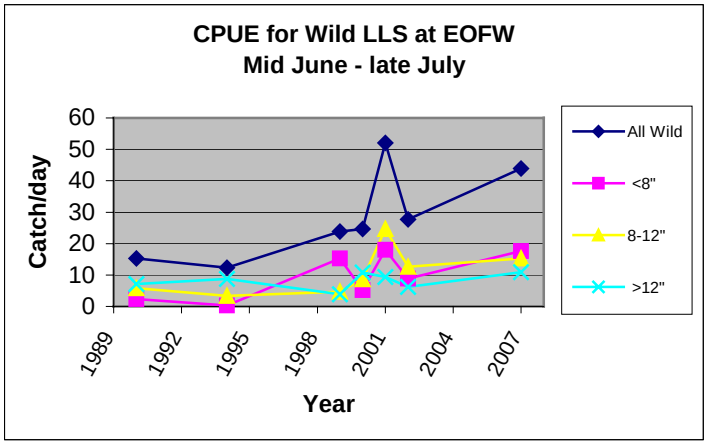
Fishery Region E

Monitoring Wild Landlocked Salmon at the East Outlet Fishway

In the 1990's, FERC Relicensing of the Moosehead Project created an opportunity to assess conditions in the East Outlet, and the effects of operating the East Outlet dam on the fishery in the Outlet. The new license (issued on 11/25/97) included many provisions beneficial to fish. A couple of these provisions included the maintenance of the fishway in the dam that allows fish to pass up into Moosehead Lake from the Outlet, and habitat enhancements.

IF&W identified 2 areas where habitat could be altered during the relicensing study period to address the limited amount of spawning area available in the East Outlet. One location was selected to improve conditions for salmon spawning, and the other to provide a refuge area for newly hatched fry. Kennebec Water Power supported and funded the work that was accomplished in August of 1998. These channels were both used by salmon for spawning the very first fall of their existence, and have been used every fall since then. IF&W has electrofished numerous salmon fry throughout the refuge channel in the years after its construction.

The year following the habitat improvements, IF&W monitored the fishway at the East Outlet Dam, and compared the catch of wild salmon for years before and after the habitat improvements downstream. IF&W observed almost a three-fold increase in the number of young wild salmon moving upstream into Moosehead Lake from the river below. Although the river may not be producing the number of salmon smolts to Moosehead Lake that we would expect from a river of its size, the habitat improvement work has been very successful.



Mike Moon of Kennebec Water Power and Assistant Regional Biologist Jeff Bagley work up some fish from the East Outlet Fishway in 2007.

Monitoring of wild salmon production in the East Outlet continued during the summer of 2007. Region E fisheries staff with assistance from Kennebec Water Power trapped the fishway at the East Outlet Dam from June 25th until July 30th. A total of 1,535 wild salmon were collected. We are most interested in the number of salmon smolts, those less than 8 inches that are moving up into Moosehead Lake. This size class is a good indicator of spawning success, and survival of young salmon. The number of wild salmon smolts collected this year, 618 (40%) indicates that there was good survival and recruitment of young salmon coming up through the East Outlet fishway and into Moosehead Lake.

First Roach Pond Dam Improvements

In 1994 the State of Maine acquired the First Roach Pond Dam from Scott Paper Company. The Department of Inland Fisheries and Wildlife, Region E Fisheries Staff developed a policy in 1995 for operating the dam. The following is a brief summary of the annual operation policy. The two gates at the dam are adjusted to collect water and fill First Roach Pond in the spring. Once the pond has filled and spring run-off has subsided, gate adjustments are made to maintain a stable lake level for camp owners and to provide a minimum flow into the Roach River for salmonids throughout the summer. Around Labor Day, a gate adjustment is made which: 1) provides a pulse of water that typically draws salmon and brook trout up from Moosehead Lake and into the Roach River for spawning, and 2) to start the drawdown to empty First Roach Pond. The gates are then changed one last time around the first of October to empty any remaining storage by October 10. This allows lake trout in First Roach Pond to spawn at the lowest possible water level, and provides natural flows (inflow equals out flow) to the Roach River for brook trout and salmon spawning and over winter incubation. The gates are then left open and no storage is held in the pond throughout the winter. Operation of the dam during the spring requires a lot of attention. We try not to over-fill the pond, which can result in shoreline and property damage, as well as releasing high flows below the dam that can be detrimental to newly hatched salmon and brook trout.

Until this past spring if we wanted to know what the pond level was, it usually required two biologists with a portable generator in tow, to drive to Kokadjo, a 40-mile round trip. If it was determined that a gate change was needed, the generator would be plugged into the dam. One individual would run the gate controls and the other would run the generator, to hold the governor open, as the generator was a bit underpowered for the initial start up of the electric gate motors. It was not uncommon to encounter other problems associated with the lack of power with these older motors.

The installation of an electronic water level monitor was installed in two phases. Phase 1 was initiated in the fall of 2006, when CMP set a utility pole and installed electricity at the site. Greenville fisheries staff anchored a black iron pipe to the south wing wall of the dam to encase and protect the water level recorder. Phase 2 was completed during the spring of 2007. In early May with the help of Verizon and the folks at Northern Pride Lodge, we were successful in getting our new remote water level logger up and running.

The water level monitor, coupled with a reliable source of electricity has greatly simplified the operation of the First Roach Dam. There has been a huge time and cost savings associated with the installation of this new equipment. In the past it would take 2 biologists one and a half hours, plus gas and vehicle expenses to check the lake level. Now with a 5-minute phone call we are able to check the water level monitor and it provides a current water level as well as past hourly readings. This allows us to look at the rate of increase or decrease in the water level, and to determine if we need to make an adjustment at the dam. In the past we would have needed to make 2 trips from Greenville to Kokadjo to determine the rate of increase. Fisheries staff can now closely monitor the water level from our office or home.

Tracking Radio Tagged Brook Trout in the Allagash Wilderness Waterway

In the fall of 2006, the Moosehead Lake Regional staff conducted a comprehensive evaluation of the brook trout population in Chamberlain Lake, Round Pond, and Telos Lake. During the study, we obtained data on size class structure, age class structure, maturity, angler use, and catch and harvest rates of brook trout by anglers. Our effort resulted in the collection of 276 brook trout using trapnets from September 13 through October 20. Brook trout ranged in size from 4 – 22 inches. Fifty-two brook trout were surgically implanted with radio transmitters to track their movements to determine the seasonal habitat use of these fish in the Chamberlain Lake system.

Radio tags were implanted into 39 mature males, 8 mature females, and 5 immature brook trout. We have tracked these fish periodically from the time they were tagged to the present to identify and pinpoint spawning areas, over-wintering areas, and other areas with concentrations of brook trout. Tracking was conducted using boats, snowmobiles, stationary data loggers, and Warden Service airplanes. Radio-tagged brook trout actively moved throughout the entire Chamberlain Lake system at the end of September through early October. Most radio-tagged brook trout accessed spawning tributaries by the second week in

October. A few of the brook trout remained in the lake throughout the spawning period, these fish included the 5 immature brook trout and a few mature fish.

A useful feature of these radio tags is a mortality switch. When a tag/fish is stationary for a 24-hour period the tag emits a mortality signal. This feature allowed us to identify the time period during which an individual fish met its demise. Tracking results determined that most of the mortality came after spawning. Mortality was high for mature males at 64%, compared to 50% for mature females, and 0% for immature brook trout, but within the limits experienced in other studies. Whether these individuals were victims of avian or fur-bearing predators, or a result of spawning stress we were unable to tell. But what we do know is that brook trout are very vulnerable to external stress during this very critical time.

During the 2007 ice fishing season we strongly encouraged anglers to release all brook trout implanted with a radio transmitter. An antenna protruding midway down the belly made identifying these tagged brook trout easy for anglers (as shown in photo). Anglers reported catching 8 radio tagged fish. All but one of these fish were released. Angler interest and understanding of the importance of allowing these brook trout to remain at large within the system aided in the success of this project. By releasing these tagged individuals it allowed data collection on the movements of brook trout in the Chamberlain Lake system.

As we headed into the 2007 fall spawning season we noted some interesting movements exhibited by the remaining tagged brook trout. Of the 22 individuals still at large, we identified 13 that had spawned in Chamberlain Lake tributaries in 2006. All 13 returned to the same tributaries in 2007. This is strong evidence that individual brook trout home to specific sites within Chamberlain Lake tributaries.

Thank you to all the anglers that provided information during the duration of our sampling. Angler involvement is an important component in gathering information to manage the many waters throughout the State of Maine.

This comprehensive evaluation of Chamberlain Lake's brook trout population involved a partnership between the Maine Department of Inland Fisheries and Wildlife and the Allagash Wilderness Waterway. Grants from the Maine Outdoor Heritage Fund and Fly Fishing in Maine (FFIM) helped fund this project.

Moose River Salmon Telemetry Study

One of the more interesting recent studies in the Moosehead Lake Region was the Moose River salmon telemetry study. We have been stocking hatchery salmon for several years in the Moose River between Long Pond and Brassua Lake with the goal of establishing a fall salmon fishery. We knew the salmon would move out of the river, as the temperatures warmed, to one of the large lakes in this open system. They would stay in the lake and grow until mature then hopefully return to the stocking site. Most of the lakes in the system already have salmon stocking programs so it is important to know which lake(s) the fish would reside in, so that stocking rates could be adjusted if necessary.

Brookfield Power was a major supporter of the study and funded the project with their Sustainable Development Initiative. These funds were used to purchase 50 transmitters, 2 handheld receivers, two stationary receivers/loggers, and other miscellaneous equipment. This equipment has been very valuable and we have used it on other projects, including the Chamberlain Lake brook trout study. Florida Power and Light Energy also got involved. FPLE purchased additional tags to follow brook trout in the system as well, and they assisted with some of the fieldwork and aerial tracking flights.

We installed one stationary logger downstream where the Moose River drops into Brassua Lake. The other logger was placed upstream near Long Pond. Therefore, any tagged salmon or trout passing these sites would be recorded. Each individual fish had a unique frequency, which the logger registered along with a date and time. We also traveled the river on foot, by raft, and by airplane to periodically locate the tagged fish.

We found that the newly stocked salmon stayed very close to the stocking site for about two weeks. The fish were stocked in mid-May but really did not move much until June when water temperatures exceed 65^{o}F. This is consistent with our findings at the East Outlet fishway. Trout, on the other hand, moved out of the river by the end of May. Most of the trout dropped downstream to Brassua Lake. We found that 50% of the salmon

moved upstream. Some went as far as Attean Lake, a distance of about 25 miles. Around 25% of the tagged salmon dropped downstream to Brassua Lake and the remaining fish stayed in the river or were mortalities. We can now adjust stocking rates in the surrounding lakes accordingly, and perhaps increase the stocking in the Moose River to try to get that fishery started.

Youth Events in the Moosehead Lake Region

Spending a day in the field with a group of kids is always a lot of fun. We try to schedule or assist in youth fishing activities whenever possible. This past year we participated in several. In March, we set out for a day of ice fishing with a group of kids from the Sedomocha Middle School in Dover-Foxcroft. Kids were able to pick from a variety of events for the day and about 10 decided to try their hand at ice-fishing Brann's Mill Pond. The fish really cooperated throughout the day. The middle-schoolers caught a bunch of bass and pickerel, but it was really nice to see them land some of the fall-yearling brook trout that were stocked in October. This new stocking program started as a result of our recent hatchery expansion project. It was a lot of fun. Some of the kids had never ice fished before, and others said they didn't get to fish much. Everyone handled some fish and most ended up with wet feet!

In May we were assisted by the 1st grade class of the McKusick Elementary School in Parkman for the inaugural stocking of Drummond Pond in Abbot. We have been working with Mac Drummond for several years to excavate one of his gravel pits in an effort to create a family fishing pond in the Guilford/Abbot area. Mac and his crew were able to finish up work on the pond last year and he has graciously allowed us to stock it for the folks in the area. The weather was wet but the young bucket brigade was up to the task. The pond is open to all ages with a two fish limit in the open water season. Drummond Pond is open to fishing in the winter for children under age 16 and restricted to two lines with a daily bag limit of two trout. The pond was stocked in October with fall yearling trout that should average 12-14 inches this winter.

Drummond Pond Stocking Bucket Brigade

1st graders from the McKusick Elementary School - "Thanks Mac!"

The Forks Fish & Game Association hosted the 4th annual Youth Program July 17-19, with 20 participants ages 10 to 15. Staffed with local Maine Guides and volunteers, the camp took place on Indian Pond, in Somerset County and introduced the participants to many aspects of camping, wilderness experiences and applied outdoor knowledge.

The campers set up campsites, experienced cooking all meals over a campfire, camp clean up, learned animal track identification, fish identification as well as canoeing, coyote calling and telemetry with remote tracking collars. The volunteers, most Registered Maine Guides, shared many of his/her skills with the group while sharing knowledge and values about the activities.

Local Fisheries Biologists Jeff Bagley and Steve Seeback with local Game Wardens Troy Dauphine and Bill Chandler, stopped by to meet the group and shared their knowledge regarding the local fish and wildlife in the area. They demonstrated and discussed some of the things that they do on a daily basis in relation to managing fisheries and wildlife. The campers had many questions and enjoyed meeting and speaking with the Inland Fisheries and Wildlife guests.

This program is hosted annually by the Forks Fish & Game and many local businesses donate gear, food and transportation to ensure the camp program can continue to be offered for little cost to the registrants. Volunteers ensure staffing, instruction and supervision and the kids go home with a Junior membership in the association and great summer memories! Many campers have returned to "camp" for consecutive summer adventures and already look forward to next year!

The Greenville staff had an opportunity to spend a day with the Selena Tardif, Education Director of the Maine Woods Explorer Program from the Natural Resource Education Center in Greenville, Cindy Noyes, and 11 of the Maine Woods Explorers at Gravel Pit Pond in Little Moose Twp. The group was made up of kids ranging from 5 to 11, and they traveled from near and far to participate in last weeks program. Two individuals Brooke and Matthew Tardif ventured north from Biddeford, as did Morganne Lanier who trekked from Guilford. Rounding out this group of explorers were Keegan and Law Hinkley, Alec Moore, Pete Shelton, John and Tommy Watt, Nick Foley, and Evan Sullivan all from Greenville.

This group of explorers had a chance to see some of the gear that we as fisheries biologists use to help manage the fisheries resources throughout the state. They saw the different types of nets we use, minnow traps, water quality gear, and watercraft. Prior to meeting with the group, we had collected some minnows and crayfish for the kids to look at. One activity we did with the kids was a hi-tech game of hide-and-seek. The group had a chance to use our radio telemetry gear to locate some tags that we had placed around the pond. They had to listen carefully to determine which direction the loudest beep was coming from as we closed in on the location of the tag. After locating our tags it was onto bigger and more exciting things, " snack time". After some needed refreshment we moved onto the next phase of the day. As we all know there is no substitute for some hands on, getting wet, and really getting into your work experience. So the kids were given some nets and buckets and 30 minutes to collect anything and everything from the pond that would fit in their nets and at the end of 30 minutes we took time out to review and talk about what they had collected. There was a large assortment of aquatic critters, which included a variety of minnows, aquatic insects, frogs, tadpoles, and freshwater mussels. At the end of the morning we talked about other types of animals that might live in a pond such a Gravel Pit Pond but were not collected. These explorers came up with some very good answers including, snails, turtles, and "blood suckers".

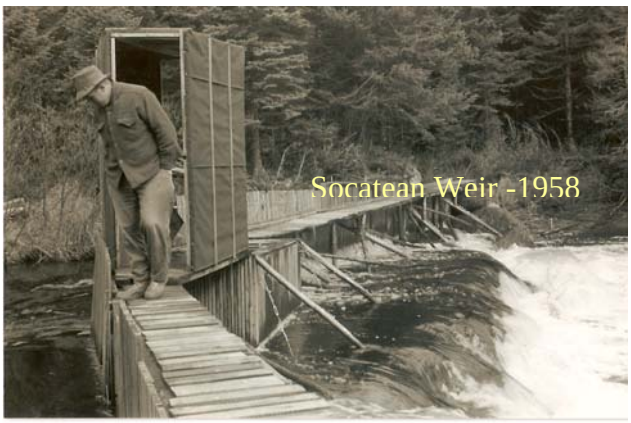
It was a pleasure meeting with this group of youngsters as they were full of energy and asked lots of good questions. Our hats off to the NREC and its staff for providing such a great opportunity for the young people in the Moosehead Region to enjoy and learn more about the outdoors.

On June 5th members of the Department of Inland Fisheries and Wildlife, the Dover-Foxcroft Kiwanis and volunteers held a Youth Fishing Day at the Kiwanis Park Pond in Dover-Foxcroft. Over 80 fourth grade students from the Morton Avenue Elementary School attended the one-day event. The class was broken into 4 groups of approximately 20 students. A short presentation was given to each group regarding the stocking of the pond and another one on the importance of "saying no" to drugs and alcohol". The students were then given the opportunity to fish for about an hour. Many of the students were successful in reeling in a trout or two, and a few were lucky or skilled enough to catch more. Before the fishing started each group was asked if there was anyone that had never fished before. Surprisingly several said this was their first time fishing. I'm happy to say that many of these kids caught their first fish. What a great feeling to see the expressions on some of the faces and the screams of "I've got one" as they felt the tug of a fish on the end of their line. There were plenty of plastic bags and ice on hand for any students wishing to keep their catch. The fish were cleaned and placed in a bag with ice and each students name was marked on it. At the end of the day the fish were taken back to the school and given back to the students where they got strict instructions from Mr. Ellis to not the open the bags on the bus!

There were lots of worms that made the ultimate sacrifice that day. A few trees were left with some souvenirs. The weather cooperated and the bugs were not bad either. Students seemed to really enjoy this event. A special thanks goes out to Jim Ellis for spear heading this outing, one that he hopes will become an annual event.

Looking ahead to 2008 in the Moosehead Lake Region

We will be refocusing much of our efforts on Moosehead Lake starting in 2008. We have implemented several changes recently, including liberalizing lake trout bag limits and altering the water level management in an effort to reduce the number of lake trout in the big lake and provide a better balance between forage and predators. We will be netting and tagging lake trout next year in hopes of gaining more insight into abundance, survival, and harvest.



We are also planning more work on the wild brook trout population in Maine's largest lake. We have learned a lot from recent work on Chamberlain Lake and we want to apply that to

Moosehead Lake. It has been 50 years since Roger Auclair conducted his landmark study on Socatean Stream and it's time to return to the site and evaluate the changes that have occurred since the late 1950's. We are in the planning stages for just such a study. This year we hope to evaluate several designs for steel weirs that could be used at Socatean Stream and possibly other sites in the future such as the Roach River and Moose River.

There is never a shortage of projects in this region, and with only 3 staff members it is impossible to get it all done. The Moosehead Lake Region has more water than some entire States. There are over 1,200 lakes and ponds as well as over 4,000 miles of flowing water in our region. Therefore, the Fisheries Staff from the Moosehead Lake Region has partnered with the Natural Resource Education Center (NREC) in Greenville (http://www.naturalresourceeducationcenter.org/) to create a new program that will provide a mechanism for college undergraduate students interested in the field of resource management to gain valuable hands-on field experience while making a positive contribution to the enhancement of fisheries management in the Moosehead Lake Region. This program will also allow biologists to conduct new, innovative fisheries research in the area, such as the Socatean Stream project.

The new internship program will bridge the gap between NREC's existing Maine Woods Explorer (K-12) program and the adult evening programs sponsored by the local non-profit educational organization; whose goals include providing high-quality on and off-site learning experiences, to be a research center for the area, to have highly engaged partners, and to sponsor programs that honor the area. The program will also help the IF&W meet its goal of effectively managing the fisheries resource.

Natural Resource Education Center
Greenville, Maine

Funding for the Fisheries Enhancement/Internship program will come from multiple sources including grants and donations. We hope to start the first project in 2008. The NREC has already received a grant from Maine Trout, an organization of anglers that fish in the Moosehead Lake Region, which will provide "seed" funds for a competition removal project. We hope to have two interns remove white suckers from a few selected trout ponds in an effort to improve the trout population and fishery. This work has been successful in other waters in the area. All fisheries projects will be designed to better understand and enhance fisheries and fishing opportunities in the Moosehead Lake Region.

By Fishery Division Personnel