writer/Editor

At least one additional full-time writer/editor position is needed. Currently there is one dedicated media specialist for the entire agency, but he cannot manage all the public relations writing needs of the agency. One employee from another division commented, "We need two or three [public relations specialists/writers]." Many employees interviewed felt that the Department spokesman works very hard but his workload far exceeded any individual's production capacity. An additional full-time writer would better enable I&E to produce needed informational materials for print and electronic media as well as provide a more consistent voice through contributions to media outlets. Furthermore, it would provide an additional person trained and capable of acting as a Departmental spokesperson to share evening and weekend duties.

Warden Service

Rather than a liaison, a dedicated public relations position is recommended for the Warden Service. The interviews revealed a widely held perception of need for additional and dedicated public relations support for the Warden Service. In many ways, the wardens are the most visible and recognizable employees of MDIFW, and they have a valuable story to tell about the importance of wildlife and fisheries management to Mainers. The wardens commonly lead high profile public safety efforts, and they are

often the first and only MDIFW employees available to the news media when dealing with search and rescue operations or other high-profile law enforcement issues.

Public relations for law enforcement requires understanding of legal issues and special training to ensure that information provided to the public regarding investigations does not jeopardize prosecution. Narrative in the Warden Service section of this report recommends a relations position within I&E dedicated to the public relations and outreach needs of the Warden Service (See Chapter: Warden Service, Key Issues, Communication Position).



I&E Recommendation # 3:

Fill three new positions required in I&E to meet needs: webmaster/graphic designer, an additional public relations writer/editor, and a public relations specialist dedicated to the Warden Service.

The listed recommended positions serve basic, core functions in any fish and wildlife I&E division. However, the I&E planning process may reveal other important skill sets and staffing needs.

Regional I&E Generalists

Ideally, I&E generalists strategically placed in regional offices, based on a prioritization of need, can work more closely with field personnel on communications and public outreach. The I&E generalists would be capable of delivering a large subset of I&E services (e.g. media relations, education coordination, etc) to the communities served by that regional offices. Many other state fish and wildlife agencies place I&E personnel in regional offices to work closely with field staff. This need was voiced in many interviews. It would add significant capability for the Department to meet its growing information and outreach demands.

There is less immediate need to fill the I&E generalist positions than the specialists, but it is less clear how to fund the positions. Currently, every other division in the Department is understaffed, so in the short-term it is not feasible to expect the FTEs to come from other divisions. However, developing field level I&E capabilities within the I&E division will be a long-term asset.



I&E Recommendation # 4:

Strategically place I&E generalists in regional offices to work more closely with field personnel on communications and public outreach and to better serve the strategic needs to be laid out in the I&E Comprehensive Plan and Department-wide Communications Plan.

Key Issue: Department Communications Plan

An overall Departmental communications plan will detail primary messages and strategies to deliver those messages. The communications plan is distinct from the I&E comprehensive plan in that the communications plan serves the entire agency – not only I&E priorities. As stated previously, public relations should not be strictly the domain of I&E. Every Department employee needs basic tools to be able to deliver consistent, accurate information to the public. The plan should be created with participation from all levels of the agency and include the Divisions of Wildlife and Fisheries, Bureau of Administrative Services, and the Bureau of Warden Service. The plan should be widely distributed to all agency employees. The communications plan should also include indirect input from constituencies outside the agency to ensure that the plan is best designed to serve the agency's customers.

I&E Recommendation # 5:

Develop a Department-wide communications plan using participation from across the agency. The plan would identify the highest priority information, key messages, and delivery strategies. The entire plan must be shared with all agency employees to be most effective.

Key Issue: Marketing

The Department's marketing efforts reside entirely in I&E. Many state fish and wildlife agencies are beginning to view marketing as an important tool, vital to their long-term success. The MDIFW marketing efforts include working actively with the tourism industry to develop products that attract out-of-state hunters and anglers. They promote Maine's exceptional wildlife and fishing recreational opportunities at expositions across New England, and they are successfully pursuing cooperative marketing efforts with Maine's flagship retailers, L.L. Bean and Kittery Trading Post, as well as with the Maine Tourism Department.

The MDIFW marketing efforts generate positive cash flow while adding the benefits of enhanced brand recognition and increased wildlife and fishing related recreation. For

example, the marketing effort includes a branding campaign that is increasing the visibility of the MDIFW logo through clothing sales while simultaneously generating net income of approximately \$40 thousand per year for the Department.

Simply put, a “marketing approach” tailors products, pricing, promotion, and placement to customer needs.³ While the MDIFW marketing efforts are self-funding and successfully increasing MDIFW public recognition, the entire agency could be improved by adopting a marketing approach in the way it does business. Approximately one-third of the state fish and wildlife agencies across the country are actively engaged in either learning how or already using a marketing approach, and the number is increasing.

State fish and wildlife agencies in several states have already committed to developing agency-wide marketing approaches in an effort to make sure that all programs deliver the highest value to their customers. In these states, the agency leadership recognized that marketing was not an isolated function served by a single individual. Rather, all employees play an appropriate role in making sure their programs deliver the best marketing mix and highest value to the customers, perhaps coordinated through a marketing specialist or marketing team. Interestingly, marketing in many agencies is a tool to achieve revenue goals and conservation success.⁴

Marketing is often misperceived in fish and wildlife agencies as commercialization, promotion, or sales. Any of these may play a part in whether to adopt a marketing approach or not, but ensuring that the agency is tied to customer needs, price sensitivity, access, and awareness are all vital to a state fish and wildlife agency’s long-term survival. For success, the marketing efforts cannot exist in a vacuum, but need to be infused into all Department programs as an overall approach to doing business.

Often, fish and wildlife agency employees resist the idea that marketing is an important part of fish and wildlife management.⁵ However, the benefits of the marketing approach include a toolset to help fish and wildlife managers understand their customers. Another benefit is that the customers better understand the agency’s products, programs, and services.

I&E Recommendation # 6:

Integrate a Department-wide marketing approach.

Full implementation of Maine Online Sportsmen’s Electronic System (MOSES) will help MDIFW implement a broader marketing approach. It is vital that I&E have access to MOSES data, and that I&E and Administrative Services work closely together to ensure that the marketing efforts and licensing needs are appropriately coordinated. Moses is discussed in more detail in the Administrative Services Chapter of this report.

Key Issue: Education Programs

Education Programs are generally well implemented within the limits of funding and staffing, and I&E's focus on youth programs is largely seen as a Departmental strength. The employee telephone survey showed that ninety-nine percent (99%) of all the Department employees felt that providing educational programs was important to MDIFW, and sixty-three percent (63%) of all the employees reported that the Department's performance in providing educational programs was good or excellent.

Compared to Department Employees, the public views the performance of MDIFW educational efforts higher relative to other MDIFW programs.⁶ This disparity could be attributed to employee misunderstandings of the capabilities and actual successful performance of the educational program delivery. This also may be another indication of how I&E programs are viewed internally as out of the Department mainstream.

There was a clear internal division in the perception of education programs as well. According to Z Scores from the employee telephone survey, those who felt that the Department is doing an excellent job of providing fish and wildlife educational programs were the most likely to agree that the Department communicates adequately with the public on fish and wildlife issues (Z Score 6^{***}). Alternately, those who felt education programs were poor were also among the most likely to disagree that the Department communicates adequately with the public on fish and wildlife issues (Z Score 5.3^{***}).

MDIFW employees and focus groups of external constituents expressed high regard for the safety education and classroom educational programs provided by the Department.

Maine Wildlife Park

Input from internal and external I&E constituents pointed to the Maine Wildlife Park in Gray, Maine, as the shining star among all I&E programs. The park is largely self-funded and is very well managed. The Wildlife Park reaches a large number of Mainers of all ages. The Maine Wildlife Park stands out as a provider of exceptional services to Mainers.

Aquatic Education

Currently, the education program receives no Federal Aid funding for aquatic education. Through Dingle-Johnson (DJ) funding, up to ten percent of Maine's DJ allocation may be used for aquatic education programs. Some portion of the available DJ funds for aquatic education is used by the Department of Marine Resources. However, some remaining allocation may be available to MDIFW. All available DJ funds are used within Fisheries, but the Department should consider investing the available apportionment to education programs administered by I&E. This may require re-prioritizing some DJ funding in fisheries management, but the agency is missing an opportunity to enhance aquatic education programs, an important long-term need.

^{***} Signifies a highly significant Z Score

A DJ investment in aquatic education is a hedge against the risk that today's school-aged children will not value Maine's aquatic resources later in life. Because people are more likely to treasure what they know, aquatic education is an important part of ensuring the Department's ability to conserve freshwater fisheries in the coming generations.

I&E Recommendation # 7:

Consider using the Federal Aid apportionment available for aquatic education to enhance the aquatic education programs in I&E.

¹ Duda, Mark. 2003. Public Opinion on Fish and Wildlife Management in the Northeast United States, Page 53 of the report on Maine.

² Dozier, D. M., L. A. Grunig, and J. E. Grunig. 1995. *Manager's Guide to Excellence in Public Relations and Communication Management*. Lawrence Erlbaum

³ Duda, Mark et al. 1998. Wildlife and the American Mind: Public Opinion on and Attitudes Toward Fish and Wildlife Management. Federal Aid in Sport Fish and Wildlife Restoration.

⁴ MAT observation and experience. MAT conducted a series of consultations and workshops in February 2004 on agency-wide marketing approaches.

⁵ MAT observation and experience. MAT has worked with more than 45 state fish and wildlife agencies on management, marketing, and leadership issues.

⁶ A comparison between Questions #141-151 from the *Public Opinion on Fish and Wildlife Management Issues and the Reputation and Credibility of Fish and Wildlife Agencies in the Northeast United States, Maine, Fall 2003, Responsive Management* with Questions #74-82 from the *Maine Department of Inland Fisheries and Wildlife Employees' Survey*, conducted for the Management Assistance Team as part of the 2004 Comprehensive Review of Maine Department of Inland Fisheries and Wildlife.

BUREAU OF WARDEN SERVICE

Overview

One hundred twenty-two game wardens watch over the people and wildlife in Maine's great outdoors, protecting the resource, preventing accidents, and much, much more. The wardens have remained highly dedicated to their work in spite of budget constraints and increased pressure to be everywhere, all the time, and criticism when they cannot be. While change continues to color the landscape for the Warden Service, one thing remains for the wardens as it has been for well over 100 years now – an immense pride in what they do.

And the game wardens in Maine do a good deal more than “catching the bad guys” or intervening the pesky raccoon in the garage. They are also highly regarded by the general public. In a 2003 public survey in Maine, seventy-six percent (76%) responded that the game warden was the individual most credible as a source of information on fish and wildlife and outdoor recreation.¹

Today, Maine game wardens appropriately spend most of their time on fish and wildlife enforcement and a lesser amount of time collectively performing other related functions – recreational vehicle enforcement, nuisance injured wildlife, assisting other agencies, and search and rescue. The following statement from one participant of the focus groups aptly describes warden prowess in this area: “If you are lost, this state is where you want to be. You will be found.” Rating the Department's performance in different categories of work, all employees who responded to the telephone survey rated search and rescue work the highest with fifty-three percent (53%) rating it as excellent!

Expanded access into forested areas once protected by inaccessibility and the increased use of much improved recreational vehicles provides additional opportunities for sports men and women. Increased boat access sites also contribute to this “user sprawl.” The Warden Service, already stretched thin, is challenged with providing services adequate to meet the increased demands from the outdoor recreation enthusiasts' expansion into more of Maine's land and water resources.

During the MAT review, one individual described as follows what the review found to be a common perception of the current scenario of central concern for the wardens:

“The amount of work demanded has increased while resources to meet demands has diminished; more tasks to do today than previously, yet no net increase in personnel so more overtime required, but without compensation.”

Since Fall 2003 when the MAT review began, the issue of consolidation of multiple retirement packages has been resolved as well as pay grade increases for the wardens.

Morale has reportedly improved somewhat, probably as a consequence to these resolutions.

Despite continuing Departmental budget cuts, other laudable improvements have been accomplished within the Bureau, particularly within the last five years under retiring Colonel Tim Peabody. And, in the time that lapsed between MAT's initial interviews with wardens in the Fall 2003 and the final interviews in the Spring 2004, it was apparent that there have been a number of other improvement initiatives already underway within the Warden Service. The Bureau of Warden Service is commended for their resolve to seek solutions and to continue to improve.

To increase the effectiveness of this critically important and significantly larger arm of the Department a number of key issues are identified, offering opportunities for improvement within the Warden Service. These key issues are discussed with twenty-one recommendations in the following six categories in this chapter: Resources, Leadership, Personnel/Structure, Internal-External Public Relations, Accountability, and Professional Development.

Resources

Key Issue: Funding

Top of the mind to most MDIFW employees and external stakeholders is funding. This is understandable. For many, funding cutbacks translate to a prevailing uncertainty about job security, career advancement, and ability to get the job done well.

Pay Parity with State Troopers

The Maine State Police and the MDIFW Warden Service have equal law enforcement powers and unique roles, and when disaster and emergency calls come in, both must equally respond. There is no reasonable justification for unequal pay between these two state law enforcement organizations. In spite of recent successes at achieving equal pay, there remains a significant overall salary disparity between the two organizations according to the Department's Personnel Division.

Both the state troopers and the wardens have been evaluated by the state human resources department which concluded both wardens and troopers should work at a #20 pay grade. However, because of an arbitrator's ruling the troopers are now at a #21 pay grade, creating a continuation of the historical pay disparity between the troopers and the wardens. Whether it is at pay grade # 20 or # 21, the pay needs to be the same. The Department has plans to pursue obtaining parity.

But, in spite of funding cutbacks, the Bureau of Warden Service has done remarkably well providing the equipment, vehicles, and other related tools necessary for the wardens to perform their duties. The radios are not made anymore, and the radio technicians at the State Police must recycle used parts to keep the radios functioning.

This is part of a major statewide communication issue rather than specific only to the wardens. Overall, however, most wardens reported that they have what they need to do their job. Wardens are not required to purchase guns with their own money.

A lack of funding and decreased personnel has severely impacted some other areas within the Bureau. The following recommendations are submitted with regard to funding:



Warden Service Recommendation # 1:

Conduct a pay parity study and argue to bring the Warden Service to State Troopers pay level.

While arguing for funding, the Warden Service should pursue receiving a formal recognition by the Legislature that the wardens have a major part in the broad enforcement community in Maine outside of their primary duties. It should be noted that the Warden Service is already working in these non-traditional areas as they encounter crime during their traditional resource patrols. A formal “okay”, therefore, is not an expansion or diversion of resources, but the acknowledgement that non-resources cases are encountered incidental to the wardens’ primary patrol. If such a public, official acknowledgement clarifying direction is not forthcoming, it is recommended that the Legislature and Department restrict the Warden Service duties to the core mission of fish and wildlife protection.

The MAT review found that wardens in general were not against filling this expanded role. Identified was the need of definitive clarification for the expectations of the wardens, and the processes and personnel to accomplish them. Without the necessary personnel to perform the expanded duties of the wardens, the Department needs to be concerned realistically about the wardens’ long-term capacity. In the short term, the wardens for the most part are meeting the challenge well.

Key Issue: Lack of Computers and Computer Training

The Warden Service lacks adequate equipment and training to take advantage of computer and information technology useful in managing a large, dispersed law enforcement presence. While some wardens have expressed a resistance to modernizing information technology, others are strong advocates of this change.

Advantages of computerization for the Warden Service are:

1. Improved span of control capabilities by more efficient communications.
2. Improved complaint tracking and follow-up.

3. Improved communications throughout the Warden Service at all levels and with other bureaus.
4. Enhanced individual and program accountability as a result of improved, more efficient time and activity accounting.
5. Improved analytical capabilities for making programmatic decisions and changes.
6. More efficient use of time – For example, some wardens will not have to drive many miles to use a computer for reporting purposes. When they have their own computer, they can generate their reports from home/car and use the time saved for other duties (See Chapter: Warden Service, Recommendation # 7).
7. Through the use of computers, wardens would be able to complete arrest reports and booking sheets, electronically at the scene. They could complete other paperwork during down periods during their tour of duty and transmit the documents to their offices electronically. This would increase the accuracy of the data and decrease down time using US Postal Service.
8. Many wardens work in rural, isolated areas and may work several counties. Most wardens carry several different maps in order to find out where they are going. These maps are extremely difficult to manage especially during an emergency call. Using a laptop unit in the vehicle, with mapping software and integrated with the officer's Global Positioning System (GPS), the warden could respond to calls for service quicker by being able to locate the address in route. Also, with the proper software, the dispatch center can locate and map the units in the field. This allows for better response time and greater warden safety if an officer is hurt or killed.
9. Wardens communicate with the dispatch system using the state radio system and/or telephones. When a warden stops a suspicious vehicle or vessel, the warden radios the dispatch center for registration, wants/warrants check, and/or license check. Using a laptop, with the mobile software deployed and running, an officer can run routine checks without having to contact the dispatch system. This reduces the amount of traffic on the radio system and allows for timely return of information to officers (See Chapter: Warden Service, Recommendation # 7). Efficiencies in patrol and dispatch and increased warden safety will result with implementation of a mobile computer system.



Warden Service Recommendation # 2:

Purchase computers with high-speed Internet access for each warden; develop in-vehicle wireless data capabilities; provide training for appropriate software; develop a law-enforcement specific component within the recommended Department intranet to enhance information flow and accountability.

Key Issue: Human Resource Capital

The FranklinCovey Company, internationally recognized as a world-class leader in organization development training, uses the classic fable of the “Goose and the Golden Egg” to illustrate the relationship between production and production capability. It may also illustrate one of the current dilemmas facing the Bureau of Warden Service. The goose can be used as a metaphor for the employees/wardens (production capability), and the golden eggs a metaphor for the work of the wardens (production). As the story teaches, if the “goose” is not cared for, the “eggs” will cease. There is a need for organization development interventions to improve the care of the warden force.

For example, wardens need career development beyond the basic level of warden training. Discontinue minimum training requirements; Train to a standard higher than the minimum. Career pathing is recommended, i.e., promotions based upon initiative, accomplished training, and demonstrated performance rather than advancement based solely on rank and seniority.

Note: There are numbers of wardens at various levels within the Warden Service who possess the skills, knowledge, and willingness to serve as instructors for any number of on-going career development/in-service trainings. These wardens should be sought out and utilized. It is further suggested that there be a concentrated effort to avoid selections for such instructors based on perceived or real “memberships” in favored warden cliques.

Warden Service Recommendation # 3:

1) Adjust the focus of warden training to go beyond meeting minimum requirements and 2) Refocus promotions/advancements according to initiative, training, performance, etc., rather than solely on rank and seniority.

Key Issue: ATV Overtime Funding

Currently, the Warden Service is overburdened with meeting the state's need for ATV law enforcement. The Warden Service needs money to pay for overtime for ATV enforcement by the wardens. Period. The Legislature has enacted emergency legislation, which establishes an ATV Enforcement Grant-in-Aid program for any law enforcement agency in the state to apply for reimbursement for their ATV enforcement. Gas tax monies will go to this dedicated fund, which will be effective immediately.

While a grant may be a step in the right direction, it leaves open the potential for local sheriff's offices, for example, to see such grant money as "easy pickins", viewing it as another source of funding without having to put much real effort into actual ATV enforcement. The bottom line is that grant money for ATV enforcement may or may not be adequate. It is apparent that the current level of ATV enforcement requires, at the minimum, additional funding from the state to the Warden Services, and then grant money as well to augment the program. Grant monies should go to these other agencies. But an overtime pool needs to be established, with new funding from outside the Department, for wardens that they can track. Paying for their overtime is an incentive. It would also help keep wardens focused on their core mission.



Warden Service Recommendation # 4:

Fund an overtime budget from a new outside source to compensate wardens for ATV enforcement, thus avoiding mission creep; Use existing grant program for enhanced patrol by local agencies.

Key Issue: Overtime Compensation

The amount of dollars budgeted for overtime is mandated by the MSEA and is both inadequate and all-inclusive (calls for service, SAR, etc.) not just enforcement. Legislative authorization is needed for the Warden Service to budget overtime in the same manner as the state police.

In FY/04 the "well ran dry" and there was not enough to pay the wardens' for overtime enforcement. The union contract is based on a formula which mandates that only a certain amount of dollars can be paid for overtime. This cap on overtime money has created a giant snowball of warden time used for comp time. When a warden responds to a call from the public and the call comes in after they have worked their twelve-hour work duty, then the warden is paid in compensation time.

Paying for overtime has been found to be more cost effective than adding additional wardens. First, the overtime work can be directed to high profile areas and "hot spots." Secondly, although the warden is compensated at a higher rate of pay, the state is not

paying for new equipment and benefits for additional wardens — the additional wardens being the only other way to accomplish sufficient coverage and customer service.

When monies become available, fund overtime for wardens and set up a reporting system to track overtime use for overtime money for core resource enforcement only. It will prevent any diversion issues regarding federal dollars to the agency. This needs to be made very clear to everyone. Such monies for specific purposes need to be compartmentalized in the Warden Service budget. Such an overtime system is consistent with the State Troopers, thereby establishing needed parity.



Warden Service Recommendation # 5:

Obtain a \$400,000 funding package from the Legislature using general funds to pay for all Bureau of Warden Service overtime compensation (includes Search and Rescue and regular overtime).

Key Issue: Centralized Dispatch

The Department cannot afford to deliver statewide dispatch for the wardens, particularly when compared to the amount of money currently paid to the state troopers (\$300,000 per year) for dispatch. It would cost the Department significantly more than \$300,000/year to house their own. Money would also be needed to invest in the training for the MDIFW dispatchers. Centralizing dispatch is impractical.

While it may be too expensive to go to a centralized dispatch, a communications study could be very helpful to confirm that the state troopers' radio system accomplishes at least to a ninety to ninety-five percent (90 - 95%) coverage level for the wardens. This coverage level would take care of the current inadequacies of coverage in the northern part of the state using this system. The wardens need guaranteed communications coverage — no less than what the state troopers have. For the current \$300,000 paid to the state troopers for sharing communications with them, the wardens need to have equal capability for electronic, efficient data management and retrieval of duty and time hours, i.e., computer-aided dispatch.

Wardens report that the state troopers' dispatch is often noisy, unclear, and difficult to hear. A cooperative effort between the MDIFW and the state troopers may be helpful in identifying ways to improve the delivery and methodology for their mutual benefit.

Warden Service Recommendation # 6:

Conduct a communications study to determine conclusively that the \$300,000 paid to the state troopers provides a minimum of 90-95% radio coverage for the wardens.

Warden Service Recommendation # 7:

Establish computer-aided dispatch for wardens, comparable to that of the state troopers, for electronic, efficient data management, and retrieval of duty and time.

Leadership

Key Issue: Clarity of Direction

A common thread in the early interviews and focus groups was a perception of a lack of clarity of direction. However, the telephone survey responses indicated that the majority of wardens (66%) are aware and understand the direction of the Warden Service. This apparent contradiction in the data can be explained by the impact on many wardens resulting from legislative additions to warden duties without the necessary associated funding and staffing. Perceptions of weak clarity of direction can also arise when there is inconsistent and/or insufficient communication from leadership at various levels.

Further, wardens need "official" directives from the Department when work is to be deleted. Additional work from the Legislature is certainly appropriate, but without the associated funding and without direction from the Legislature for prioritization of warden work, the impact is compounded. A dilemma forms. Wardens are unable to continue to do their previous work in addition to added new work. Without prioritization, confusion results in what to reduce or discontinue doing in order to accomplish new work assignments. In warden interviews and focus groups, this confusion translated into comments such as "lack of direction" or "lack of clarity." This becomes very apparent with calls for service from the public and the wardens' desire to do all things for all people without the resources or contrary to a directive from headquarters. Managing public expectation and getting support is all part of the clarification process.

Wardens are clear on their mission. The problem resides in their being directed to do more than the funding and staffing will permit. Thus, there is a need to have what must be dropped formalized and to have these changes explained to the public.

Work Plans

Clearly establish Warden Service work priorities and funding through written annual work plans, i.e., a process for deciding what work will be done and in what amounts. Such plans would state the amount of funding and the amount of staff hours for each project. The total number of staff hours written in projects has to be reconciled with the number of staff hours available. Once work plans are completed then they should be prioritized according to criteria jointly developed among Warden Service and the Commissioner's Office.

When new warden duties/services are proposed, they should take the form of an additional work plan that is incorporated into the prioritization of existing work plans. When hours and dollars required for accomplishing the total list of work plans are exceeded, then lower prioritized work plans can be targeted for reduction or deletion. The process provides a logical way for the Warden Service to define consequences. It also (1) Aids accountability within the chain of command, and (2) Provides a mechanism for reporting to external stakeholders.

Warden Service Recommendation # 8:

Determine and write all work within the Warden Service into work plans, prioritize, and use this process for decision-making particularly when any new work is added.

Facilitate "Just Say No"

When services must be discontinued, there must be a corresponding alignment in the formal and informal directives and messages to the wardens in the field. It is disruptive and breeds confusion when wardens receive mixed messages regarding the kinds of work to discontinue. For example, a nuisance wildlife call comes in and the warden does not respond to the call because he has been told "You're not going to do this, we don't have the money." Then later, when the "public" calls up and complains, the warden is told "Do this now and I don't want anymore of these calls." Consistency of messages to wardens and the public is very important.

Warden Service Recommendation # 9:

Have the Commissioner formally approve priorities and support wardens when they must say "no" to public requests that fall outside the set priorities.

Key Issue: Balancing the Customer Service Paradigm

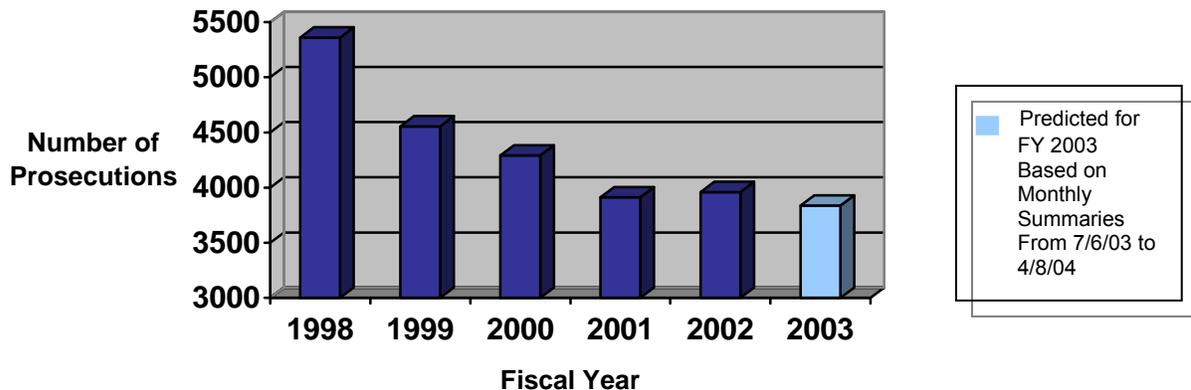
The term “paradigm” used here refers to the mental “lenses” through which wardens view their work. Overall, the Warden Service appears to be continuing to evolve from a paradigm of “the bad guys are out there and we’re gonna bust em” to a paradigm which is more customer-service and proactive. Paradigm shift is always an uncomfortable and messy transition process. It takes years. The Warden Service is to be commended for the progress it has made thus far.

The telephone survey revealed broad agreement across the Department in general with ninety-one percent (91%) agreement among wardens that the Warden Service has become more customer service-oriented than it was in the past, and not at the expense of their core mission of fish and wildlife law enforcement. The old “cuff ‘em and stuff ‘em” approach has evolved out of necessity. There are more non-traditional users using the woods and waters of Maine. Hikers, birders, and people just looking for wild places to go need more community-oriented policing approach (first educate and inform, then cite). A second group of non-traditional users has emerged — criminals. Wardens cannot relax completely how they approach the public. Wardens must maintain their professional standards, keep sharp and sometimes use hard-core law enforcement protocols for their own safety and the safety of other recreational users. More than ever wardens are exposed to the criminal, non-traditional element that can injure and/or kill an officer. Today’s Maine game warden is trained to identify and handle this evolving reality.

With new policies, systems, and an emphasis on balancing the warden paradigm to include a more customer-service orientation, there was an initial drop of approximately 1000 prosecutions per year. This decrease was most likely a predictable reflection of the successful implementation of new policies, leadership, and focus within the Warden Service at that time. In concept, moving to a more customer-service, proactive warden approach would produce better behaviors from outdoor recreators and thus fewer citations. It is apparent that there has been good effort put out by the wardens to, as one person aptly described it, “write the right summons rather than the right number of summons.” By looking at the numbers of prosecutions, it is apparent that efforts to balance the game warden paradigms are working at MDIFW.

The number of prosecutions leveled off in 2001, with a current average of approximately 320 per month. Based upon this monthly number of prosecutions for FY 2003, the final numbers for this fiscal year are projected to be similar with the last several years as well. Illustration 1 shows the prosecution numbers for the last five years:

Illustration 1. Number of Prosecutions from 1998-2003



It is important for the Warden Service not to succumb to the “tyranny of the or” when it comes to the two different warden paradigms. Both have merit. Both are needed. The key is to diligently promote the balance.

It is important for the Warden Service to continue what they have begun with regard to balancing their paradigms. The wardens now have a complaint tracking system that allows supervisors to address job performance issues related to wardens interacting with the public in both enforcement and non-enforcement situations. They are holding fast to excellence when hard-core law enforcement is warranted. Suggested is to improve the wardens’ reward system to better align with the objective of balancing the warden paradigm.

Warden Service Recommendation # 10:

Continue with due diligence to promote the balance between “catch ‘em and nail ‘em” and proactive, customer service paradigms within the Advanced Warden Training and the Warden Service overall.

Personnel/Structure

Key Issue: Landowner Relations Position

There are two sub-issues within the Landowner Relations Program. First, there is lack of understanding among many agency staff outside the Warden Service as to what exactly this position does. Secondly, there is an issue of the right personnel fit for the job.

There is wide agreement that the program is an important one. Particularly when there are large, posted tracts of land in Maine, it is valuable to have an identified, single agency contact to coordinate the related emerging issues. Some suggest that this position might be better served filled by someone from the Division of Information and Education rather than a warden. A good argument can be made, however, for a uniformed presence filling this position.

The key to the Landowner Relations Program success is having the right person fill the coordinator position. Putting a good warden in this position so he can be a sergeant, instead of filling the position with the right person, warden or not, can lead to program ineffectiveness. The Landowner Relations Position would work well as a direct arm of the Commissioner, more high profile, using a broad range of skills and experience as well as sound comprehension of laws and regulations and law enforcement protocols.

The new, 21 member Landowners and Sportsmen Relations Advisory Board has the potential of providing much needed energy and direction for this program. Once the member names are appointed by the Governor, this group can begin working with the program.

Recently, the Warden Service has wisely emphasized more of a team approach to landowner relations. This approach seems to have merit. Using field wardens as part of the team, landowner relations can evolve to be less reactionary, and more proactive, seeking opportunities to enhance outdoor recreation.

Warden Service Recommendation # 11:

Reevaluate what this position needs to accomplish, what the performance measures are, and what the relationship should be between the Landowner Relations Position and the Warden Service. Then, inform the rest of the Department what this position is designed to do, solicit feedback and needs from throughout the Department and external stakeholders, and keep them informed with regular progress reports; Reevaluate in one year.

Key Issue: Span of Control

With the recent downsizing in the Warden Service, the span of control, or the number of direct reports for the lieutenants, has doubled. A consequential number of inefficiencies have resulted. Lieutenants are functioning more like captains, sergeants are functioning more like lieutenants, resulting in a problematic lack of consistent messaging.

Efficient and effective supervision is the key to many of the recommendations in this review. Span of control affects the ability of a supervisor to maintain communication up and down the chain of command. Such communication is critical to establishing

direction, purpose, agency mission, policies and procedures. Internal expectations are met with job knowledge, adequate supervision and direction. The affect of good supervision is improved morale, confidence, and positive public interaction and perception.

In order to regain an effective span of control, restoring two lieutenant positions (at the absolute minimum) is necessary. Currently, lieutenants don't have the contact directly with subordinates that may be needed to make the best decisions, and the ability to effectively supervise is negatively impacted. Sergeants have an increased geographic responsibility, are making more decisions on their own, and not always with the lieutenant as a sounding board. This tends to make everyone more isolated within his/her own environment and affects the entire operation. The big picture is lost.



Warden Service Recommendation # 12:

Restore two, ideally three, lieutenant positions and reconfigure the geographical regional areas he/she would supervise to regain an effective span of control.

Key Issue: Supervision Training

The need for providing supervision training was voiced repeatedly in the focus groups and interviews. This is a common need in fish and wildlife agencies in both the professional staff as well as in law enforcement. Individuals typically attain supervisory positions based on their technical achievements, but often later find they lack the supervisory skills and competency to manage/supervise others effectively. Increasing supervision effectiveness within the Warden Service would likely also increase accountability and morale. It is also a factor in unity of command issues and performance accountability (Note: The Management Assistance Team provides workshops for law enforcement in state fish and wildlife agencies at no charge.)

In addition to supervision training, it is suggested that there be a probationary period with evaluations for all new supervisors.

Warden Service Recommendation #13:

Provide effective supervision training for all warden supervisors.

Key Issue: Internal Investigator

The need for improved investigation policies, procedures, and personnel had wide agreement in both the focus groups and interviews.

Most police organizations do their own internal investigations. A trend in law enforcement is to have an Inspector General for the agency perform this function while housed under the Commissioner's Office. Whether an Inspector General or an Office of Internal Affairs, investigatory accountability should lie within such an office. In the future, if there were a significant further decrease in complaints and if the manpower were available, this office could increase efficiencies in all bureaus by doing staff reviews and audits (financial and/or operational audits).

An Internal Affairs Office under the Commissioner's Office would deal exclusively with conducting investigations of complaints, both internal and external. It works well to insulate the Colonel and the Commissioner and Deputy from the investigation and any ensuing criticism from outside the agency. An internal investigator will bring the process closer to, "beyond reproach." Some employees are suspicious of outsiders who "don't know how we operate." It is suggested that this position be a sworn officer whose powers are maintained through the Warden Service and who answers directly to the Commissioner. This creates an additional promotional opportunity within the Warden Service and is an excellent training opportunity as well.



Warden Service Recommendation # 14:

Establish an internal affairs or investigation unit/position which would deal exclusively with investigation of all internal and external complaints.

Key Issue: Covert Operations

Strong agreement was found throughout the Warden Service that the Covert Operations Unit is doing an outstanding job! Their effective operation has shut down numerous criminal activities, bringing in thousands of dollars from fines. However, they report to a sergeant who is not physically located for effective supervision. It is possible that this sergeant position could be of greater value to the Warden Service if it was used as a much needed field sergeant. Such a change could have the covert investigators reporting directly to the major or colonel. More information is needed to be able to recommend this with certainty.

Warden Service Recommendation # 15:

Evaluate workload and to what degree the current supervisor of the Covert Operations Unit is actually involved or needed in the operations.

Key Issue: Unity of Command

In order to improve unity of command, all of the wardens need to promote decisions made by their supervisors, regardless of personal opinions. The sergeant level is a critical link. After downsizing, and with so much comp time accruing, along with a widened geographical area of responsibility, the sergeants are more administrative. A widened span of control at the lieutenant level requires a corresponding tightening of efficiencies. Emphasis and support for policy issues coming down the chain of command, without personal spin, are essential from lieutenants and sergeants. Many wardens reported they felt the Colonel and Major's attendance at quarterly sectional meetings was effective at improving and tightening unity of command.

Making supervisors accountable for the command message is critical. The Colonel cannot possibly go to every warden meeting. Supervisors' meetings need to be used to discuss issues and make decisions. It is the sergeant and the lieutenant who are responsible for getting the message to the wardens. Any disagreement should be resolved in these meetings. The resulting message should be uniform and accurate. Supervisors must be accountable if this does not happen.

The telephone survey found wardens were split fairly evenly in their perceptions of how effective and easy communication flowed both up and down the chain of command. Communication down the chain of command was slightly more effective for wardens (60%) than communication up the chain of command (53%). Lack of communication upward through chain of command is often symptomatic of lack of span of control or intentional sabotage.

Warden Service Recommendation #16:

Tighten control and increase accountability concerning unity of command within the Warden Service; petition state human resources to change lieutenants to confidential employees.

Internal/External Public Relations

Key Issue: Communication diligence

In both the focus groups and the interviews, improving internal and public communications within the Warden Service was an issue. This is a balancing act when it comes to the Legislature. It is not suggested that the Warden Service set its own agenda apart from the Department. Important is that the Warden Service increase diligence in communicating its function, dilemmas, funding, and staffing requirements to meet the demands placed on them.

A continuous, concerted effort is needed to keep the Legislature informed. There is a different demographic in the woods today for the wardens than there was twenty years ago. The wardens' outdoor work environment is no longer a stereotypical scene of the past featuring the occasional hermit or oddball encounter. Working in the outdoors today, along with traditional hunters, wardens frequently encounter a diversity of recreational users such as urbanites on snowmobiles, cross-country skiers in neon parkas, and heavy-duty, networked criminals.

It is important for the Warden Service to communicate effectively with the Legislature, conscientiously, about the changing realities and increasing demands/needs. Internal/external public relations also includes passing media information about the Warden Service out to all wardens particularly in remote areas, relaying internal issues for all warden input, creating a greater sense of esprit d'corps while overcoming immense geography. Ensuring the consistency of any warden service messages that go out to the public is a critical part of building the wardens' "brand identity," i.e., they are highly dedicated, highly competent natural resource law enforcement professionals.

Key Issue: Improving Warden Image

Northern and southern Maine is a study in contrasts when comparing the nature and type of warden work. The north has broader, more remote areas and less people hence the more persistent traditional warden approach, i.e., "pinch 'em." Southern Maine is the opposite where a changing, complaint-driven dynamic results in less traditional warden work and more community-oriented policing. The wardens in the north are perceived to be generally less friendly and more "old school." Improving the image of the Maine game warden is an area in which additional public relations efforts could be of great help (See this chapter, Key Issue: Dedicated Communications Position.) The challenge for the Warden Service is dealing effectively with both of these geographical cultures, not one or the other.

Key Issue: Sergeants Critical

There are not enough lieutenants to effectively communicate messages down the chain of command from the Major/Colonel to the sergeants. The critical function of transmitting a uniform message from the Warden Service to both internal (all wardens and other appropriate agency staff) cannot be undervalued. In addition, communicating both to and from external stakeholders is also critical. Interviews and focus groups identified the need to improve such communication. Sergeant cooperation and accountability is critical.

Key Issue: Dedicated Communications Position

A perception widely-held within the Department is that the wardens have a public relations/internal communications need which is more than the current staff of I&E can meet. Often, public interaction requires a position dedicated to the communications function. Creating a new position within I&E, dedicated to the Warden Service public and internal communications need is recommended (For further discussion, see Chapter: Information and Education Division, Recommendation # 3). The person who fills this position would not be an officer, but would wear a Department uniform. Placing this position in I&E would best ensure message continuity across the entire Department.

Wardens are often the first responder to major search and rescue operations and other high profile situations. Many times a single warden must represent the Department to the media. Wardens must be prepared for these situations, and they require adequate training to handle media inquiries.

Warden Service Recommendation # 17:

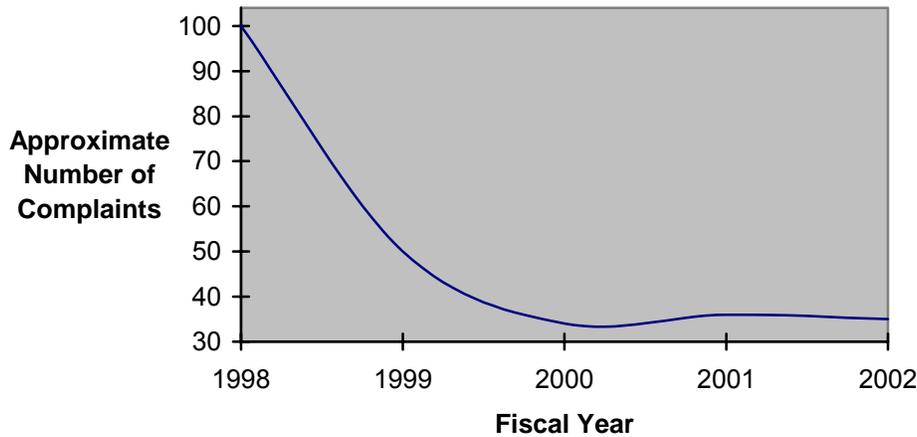
Have I&E provide wardens training in working with the media.

Key Issue: Complaint Tracking System

Today, the number of internal and external complaints made on wardens is approximately one-half the number of complaints as compared to five years ago (See Illustration 2). In 1999, the Warden Service implemented a system to document and track complaints. The system allows for tracking of actions following the complaint and it also earmarks multiple complaints being made on a particular warden. The system is working effectively to be able to monitor performance and take appropriate measures as needed. For example, when a particular warden receives multiple complaints, he/she may be initially counseled, and then with insufficient improvement, he/she may be enrolled in some form of "Charm School" behavior modification training. The Warden Service seeks out the most appropriate type of training based on the actual type of

charm that the individual needs. If the behavior continues to be problematic, he/she may receive disciplinary action.

Illustration 2. Approximate Complaints from 1998-2002



Key Issue: Internal Complaint and Investigation Process

Some wardens report the internal investigation process requires improvement. The current process is driven by MSEA Collective Bargaining Contract for law enforcement in which labor has just as much say as management. Some wardens suggest the manner in which it is handled does not establish two sides of an issue from the beginning, but rather goes immediately into the investigation stage, a stage in which the accused warden cannot respond. Without such preliminary investigation to establish just cause for conducting a full investigation, wardens may feel their careers are being jeopardized. In practice, there currently is no penalty for nefarious accusations.

To both provide greater accountability to the chain of command as well as building trust, it is recommended that an investigator or preferably a 1st line supervisor follow procedures outlined in the MSEA Law Enforcement Services Bargaining Unit, Article 11. This will make the supervisor more accountable. The supervisor has a role in detecting, educating, and correcting subordinates. Proactive and informed supervision is the key to preventing bad behavior.

Warden Service Recommendation # 18:

Recommend staff reviews by first line of supervision for probable cause determination and have the new Inspector General evaluate all staff reviews. Re-evaluate the investigation process and procedures with voluntary input from all wardens; redesign, if warranted, under the guidance of the new Inspector General following the requirements of the Maine State Employees Association Collective Bargaining Contract for Law Enforcement.

Accountability

Key Issue: Time Accounting

Under the present time/activity coding, roughly seventy-five percent (75%) of the wardens' time is spent protecting the resource, enforcing the fish and wildlife regulations. While the time/activity reporting system has been improved greatly, the process needs additional adjustment in order to obtain accurate time and activity accounting and reporting. Not only is it no longer legal for wardens to donate time, it is critical for managing public expectations to be able to know why wardens are always not available. It presents a significant opportunity for electronic solution.

A new Forms Committee within the Warden Service is underway. Part of what they are looking at is how to improve the coding for time and activity reporting. Currently, the codes for the activities are not adequate for the different types of work that the warden does. Often, since there is no correct category in which to code them, wardens must resort to lumping various specific work activities under one, broad code such as "Fish and Wildlife Protection," for example. This results in inaccurate reporting of the time spent on various warden activities. Such accuracy is critically needed to make compelling, defensible arguments when attempting to solicit additional funding. Time accounting needs to be improved as soon as possible since moving to work plans and prioritization of work requires an accurate picture of where the warden's work is currently being spent. This, in turn, can be used to justify an overtime request or new wardens if deemed necessary in the future (See Chapter: Warden Service, Recommendations #5 and #8).

Professional Development

Key Issue: Lack of Career Advancement

Currently, career advancement opportunities are severely limited within the Warden Service; thus, there is no career planning incentive or capability. It is logical to assume that career advancement options have been impacted as a consequence to the Warden

Service downsizing. Not having career advancement opportunities within the Warden Service negatively affects morale. (See Chapter: Warden Service, Recommendation #3).

Key Issue: The Advanced Warden Training (AWT)

Overall, new warden training appears to be working adequately. Wardens attend the state Criminal Justice Academy for 18 weeks with other Maine law enforcement recruits from other organizations and an additional 8-10 weeks of Advanced Warden Training.

The AWT has room for improvement. Interviews with wardens and former wardens indicated a perception that the balanced paradigm approach promoted in recent years by the Warden Service Bureau is not consistently modeled in the teaching of some of the instructors. Cited were examples of instructors' stories emphasizing the hard-core bust scenarios with all the associated drama and reality. Such stories are needed and appropriate for preparing candidates for the full picture of law enforcement. They are not incorrect, merely incomplete without balancing with examples and stories illustrating the other paradigm of wardens doing customer-service and proactive law enforcement.

Warden Service Recommendation # 19:

Assess instructor performance within the Advanced Warden Training School using anonymous feedback from candidates in the school; provide "train-the-trainer" training for the school's instructors as needed; highlight examples of customer-service excellence in the training curriculum.

Key Issue: Field Training Officers

The Field Training Officer (FTO) program is critical to modeling future officers' behavior and training to do the job. FTO's should be volunteers, selected for their exemplar behavior, motivation and high performance. They should be trained and certified (suggest the San Jose Model or similar system). If an FTO's behavior and conduct contradicts what the new warden just learned as a candidate in the training school, confusion and diminished effectiveness for this warden will result. To ensure that all brand new wardens have a process in which they can report such inconsistencies while in field training without fear of retribution from their supervisor, continuous monitoring must be done.

Warden Service Recommendation # 20:

Require all Field Training Officers to have appropriate preparatory training in order to become a Field Training Officer.

Key Issue: In-Service Training

Wardens lack adequate in-service training opportunities, especially in lean times. However, it is extremely important for the wardens to keep their skills toned. They face life-threatening situations. Capable and qualified instructors can be found within the Bureau. Particularly, courses such as self-defense should be made available. Care should be taken to “open up” opportunities for wardens to help other wardens in this regard, and avoid reinforcing the perceptions that only those in the “good ‘ol boy clique” are chosen.

Warden Service Recommendation # 21:

Identify individuals from within the Warden Service who are qualified and capable of instructing in-service training for other wardens and solicit their help to make such training opportunities available.

¹ Duda, Mark. 2003. Public Opinion on Fish and Wildlife Management Issues and the Reputation and Credibility of Fish and Wildlife Agencies in the Northeast United States. Responsive Management for the Northeast Conservation Information and Education Association, p.39.

BUREAU OF ADMINISTRATIVE SERVICES

Overview

The Bureau of Administrative Services (BAS) staff is committed to doing the best job possible. The managers and supervisors in BAS are knowledgeable and appear to work well as a team. They share a common goal of trying to provide consistent and high quality administrative support to the MDIFW Resources Management and Warden Service Bureaus and the Atlantic Salmon Commission (ASC). Focus groups of BAS external stakeholders, such as license-purchasing customers, reported the BAS has a high level of external customer support.

The following discussion presented in this chapter addresses four key areas that offer opportunities for the Bureau to improve and ten recommendations for consideration:

Key Issue: Staffing

Personnel Division

There is too much work for the two staff members managing personnel functions for MDIFW. Given the major responsibilities of the Personnel Division and the number of employees in the MDIFW and the ASC, it is clear that at least one staff member should be added if the Personnel Division is to fully and effectively meet its mandates. This is particularly so when external pressures and internal stress levels are increasing.

Some areas that could be improved by additional staffing in the Personnel Division include internal communications, employee recognition program, employee training including specialized training among divisions (e.g. hazardous chemicals), expanded safety and health program, and overall morale.



Administrative Services Recommendation # 1:

Add one permanent, full-time Personnel Specialist position, with primary duties focused on improving internal communications, to serve as the Department-wide training coordinator and the Department's employee health and safety officer.

The Personnel Officer may be at least two pay grades lower than counterparts in other Maine agencies. MAT was unable to confirm this with outside sources. However, it warrants investigation by the Department. If there is a disparity, it should be rectified.

Administrative Services Recommendation # 2:

Conduct a conclusive study of salary comparables and, if warranted, upgrade the Department's Personnel Officer's status in grade and pay to a level commensurate with Personnel Officers in other Maine state government departments who have similar duties and responsibilities.

Licensing and Registration (L&R)

L&R has been functioning at an unsustainable pace. L&R clerks often work overtime and Saturdays, and they are recruiting volunteer assistance from clerical staff from other parts of the agency in exchange for overtime. There is insufficient office space to simply add additional licensing staff. Understandably, stress levels run high. However, the staff is committed to performing the best they can.

The functions of the L&R Division are complex and difficult to manage effectively. As is the case with other units of the Department, L&R faces increasing unfunded legislative mandates. If the Legislature adds a new type of license or registration requirement, for example, or micromanages special hunt lotteries, the L&R must adapt the necessary changes in the system. They must spend time and money to get the needed information about the changes out to the public in a timely manner. In addition, the Division has to provide information and summary data on most proposed bills affecting MDIFW activities (as many as 300 in recent years) and provide information at public hearings. All of this is very time-consuming layered on top of the routine duties of the L&R staff.

Administrative Services Recommendation # 3:

Open lines of communication with the Legislature and key constituencies to ensure that proposed changes to licensing are feasible, economical, and efficient. Communicate the costs in dollars and/or dropped service.

There is no simple solution to resolving the staffing overload issues within the L&R. These problems can only be solved using a multi-faceted approach. The Maine Online Sportsmen's Electronic System (MOSES) needs to reach full functionality to reduce the workload of the existing licensing staff (discussed in detail later in this chapter), and MDIFW needs to further streamline its license and permit offerings. Together these approaches can in time ease the stress and overload of L&R clerks. Following successful implementation of MOSES, workloads should normalize for L&E personnel and the workloads are more likely to be appropriate for the current staffing level.

Administrative Services Recommendation # 4

Maintain current staffing levels in L&R following implementation of MOSES. Continue to contract data entry until backlogs are eliminated.

MAT conducted a telephone survey of 38 license buyers whose names were supplied by Sportsmen's Alliance of Maine (SAM) to evaluate satisfaction with purchasing licenses and permits from MDIFW (See *Overview of license purchase survey by select SAM members for 2003 or 2004* in MAT Review Report, DATA, under separate cover). Overwhelmingly, the respondents were satisfied with their experience with a minimum average satisfaction rating of 4.5 on a scale of 5 for all sales channels. No respondents indicated dissatisfaction.

Key Issue: Information Systems

The Information Systems' (IS) "two-person team" does an excellent job of providing technical support and information technology (IT) services to the MDIFW headquarters and regional offices, staff located in remote areas, and the ASC. The current focus is trying to obtain the necessary computer hardware and software needed by employees to do their jobs and to do so in the most cost efficient manner. Every effort is made to operate inexpensively while providing quality and timely service.

Basic Computer Support

The most serious problem confronting information technology within the MDIFW is the lack of adequate funding to provide more than the most basic computer support for all staff (e.g., wardens in regional offices and remote areas). The Department has about 220 computers connected to the state network and another 13 computers with dial-up connections. The IS staff spends significant time traveling to remote locations for computer maintenance – a large burden when considering the computer to technician ratio of more than 115 to 1. There is also a serious lack of funding for software upgrades as well as for formal training for employees in the proper use of those tools.

Computer Replacement Cycle

The computer replacement cycle is often extended to five years, and many computers are obsolete. Many organizations replace computers at 48 months or less because of security risks, software compatibility issues, and support costs.

Currently, MDIFW inventories indicate that forty-four percent (44%) of Department computers use the Windows 98 operating system that is no longer supported by the manufacturer, Microsoft Corporation. The latest Microsoft operating system, Windows XP, includes the ability for remote administrators to troubleshoot and fix many problems on client computers through the Internet. Upgrading all computers to Windows XP would be an important time saver, reducing the workload for the IS staff. Some

computers will be up-gradable to XP with little additional hardware cost. Computers that do not meet minimum requirements for Windows XP need to be replaced with computers loaded with Windows XP.



Administrative Services Recommendation # 5:

Upgrade all MDIFW computers to Windows XP or replace non-XP compatible computers to facilitate remote administration, increasing efficiency for IS staff. Minimally, all computers should run on operating systems supported by their manufacturer.

The MDIFW communications is increasingly dependant on agency-wide computer access for all employees. Those employees that do not currently have computers or regular access to a computer are at a disadvantage because a large amount of information is shared via email and websites. All employees should have computer access. Employees who do not require an assigned computer should share workstations, e.g. hatchery employees. This need is discussed specifically for wardens in Chapter: Warden Service, Recommendation # 2.



Administrative Service Recommendation # 6:

Provide computers or computer access to all MDIFW employees to include appropriate software and training. Sufficient funding must be allocated annually to pay for Internet connections and technical support for the additional computers.

The Department has other serious information systems technology problems that could soon reach crisis proportions. For example, they have several legacy systems, including their federal billing and lottery hunts systems that are running on archaic coding, nearly 20 years old. As an example, in the case of the lottery hunts individuals will no longer be limited to the number of applications (i.e., finite number) that can be submitted for a particular hunt, instead they may apply for an unlimited number (i.e., infinite) of applications. This one change alone will require a major re-write of the system coding, detailed technical analysis, and testing. There is currently no funding available to deal with these fast approaching technical dilemmas, although the Department has initiated efforts to address this issue.



Administrative Service Recommendation # 7:

Analyze and re-write the legacy software, particularly the lottery hunts.

Strategy: Submit a supplemental request budget for comprehensive information technology upgrades with detailed justification for the computer upgrades (see Administrative Services Recommendation #5), new computers, software purchase, network access, and legacy system recoding.

Accounting

The Accounting Section's staff of five employees is at the minimum level required to meet its assigned responsibilities and support functions for the MDIFW and the ASC. As the other Administrative Service functions within the MDIFW, the accountants have had to operate on ever-tightening funds. They have tried to take advantage of every opportunity to maximize the Department's ability to operate in Maine's severe fiscal climate.

Employee perceptions of the MDIFW accounting were bi-polar according to the employee telephone survey and interviews. When those with budget management responsibilities were asked if the cost accounting system provided them with accurate data, fifty-two percent (52%) agreed (strongly or moderately) and forty-eight percent (48%) disagreed. Also, senior budget managers were far more likely to disagree. According to the thematic analysis of employee interviews, seventy-three percent (73%) of the employees significantly rejected the idea they have the ability to know their budget throughout the year.

Reporting

The Accounting section provides each organizational entity (e.g., Wildlife Division, Warden Service, etc.) with a Monthly Expenditure Report, usually by the middle of each month, which details expenditures by type of operating expense. It does not show salary expenditures.

Some budget managers, particularly those in the Wildlife Division or those who are involved in multi-party land acquisitions find these reports incomplete, inaccurate, and difficult to understand. Other budget managers indicated that the reports were adequate and they received the information from accounting they needed to manage their programs. Interviews with employees found unanimous agreement that the reporting format was not useful for project managers.

Some budget managers do not get budget reports that accurately reflect their current budget because expenses were not yet entered in the accounting system. Accounting is an "after-the-fact" record of what has been spent, and reports will not reflect expenditures and encumbrances until bills have been entered into the accounting

system. The people expending most of the Department's operating funds lack a useful reporting tool to help them track their own expenditures. In essence, some project managers with budget responsibilities are "flying blind."

Administrative Service Recommendation # 8:

Develop with input from representative budget managers, a standardized, electronic spreadsheet for tracking monthly operational expenditures for use Department-wide.

Accounting Systems

The thematic analysis of employee interviews showed a split on whether budget managers felt their budget situation was clear, i.e. at any time during the budget cycle they were unclear on how much money they had to spend. The employee telephone survey has similar data. Of the 30 employees who said they have budget responsibilities, forty-seven percent (47%) disagreed that the cost accounting system provides them with the information they need.

Project and "Job" Tracking

Accounting has only partially tracked Federal Aid reporting for wildlife programs. In large part, the Wildlife Division keeps its own records for Federal Aid reporting because the MDIFW accounts are not tracking expenditures to the job level (Federal Aid refers to a project such as Spring Bear Monitoring in 2004 as a "Job").

The state accounting system has the capability to track expenditures to the job level by adding a single, eight digit data element to the accounting system. However, job-tracking capabilities for Federal Aid projects have not yet been implemented, citing workload and accuracy issues it would create for Department accountants. There are two overriding problems with multiple accounting systems for the Wildlife Division: The two systems will be very difficult to reconcile, and effort is duplicated.

Federal Aid accounting for the Fisheries Division has not had the same issues as the Wildlife Division. The Fisheries Division has fewer dedicated accounts to track, the budget is managed more centrally than the Wildlife Division budget, and to date fisheries has not yet begun job tracking. Currently, the accounting systems will meet the needs of the Fisheries Division. However, the US Fish and Wildlife Service regional office in Hadley, MA, which manages the Federal Aid programs for state fish and wildlife agencies in the region, plans to implement job-tracking requirements for all states under its authority. This will necessitate job tracking for Federal Aid programs managed by the Fisheries in the next biennial budget.

The Fisheries Division is currently developing its biennial budget and will implement job tracking per Federal Aid requirements. This will further necessitate a single accounting

solution for all MDIFW budgets. Departmental cost tracking to the project level is also discussed in Chapter: Department Overall, Recommendations # 14 and # 15.

Tracking Partner Contributions

Another systemic shortcoming of the accounting systems appears to be an inability or failure to completely track partner contributions to land acquisitions and other dedicated funds. Because these revenue sources are not tracked through the central accounting system, individual project managers are responsible for tracking these revenue sources on their own. All revenue sources should be tracked through the central accounting system.

Administrative Service Recommendation # 9:

Implement central tracking for partner contributions and other non-tracked revenue sources.

Unfortunately, these changes will require some additional effort from the accounting section. This may require additional staffing, and the Department will need to weigh these staffing needs against other critical staffing needs across the agency.

Cash Flow

The Department fights cash flow issues on an ongoing basis. Budget managers and the Chief Accountant reported that money is commonly shuffled among dedicated fund accounts to ensure that there is adequate funding to cover certain expenses. The state policy of restricting budget rollovers based on quarterly budgets is overly burdensome on MDIFW. The accounting team uses every tool at its disposal to give program managers maximum flexibility. By restricting quarterly rollovers, the state is creating an additional accounting burden, and further creating inefficiency because of the extra effort the Department expends to work within the constraints of this policy.

In order to maintain adequate cash, the accounting team aggressively manages payments on large recurring expenses such as Bureau of Information Services (BIS) charges and motor pool. Funds are commonly transferred between expended and under-expended budgets at the end of a quarter to ensure that the Department, as a whole, captures every dollar at its disposal. Funds are transferred back into the originating budget at the beginning of the quarter. This creates problems with reporting, and some budget managers feel that because of this practice they are never confident in the overall status of their budget. Again, this is as an additional cause for maintaining duplicative accounting systems in the Wildlife Division.

Key Issue: Engineering & Realty (E&R)

The E&R section is responsible for maintaining MDIWF buildings, hatcheries, fishways, and dams with an operating budget of \$150,000 per year to inspect, repair, and upgrade

the facilities and infrastructure under MDIFW ownership and responsibility. This is probably less than one-half of the funding required for facilities operation and maintenance.

Dams

The small amount of funding authorized for E&R activities greatly limits the staff's ability to conduct regular dam inspections, much less make the necessary repairs on the Department's 77 dams. They must focus on known emergencies and make critical repairs as cheaply as possible, while knowing that other significant problems are getting worse. Out of necessity, E&R essentially runs a "band aid" operation, fully understanding that they are fighting a losing battle of passing time and greater deterioration of dams statewide.

Several years ago, the Concord Dam, located west of Bingham, failed and caused a major washout of Route 16. The Maine DOT had to spend nearly one million dollars to repair the road damages. In late winter/early spring of 2004, there were additional dam failures; one dam failed on an impoundment that had provided a brook trout fishery and another dam gave way on a fish hatchery pond.

In addition to possible damages to downstream state infrastructures (e.g., roadways), dam failures in some locations could potentially harm private and commercial properties and threaten public safety. The potential liabilities associated with dam deterioration, disrepair, and failures are enormous. This is and probably will become a greater, critical problem for MDIFW in future years.

As evidenced by the dam failures, it is generally more cost effective to maintain infrastructure than fix the damage caused by dam or structural failure.



Administrative Services Recommendation # 10:

Increase the Engineering and Realty (E&R) operating budget to a level that provides for a "minimum maintenance" funding level (at least \$300,000) for MDIFW facilities, particularly dams; seek one-time funding to complete upgrades to those dams that are seriously deteriorated and could potentially threaten public safety and/or result in significant damage to downstream private properties or state infrastructure.

Strategy: Provide the Governor and Legislature with a detailed listing, in priority order, of those sites needing the most immediate attention and estimated costs for completing the restorations. Once restorations have been completed on the most deteriorated/threatening dams, this special funding could cease.

MAT also recommends that E&R move to the new Bureau of Habitat (see Chapter: Department Overall, Key Issue: Structure, Recommendation #6).

Key Issue: MOSES

Through an extraordinary staff effort the BAS has met the challenges incumbent with the delay of The Maine Online Sportsmen's Electronic System (MOSES). The MDIFW sells about 450,000 licenses annually. Approximately sixty-five percent (65%) of the households in Maine have a PC and are connected to the Internet. Since March 1, 2003, the Department sold nearly 17,000 licenses electronically to people using their home PCs to access the Department's website. About forty-two percent (42%) of the antlerless deer permits were obtained via Internet.

The Maine Online Sportsmen's Electronic System (MOSES) was contracted approximately three years ago with Worldcom Telecommunications (now MCI) as an online and point-of-sale system for hunting and fishing licenses. The system was specified to include robust data mining capabilities to better enable the agency to understand its customers and the market for hunting and fishing licenses.

The Department will continue its hard copy license sales, but successful MOSES implementation should significantly reduce paperwork. Agents will be able to use either electronic entry (MOSES) or continue to use the paper applications, or have both available.

MOSES has so far cost the Department more than it is saving. MOSES has yet to deliver the data mining, customer convenience, and increased licensing efficiency that initially justified the project.

MOSES' development could easily be described as a "nightmare." Worldcom was originally chosen as the developer of MOSES because their bid was cheapest and they agreed to drop their price even more to accommodate the available funding (about two point one million dollars). Unfortunately, Worldcom filed for bankruptcy during the early stages of MOSES' development and MOSES was stalled. However, from the beginning of MOSES' development, the Department and Administrative Services employees acted appropriately. Looking at MOSES' history, there is no conceivable way that the agency could have anticipated Worldcom's bankruptcy. In fact, MAT was told in interviews that the agency was given no prior notification of the impending Worldcom problems until the evening before the Worldcom bankruptcy led national news stories.

Due to numerous factors associated with the slower than anticipated development and implementation of MOSES (e.g., Worldcom/MCI went bankrupt), the L&R has built up a tremendous backlog of license and registration data. To assist with this backlog, the Division contracted with a private firm to provide basic data entry for license data and registration renewals. The Department has worked out an agreement with MCI to

complete Moses development, and, at the contract completion, MDIFW will contract with Maine BIS to manage the MOSES database and provide customer reporting, etc.

No further recommendations are necessary regarding MOSES.

Management Assistance Team

The Management Assistance Team (MAT) is an organizational management consultancy and training resource exclusively for state fish and wildlife agencies nationwide. MAT helps agencies increase their effectiveness by providing organization development, human resource development, team building, leadership development, and agency management consulting expertise and/or training by request.

MAT's funding is provided by a multi-state conservation grant to the International Association of Fish and Wildlife Agencies. Because of this, there is no need for agencies to pay for MAT staff time, travel, or per diem when using MAT's services.

Management Assistance Team
International Association of Fish and Wildlife Agencies
at the National Conservation Training Center
698 Conservation Way, Shepherdstown, WV 25443
Phone – (304) 876-7988
Fax – (304) 876-7377
www.matteam.org

2000 Vision Statement

A long term, stable, predictable, and adequate source of funding for Department's programs.

A Department of Inland Fisheries and Wildlife that is noted for its very professional, responsive, efficient, and effective manner of developing and implementing fish and wildlife management programs, and providing for the use of these resources.

Long range fish and wildlife management plans and associated programs which are strongly supported by the public.

Effective fish and wildlife management programs which focus on improving the distribution and abundance of the state's fish and wildlife, expanded use opportunities, and steadily increasing contributions to the Maine economy.

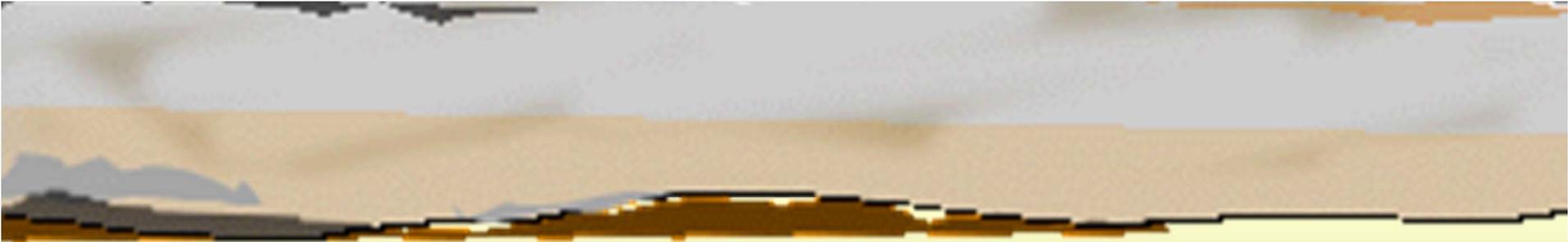
A public which is informed on fish and wildlife matters, and considers the Department's programs to be important to the future welfare and use of these resources.

An agency which aggressively seeks public input and cares about the attitudes and desires of Maine people.

An agency which is strongly supported by Maine hunters and anglers, and Maine people in general.

Fish and wildlife resources that are readily available for all to use and enjoy.

Vital habitats and open space that have been protected to provide for the future welfare and use of the state's fish and wildlife resources.



Maine Citizen Survey

Maine Development Foundation
Conducted by Market Decisions

Maine Citizen Survey

- ⇒ Annual survey
- ⇒ Conducted by telephone between September 7 and September 21, 2000
- ⇒ 601 Maine households
- ⇒ Statewide RDD (random digit dial) sample
- ⇒ Total of 118 questions

Maine Citizen Survey

- ⇒ Maine Department of Inland Fisheries and Wildlife includes 4 questions
- ⇒ Sampling error of +/- 4.00 percentage points with 95% confidence
- ⇒ The sampling errors and levels of confidence refer to the total group of respondents and are not the same for sub-samples

How would you rate the condition of Maine's wildlife resources?

⇒ 2000

⇒ Excellent 31%

⇒ 4 43%

⇒ 3 22%

⇒ 2 2%

⇒ Poor 2%

⇒ Total >3 96%

⇒ 1999

⇒ Excellent 28%

⇒ 4 44%

⇒ 3 23%

⇒ 2 2%

⇒ Poor 2%

⇒ Total >3 95%

How would you rate the condition of Maine's freshwater fisheries resources?

⇒ 2000

⇒ Excellent 17%

⇒ 4 34%

⇒ 3 38%

⇒ 2 8%

⇒ Poor 3%

⇒ Total >3 89%

⇒ 1999

⇒ Excellent 22%

⇒ 4 45%

⇒ 3 14%

⇒ 2 9%

⇒ Poor 5%

⇒ Total >3 81%

Question asked in 1999, How would you rate the condition of Maine's freshwater resources?

Which of the following groups do you think has the PRIMARY responsibility for managing Maine's fish and wildlife?

⇒ 2000

⇒ DEP 7%

⇒ DOC 7%

⇒ NRCM 3%

⇒ Audubon 3%

⇒ DIF&W 60%

⇒ SAM 4%

⇒ 1999

⇒ DEP 10%

⇒ DOC 10%

⇒ NRCM 3%

⇒ Audubon 2%

⇒ DIF&W 61%

⇒ SAM 2%

Which of the following groups do you think has the PRIMARY responsibility for managing Maine's fish and wildlife?

Males

⇒ 2000

⇒ DEP 5%

⇒ DOC 7%

⇒ NRCM 3%

⇒ Audubon 2%

⇒ DIF&W 64%

⇒ SAM 7%

⇒ 1999

⇒ DEP 12%

⇒ DOC 12%

⇒ NRCM 5%

⇒ Audubon 3%

⇒ DIF&W 55%

⇒ SAM 1%

Which of the following groups do you think has the PRIMARY responsibility for managing Maine's fish and wildlife?

Females

⇒ 2000

⇒ DEP 8%

⇒ DOC 7%

⇒ NRCM 3%

⇒ Audubon 3%

⇒ DIF&W 58%

⇒ SAM 2%

⇒ 1999

⇒ DEP 8%

⇒ DOC 6%

⇒ NRCM 2%

⇒ Audubon 2%

⇒ DIF&W 70%

⇒ SAM 3%

How would you rate the performance of the agency responsible for managing Maine's fish and wildlife?

⇒ 2000

⇒ Excellent 18%

⇒ 4 44%

⇒ 3 30%

⇒ 2 5%

⇒ Poor 3%

⇒ Total >3 92%

⇒ 1999

⇒ Excellent 16%

⇒ 4 41%

⇒ 3 32%

⇒ 2 4%

⇒ Poor 2%

⇒ Total >3 89%

How would you rate the performance of the agency responsible for managing Maine's fish and wildlife? *Males*

⇒ 2000

⇒ Excellent 21%

⇒ 4 42%

⇒ 3 26%

⇒ 2 7%

⇒ Poor 4%

⇒ Total >3 89%

⇒ 1999

⇒ Excellent 18%

⇒ 4 38%

⇒ 3 34%

⇒ 2 4%

⇒ Poor 1%

⇒ Total >3 90%

How would you rate the performance of the agency responsible for managing Maine's fish and wildlife? *Females*

⇒ 2000

⇒ Excellent 16%

⇒ 4 46%

⇒ 3 33%

⇒ 2 3%

⇒ Poor 2%

⇒ Total >3 95%

⇒ 1999

⇒ Excellent 14%

⇒ 4 46%

⇒ 3 29%

⇒ 2 5%

⇒ Poor 4%

⇒ Total >3 89%



We are still doing well with

- ⇒ Individuals who have lived in Maine longer than 10 years
- ⇒ College graduates
- ⇒ All age groups
- ⇒ Incomes higher than \$24,000 per year



We need to improve with

- ⇒ Lower income levels
- ⇒ High school and technical collage graduates



We need to watch carefully

⇒ Drop of recognition among women