

V. Monitoring and Evaluation

Monitoring and evaluation are needed to track progress in achieving the management goals and objectives for the units and the effectiveness of particular approaches to resource management. Monitoring and evaluation will be conducted on wildlife, ecological, timber, and recreational management efforts throughout the Eastern Interior Plan area.

Implementation of Plan Recommendations

The Bureau will develop, within two years of Plan adoption, an action plan for implementing and monitoring the management recommendations in this Plan. This will include an assignment of priorities and timeframes for accomplishment that will be utilized to determine work priorities and budgets on an annual basis. The Bureau will document annually its progress in implementing the recommendations, plans for the coming year, and adjustments to the priorities and timeframes as needed.

Recreation

Information on recreational use is helpful in allocating staff and monetary resources for management of the properties throughout the Plan area, and in determining the public's response to the opportunities being provided.

The Bureau will monitor public use to determine:

- (1) if improvements to existing facilities or additional facilities are needed and compatible with general objectives
- (2) if additional measures are needed to ensure that recreational users have a high quality experience (which could be affected by the numbers of users, and interactions among users with conflicting interests)
- (3) if use is adversely affecting sensitive natural resources or the ecology of the area
- (4) if measures are needed to address unforeseen safety issues
- (5) if changing recreational uses and demands present the need or opportunity for adjustments to existing facilities and management
- (6) if any changes are needed in the management of recreation in relation to other management objectives, including protection or enhancement of wildlife habitat and forest management.

Wildlife

The Bureau, through its Wildlife Biologist and Technician, routinely conduct a variety of species monitoring activities statewide. The following are monitoring activities that are ongoing or anticipated for the Eastern Interior Region:

- (1) The Bureau will cooperate with the Bureau of Sea Run Fisheries and Habitat and IF&W toward the preservation and enhancement of important fish species

- (2) The Bureau will conduct common loon counts as required by deed as part of the Machias River Phase II acquisition project
- (3) The Bureau will cooperate with IF&W in the monitoring of game species, including deer, moose, grouse, and black bear
- (4) The Bureau will identify and map significant wildlife habitat such as vernal pools and den trees in the process of developing its detailed forest management prescriptions. The boundaries of any sensitive natural communities will also be delineated on the ground at this time. Any significant natural areas or wildlife habitat will then be subject to appropriate protections.

Ecological Reserves

There are currently seventeen Ecological Reserves on Bureau lands throughout the state. Ecological Reserves are established “*for the purpose of maintaining one or more natural community types or native ecosystem types in a natural condition . . . and managed: A) as a benchmark against which biological and environmental change can be measured, B) to protect sufficient habitat for those species whose habitat needs are unlikely to be met on lands managed for other purposes; or, C) as a site for ongoing scientific research, long-term environmental monitoring, and education.*” (Title 12, Section 1801). The Maine Natural Areas Program (MNAP) is conducting long-term ecological monitoring within these Reserves.

There are three ecological reserves within the Plan area, all of which are located on the Duck Lake Unit forming one contiguous area. MNAP conducted natural resource inventories on these lands in 2005 as part of the management planning process. MNAP is also undertaking long term monitoring of ecological reserves to track changes within the reserves and to compare these areas to other areas under different management regimes. Baseline data for this purpose has been collected. These areas will be re-inventoried periodically to update this information.

Timber Management

The local work plans, called prescriptions, are prepared by professional foresters in accordance with Bureau policies specified in its *Integrated Resource Policy*, with input from other staff. These documents are then peer-reviewed prior to approval. Preparation and layout of all timber sales involve field staff looking at every acre to be treated. Trees to be harvested are often hand marked. Regional field staff provide regular on-site supervision of harvest activities, with senior staff visiting these sites on a less frequent basis. After the harvest is completed, roads, trails, and water crossings are discontinued as appropriate, although some management roads may remain open to vehicle travel. Changes in stand type resulting from the harvest are then recorded so that the Bureau’s GIS system can be updated.

The Bureau is currently developing a post-harvest monitoring plan to assist forest managers in assessing harvest outcomes on all managed lands. The monitoring plan will also address water quality and Best Management Practices (BMP’s) utilized during harvest activities.

Third party monitoring is done mainly through the forest certification programs of the Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI). Each program

conducts rigorous investigations of both planning and on-ground practices. An initial audit by both programs was completed in 2000, with certification awarded in 2002. A full re-audit of both programs was conducted in the fall of 2006 with certification granted in 2007. The Bureau is also subject to compliance audits during the 5-year certification period.

VI. Appendices

- A. Advisory Committee Members
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- D. Glossary
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- F. Survey Findings of Upper Unknown Pond (Department of Inland Fisheries and Wildlife)
- G. References
- H. MNAP Natural Resources Inventory (a separate report available from the Bureau on request)
- I. Timber and Renewable Resource Documents (available from the Bureau on request)
 - *Compartment Examination Manual*
 - *Prescription Manual and prescriptions for the Eastern Interior Region lands*
 - *Timber Sale Manual*
 - *Forest Inventory data*
 - *Forest Certification Reports from Sustainable Forestry Initiative, Forest Stewardship Council (March 2002 and 2007).*
 - *Maine Bureau of Parks and Lands Forest Certification Manual*
 - *Soil surveys*
 - *Forest Laws of Maine*
 - *Best Management Practices Manual*

Appendix A. Advisory Committee Members

Rich Bard, *Department of Inland Fisheries and Wildlife*
Mark Berry, *Downeast Lakes Land Trust*
Scott Cates, *Old Town*
Bill Cherry, *Machias and East Machias River Watershed Councils*
Diano Circo, *Natural Resources Council of Maine*
Richard Dill, *Department of Inland Fisheries and Wildlife*
Melissa Doane, *Bradley*
Norm Dube, *Department of Marine Resources*
Chip Grover, *Airline ATV Riders*
Kristen Hoffman, *Forest Society of Maine*
Eileen Lafland, *Maine Snowmobile Association*
Lorin LeCleire, *Alligator Outdoors*
Representative Benjamin Mariner Pratt, *House District #20*
Representative Everett McLeod, Sr. *House District #11*
Warren Miller, *Old Town*
Gordon Mott, *Sysladobsis Landowners*
Robert Murphy, *American Forest Management*
Bonnie Newsom, *Penobscot Indian Nation*
Nicatous Lodge and Camps
Bill Patterson, *The Nature Conservancy*
Jerry Poulin, *Wagner Forest Management*
Senator Kevin Raye, *Senate District #29*
Mike Ricci, *Maine Forest Service*
Pat Strauch, *Maine Forest Products Council*
Dave Tobey, *Grand Lakes Stream Guides Association*
Christopher Wilson, *Sweet Water Trust*

Appendix B. Summary of Management Recommendations

Duck Lake Unit Management Recommendations

Special Protection Management Recommendations

- Field staff will continue to identify and protect areas of ecological significance outside the Ecological Reserve. One such area is the seven acre mature sugar maple stand designated for protection by the Bureau in 1993.
- Primitive, non-groomed snowmobiling will be allowed on the existing Gassabias Portage Trail.
- Snowmobiling on the “Horseback Trail” in the Ecological Reserve will be discontinued. Signage explaining the non-motorized policy will be placed in appropriate places as determined by Bureau staff.

Wildlife Management Recommendations

- Loon counts on Third and Fourth Machias Lakes will be prioritized, per deeded requirements that were made part of the Machias Phase II acquisition.
- Maintain a component of early-successional softwood forest within the Unit to enhance habitat for Canada lynx and other species.
- Look for/expand opportunities to enhance mature softwood habitats for softwood dependent species, especially deer. When feasible, coordinate with surrounding landowners in the provision of deer habitat on a regional basis. Continue the Bureau semi permanent seeding program to compliment adjacent landowner’s wildlife food plots.
- The management goal for the 5,985-acre area between Gassabias Lake and Upper Unknown Lake portion allocated for wildlife is to increase the softwood stocking to maintain and expand use as deer wintering habitat, and to maintain a significant wildlife travel corridor between Fourth Machias Lake and the ownership boundary north of Upper Unknown Lake. Existing roads will be used in accomplishing wildlife management goals whenever possible.
- Continue implementation of the grouse habitat where sites conditions are favorable.
- Cooperate with IF&W in implementing an experimental brook trout fishery in Upper Unknown Pond for a three-year trial period. Stocking of yearling brook trout will occur in the fall.
- Continue to manage wetlands primarily through protective measures, but also include careful multi-age management of adjacent timber to encourage species diversity. Wood duck boxes will continue to be placed and maintained in appropriate areas.

Recreation and Visual Management Recommendations

- Primitive (non-groomed) snowmobiling from Fourth Machias Lake onto the “Horseback Trail” will be prohibited. Bureau staff will place signage explaining the non-motorized policy in appropriate locations and reserves the right to place barriers as necessary.
- Primitive, non-groomed snowmobiling across the historic portage trail between Gassabias and Fourth Machias Lakes (Gassabias Portage Trail) will be allowed to continue. Sledders are encouraged to connect to the Gassabias Portage Trail via the management roads to the north of Gassabias Lake rather than crossing the lake (though crossing Gassabias Lake is not prohibited).

- If an alternative to ITS 81 due to road plowing is needed in the future, the Bureau will seek to find an alternate route that avoids the ecological reserve and that utilizes trails or roads more suited to groomers. Staff will assess a new alternative to ITS 81 to be located in the Drag Brook Area, connecting into the existing Gassabias Road system. Any alternate trail will avoid the deer wintering area.
- The trail to Upper Unknown Pond will be managed for foot or snowmobile use.
- Safety, environmental, and ADA improvements will be made to the various primitive boat launching areas around the Unit as time and resources allow. The rustic nature of the facilities in the area will be considered when making improvements.
- Work with area residents and other interests in determining the suitability of providing a trailered boat access site on Nicatous Lake, to be located on the “fee connector” portion of the Unit. As an alternative, also evaluate improving the existing launch.
- Continue to monitor and develop strategies for managing popular public use areas on Duck Lake and the Unknowns.
- Because of the importance of motorized trail use in this area, continue to work with local ATV and snowmobile clubs and the Off-road Vehicle Division on an ongoing basis to address future connectivity or safety concerns.
- Develop a more formal trailhead off the Duck Lake Road near the Ecological Reserve on the northeast corner of Gassabias Lake for visitors to the Gassabias-Fourth Machias Lake Portage Trail old growth area.
- Explore the feasibility of managing the Ecological Reserve as a non-mechanized backcountry area and developing a hiking trail along the “Horseback Trail” at Fifth Lake Stream in conjunction with the trailhead to the Gassabias Portage Trail mentioned above.

Timber Management Recommendations

- Manage most of the well-stocked softwood acres to retain high spruce, hemlock, and pine components and a late-successional character, while producing high quality timber products and respecting viewsheds.
- Work to improve quality in the abundant acres of burn origin stands where quality is currently modest but the site allows for good growth.
- Encourage growth of pines, especially white pine, in both pine type stands and as significant components of softwood and mixedwood stands.
- Target mistletoe-infected spruce to the extent feasible given the above items.

Transportation and Administrative Management Recommendations

- The location of the evacuation sites will be put on Bureau maps and brochures.
- Continued communication between the Bureau and local snowmobile and ATV clubs is necessary to minimize conflicts on road use and for safety purposes.
- The Bureau will continue to communicate with its neighbor south of Gassabias Stream regarding the possible reinstatement of vehicular access from the south.
- The Bureau will decide which, if either, of the two Bureau camps on the Unit will be saved, and if so, how they will be maintained in an acceptable condition.
- Minimize road improvements and additions in the relatively un-roaded portion of the Unit to those deemed necessary to accomplish wildlife management goals. Use existing roads to accomplish management whenever possible.

- Place a barrier on the 42-08-0 Road where it crosses the ecological reserve boundary on the east side of Fifth Lake Stream to restrict motorized use.
- To enhance appearance and improve safety, no new log landings will be constructed on public access roads on the Nicatous portion of the Phase II Machias project.

Bradley Unit Management Recommendations

Special Protection Management Recommendations

- The Bureau will apply the standard 330 foot major riparian zone buffer around special protection areas (at the suggestion of MNAP).

Wildlife Management Recommendations

- Manage the timber in a way to retain all red oak as a hard mast food source.
- There will be very light cutting in cedar dominant areas.
- Retain shelter values of softwood stands that may support wintering deer.
- Apply IF&W management guidelines for areas containing Northern Leopard Frogs.

Recreation and Visual Management Recommendations

- Coordinate activities and development at the boat launch with IF&W and the Town of Bradley.
- Coordinate with local ATV and snowmobile clubs to provide interconnecting trails in appropriate places as needed.

Timber Management Recommendations

- Continue to manage for pine where feasible. Pre-commercial treatment may be necessary to keep some regeneration from being dominated by fir and hardwoods.
- Regenerate/salvage high risk black spruce stands in upland areas.
- Reduce fir component in young stands as they become operable.
- Work with abutting landowners (current and future) toward securing access for timber management.

Transportation and Administrative Management Recommendations

- Continue to work with the abutting landowners towards obtaining access rights for administrative, camplot lease, and general public use purposes.
- Work with Webber Heirs to resolve title issues on land and camplot lease north of Great Works Stream.
- As Bangor Hydro works toward purchase of their powerline corridor, look to secure the right to cross with new roads in any place legally permissible.

Machias River Unit Management Recommendations

Special Protection Management Recommendations

- Archeological sites will be left undisturbed according to guidance given in the IRP.

Wildlife Management Recommendations

- All wildlife management will be in cooperation with the BSRFH in order to address Atlantic salmon habitat needs.
- Monitoring and protection of loons is a priority.
- Management near known locations of bald eagle nests, the rare brook floater, pygmy snaketail dragonfly, and the wood turtle will be planned in consultation with IF&W species management guidelines.
- Protect some areas for winter deer use, in cooperation with other landowners when feasible.

Recreation and Visual Management Recommendations

- Manage the recreation along the river and lakes consistent with the general remote character and quality of the river itself.
- Work closely with Project SHARE and BSRFH in planning and implementing any facility improvements in the Unit.
- Improvements to boat launching sites will be further evaluated, particularly sites on Third Machias Lake, Salmon Pond, and the “wonderland” campsite.
- Work with area guides and other recreational interests towards a coordinated effort in providing information, general management needs, and facility improvements along the water course.
- Consider developing a non-motorized trail along the east side of the river, if there is sufficient interest and support for trail development, maintenance and stewardship.
- Work with area ATV interests and surrounding landowner toward establishing a trail connection from the river lands to the nearby regional ATV system.
- Consider any future proposals from the snowmobile community to re-locate snowmobile trails into the Unit. In evaluating potential trails, consider the resource allocations on the Unit, the IRP, and other management objectives on the Unit.

Timber Management Recommendations

- Manage the pine plantations with the goals of restoring the stands to a more natural condition and enhancing wildlife habitat.
- Work with MNAP and BSRFH before implementing any timber management.
- In general, manage for late-successional species.

Transportation and Administrative Recommendations

- Continue to work with Project SHARE on improvements to stream crossings.
- Evaluate all roads in the Unit comparing their benefits to Bureau management with their potential threat to salmon habitat. Discontinue or relocate unnecessary or particularly poorly designed roads.
- Continue to discuss the possibility of seasonal closure of 52-00-0 Road and other issues involving interactions between private and public roads with AFM. If seasonal closure of 52-00-0 Road is implemented, monitor the road to re-open as soon as feasible and encourage guides and the public to call the Bureau’s Old Town office to find out the status of the gates.
- Upgrade 43-00-0 Road to handle increased traffic due to surrounding landowner’s road closures.
- Maintain the Third Machias bridge for its current use for public access and timber transport.

Cary Plantation Lots

Management Recommendations

- Communicate with the Federal Border Patrol on management plans for these lots.
- Pursue acquiring legal access to the Lot.

Codyville Plantation Lots

Management Recommendations

- Continue to work toward a solution to the adverse claim on the West Lot.
- Pursue acquiring legal vehicular access to the Northeast Lot.

Great Pond Lots

Management Recommendations

- Communicate with the Town regarding its future interest in the Lot.
- Communicate with partners in the Lower Penobscot Forest Project regarding future planning for Project lands, and how these might interact with management of the Lot.
- Pursue acquiring legal access to the Lot.

Hardwood Island Lot

Management Recommendations

- Work with area sportsmen and recreational interests to address campsite maintenance needs on the island.

Lakeville Public Lots

Wildlife Management Recommendations

- Areas of late-successional character will be maintained as such and deer cover will be enhanced where feasible. No timber harvesting will be performed along the Weymouth Brook floodplain.

Recreation Management Recommendations

- Coordinate with the town of Lakeville in planning and management of trails and recreational facilities on the Keg Lake Lot, and send Lakeville town officials a copy of the 5-year reports issued to the Advisory Committee on the status of plan recommendations.
- Determine the suitability for a hand carry site on Keg Lake and a trailered boat launch on Duck Lake.
- Work with the area ATV club to deter illegal use of the Upper Dobsis Lot, or to establish trails as appropriate.

Transportation and Administrative Recommendations

- Pursue acquiring legal access to the Magoon Pond and Upper Dobsis Lots.

Macwahoc Lot

Management Recommendations

- Manage for deer winter cover in the Crossuntic Stream watershed.

Mattawamkeag Lands

Recreation Management Recommendations

- Monitor the recreational use on these parcels and manage for their remote character.
- Campsites will be built on Long Point and Big Island.
- Discuss with the landowner of the easement area possible locations for backcountry, non-motorized areas, as stipulated in the easement.

Reed Lots

Management Recommendations

- Consult with MNAP and/or IF&W if performing any harvesting near habitat of the rare or endangered species on the Northwest Lot.
- Pursue acquiring legal access to the lots.

Appendix C. Summary of Public Process and Response to Written Public Comments

**Summary of Public Process
Eastern Interior Management Plan**

Date	Action	Notification	Attendance
March 4, 2008	Public Scoping Session, Bangor	Legal Notices in Bangor Daily News and Kennebec Journal, Letter sent to interested parties	26 members of the public 9 DOC staff
May 8, 2008	Landowner Focus Group Meeting, Brewer	Letters sent to interested parties and landowners	14 landowners 6 DOC staff
October 15, 2008	Advisory Committee Meeting, Bangor	E-mail sent to Advisory Committee with link to first draft of Plan	14 Advisory Committee members and members of the public 10 DOC staff
November 14, 2008	Deadline for written public comments on first draft		7 written comments received
March 24, 2009	Public Meeting on Final Draft, Brewer	Legal notices in Kennebec Journal and Bangor Daily News and letters sent to interested parties and advisory committee members	Approximately 20 members of the public and 12 Bureau staff in attendance
April 21, 2009	Deadline for written public comments on final draft		5 written comments received

Written Public Comments “Comment and Response”

Summaries of and Responses to Written Comments on the First Draft and Final Draft of the Eastern Interior Management Plan (Does not include typographical, grammatical, or formatting comments that have been corrected where appropriate.)	
Comment	Response
Comments on Duck Lake Unit	
From: Christopher Wilson, Sweet Water Trust*	
• Plan should include discussion of enforcement	• The Bureau will discontinue snowmobile use

<p>of “no motorized” policy in deeded ecological reserve portion as well as other ecological reserve portions of Duck Lake Unit.</p>	<p>on the “horseback” trail, and place signage and barriers as staff deem appropriate. This will significantly deter snowmobile entry into the deeded ecological reserve. On the issue of potential unauthorized use, the Bureau has no enforcement authority, but will report violations as discovered to the Maine Warden Service or Maine Forest Service. See Duck Lake Unit portion of the Plan for a more complete discussion.</p>
<p>From: Christopher Wilson, Sweet Water Trust*</p>	
<ul style="list-style-type: none"> • A barrier should be placed on the 42-08-0 road where it crosses the eastern boundary of the deeded ecological reserve portion of the Duck Lake Unit to prevent unauthorized motorized use. 	<ul style="list-style-type: none"> • The Bureau will place boulder barriers here to discourage vehicular traffic.
<p>From: Christopher Wilson, Sweet Water Trust*</p>	
<ul style="list-style-type: none"> • Ecological inventories should be conducted on the deeded ecological reserve portion of the Duck Lake Unit prior to the development of any non-motorized trail along the “Horseback”. 	<ul style="list-style-type: none"> • Ecological inventories of the deeded ecological reserve will be conducted by MNAP in 2009 and no trail construction will occur prior to inventories.
<p>From: Diano Circo, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> • Expansion of the ecological reserve in the Duck Lake Unit should be considered when all management plans for public reserved lands are complete. 	<ul style="list-style-type: none"> • The Bureau, along with the Maine Natural Areas Program with the assistance of the Ecological Reserves Scientific Advisory Committee will consider new areas for ecological reserve designation after the completion of all the public reserved lands management plans. At that time, MNAP will have completed new or updated natural resource inventories on all lands, and expansion of the Duck Lake Unit Ecological Reserve will be considered along with all other areas determined to be of ecological significance.
<p>From: Diano Circo, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> • The Bureau should commit to build no additional roads in the area of the Duck Lake Unit that is relatively un-roaded. The Bureau should also commit to putting unnecessary roads to bed. 	<ul style="list-style-type: none"> • The majority of the relatively un-roaded area is proposed for wildlife allocation. This allocation was recommended due to documented historical wildlife use, two designated deer wintering areas, the predominant softwood type and its potential as a travel corridor and habitat for a broad suite of native species. The management goal for this area is to increase the softwood stocking

	<p>and to maintain a significant wildlife travel corridor between Fourth Machias Lake and the ownership boundary north of Upper Unknown Lake. Existing roads will be used in accomplishing wildlife management goals whenever possible. Operational necessity requires the Bureau to rebuild part of an existing road and realign an approximately 2,600 foot existing road segment to avoid erosion and sedimentation north and east of Lower Unknown Lake. There may be additional needs for road improvements or expansions, however, these are likely to be relatively minor and will not constitute a significant alteration to this relatively road-less area.</p>
<p>From: Diano Circo, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> The section of the Fifth Machias Lake to Fourth Machias Lake canoe route should be designated non-mechanized backcountry due to the legendary Machias River canoe trip. This area should be off-limits to motorized uses, including eliminating the primitive snowmobile use on the Gassabias Portage Trail and the “Horseback” Trail due to the Ecological Reserve status. The Bureau should do an analysis of the IRP to determine if these trails should be able to remain in the Ecological Reserve. An “alternate” ITS trail should not be put in ER. 	<ul style="list-style-type: none"> The Bureau performed an analysis of these trails and their conformance to the IRP. This included an additional site visit. A detailed discussion of this analysis can be found in the “Recreation Issues: Discussion” portion in the Duck Lake Unit section. The management recommendation resulting from this analysis is to allow primitive, un-groomed snowmobiling along the Gassabias Portage Trail, and to discontinue all other snowmobile use in the Ecological Reserve. Any alternate to the ITS trail will not be in the Ecological Reserve.
<p>From: Sally Stockwell, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> The area around Upper Unknown Lake and from Unknown Stream to Fifth Machias should be maintained as unroaded due to challenges roads present to wildlife and the rarity of relatively unroaded areas in Maine. 	<ul style="list-style-type: none"> See response to Diano Circo’s comment on unroaded area above.
<p>From: Karen Sprague, Grand Lake Snowmobile Club**</p>	
<ul style="list-style-type: none"> The GLSC supports continued snowmobile use of the Gassabias Portage Trail. 	<ul style="list-style-type: none"> Primitive, un-groomed snowmobiling will be allowed on the Gassabias Portage Trail.
<p>From: Mark Berry, Downeast Lakes Land Trust**</p>	
<ul style="list-style-type: none"> DLLT supports continuing historical snowmobile access on the Duck Lake Unit. 	<ul style="list-style-type: none"> The only change to snowmobile access on the Unit will be in limiting use in the Ecological Reserve to the Gassabias Portage Trail. Bureau staff performed many site visits, listened to input from all parties and performed an analysis based on Bureau guiding statutes and policies

	<p>in arriving at this decision. See “Recreation Issues: Discussion” in the Duck Lake Unit section of the plan for more information.</p>
<p>Comments on Machias River Lands Unit</p>	
<p>From: Diano Circo, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> • The Machias River Unit should be designated “non-mechanized backcountry” due to the Machias River’s importance for whitewater boating in a remote setting and because the “non-mechanized backcountry” allocation most closely fits this area compared to other recreation allocations in the IRP. 	<ul style="list-style-type: none"> • The Machias River Unit came into the Bureau’s ownership as part of a large scale conservation project involving many private and public agencies. The central goal of the Machias River project, which is still underway, is to protect the watershed of the country’s largest, self-sustaining wild Atlantic salmon run. This over-arching goal led the Bureau to the decision to allocate the entire Machias River Unit as wildlife dominant, as protection of the endangered Atlantic salmon is central to management of this Unit. In addition, a 250 foot buffer on both sides of the river is governed by a conservation easement held by the Bureau of Sea Run Fisheries and Habitat (BSRFH). The purpose of the easement includes Atlantic salmon habitat protection, and the Bureau must consult with BSRFH when performing management activity in this area. The Bureau has also entered into a Memorandum of Understanding with BSRFH (included as Appendix E in this plan) which provides that the Bureau manage recreation in consultation with them and put Atlantic salmon protection at the forefront of recreational decisions. The Bureau must have the option of wildlife management, which involves forest management to maintain a multi-age structure with at least 80% canopy closure while retaining features such as den trees, snags, coarse woody debris and legacy trees. Any forest management will be in consultation with BSRF and in compliance with easement terms and the over-arching goal of salmon protection.
<p>From: Diano Circo, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> • Existing roads should be allowed to remain, but there should be no expansion to motorized access. Roads should be evaluated and where possible, should be moved further from the River and traffic kept to a minimum to protect 	<ul style="list-style-type: none"> • All roads within the Unit will be evaluated, and their benefits to the Bureau’s management objectives will be compared to their potential threat to Atlantic salmon and loon habitat. Unnecessary or particularly poorly designed

<p>the quiet recreational experience and water quality.</p>	<p>roads may be discontinued or relocated. Decisions to relocate portions of roads will consider water quality impact of the road relocation effort. Motorized access will be required to accomplish stream habitat restoration goals.</p>
<p>From: Sally Stockwell, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> • Designate the Machias River Unit “non-mechanized backcountry”, which is most compatible with meeting BSRF goals for salmon recovery. Move roads back from the river where they are too close. 	<ul style="list-style-type: none"> • See above two responses to Diano Circo, Northern Forest Alliance.
<p>From: Diana McKenzie, Land Use Regulation Commission*</p>	
<ul style="list-style-type: none"> • If the Third Machias Lake boat launch is to be moved, it must be shown to LURC no alternative site is reasonably available, and the Bureau must include reasons why the current location of the boat launch is inappropriate, and why the proposed location is better. The prospective site must be researched for archeological resources prior to approval. 	<ul style="list-style-type: none"> • If the Bureau decides to move the boat launch on Third Machias Lake, it will provide evidence to LURC that the proposed location is more suitable, that no alternative site is reasonably available, and that archeological resources will not be harmed.
<p>From: Colin Beeson, American Forest Management*</p>	
<ul style="list-style-type: none"> • Bureau should install a gate at the south end of 52 00 0 road to be closed during mud season to keep vehicles from entering AFM roads which are closed during mud season. Maintain 52 00 0 road so it is safe for all vehicles, and upgrade 43 00 0 road to reduce use of AFM roads. Narrow the bridge at Third Machias Lake so only ATV traffic could cross. 	<ul style="list-style-type: none"> • The Bureau will consider installing gates to be closed during “mud season”, especially if it finds the traffic during this time to be causing water quality degradation and affecting Atlantic salmon. The Bureau will work to improve the 52 00 0 and 43 00 0 roads. Bureau staff will further these issues with AFM staff before decisions are made.
<p>From: Karl Stevens and Ryan Maker, Camp Owners within the Machias River Unit**</p>	
<ul style="list-style-type: none"> • If the 52 00 0 Road is closed seasonally, arrangements should be made for campowners to gain access to their camps. Campowners do not degrade the roads like the public does. Access for canoeing during the spring is also important. 	<ul style="list-style-type: none"> • The Bureau will reserve the option to close the road seasonally to protect Atlantic salmon habitat, cooperate with AFM to prevent use on their roads during mud season, and protect Bureau roads. Bureau staff cannot make the determination that campowners make less of an impact on the road than the public, as all travel during this season has the potential to degrade the road. Canoeists and other recreationists who want to plan trips and events for this time of year are encouraged to contact the Bureau’s Old Town office to find the most up-to-date information on access in the Unit. The Bureau will make an effort to close the road for as short

	<p>a time as possible, and will also be working to upgrade the roads so that seasonal closure may eventually become unnecessary.</p>
<p>Comments on Lakeville Lots (Keg Lake Lot)</p>	
<p>From: D. Gordon Mott, Forester*</p>	
<ul style="list-style-type: none"> • It should be recognized and stated that this lot is located centrally in the community next to municipally-owned land and that inevitably it will be an important multiple-use green space as the future community grows and develops. It will be very important to maintain management on behalf of all the citizens in the state on this parcel and, at the same time if possible, maintain some appropriate mechanisms to integrate closely on a continuing basis with the multiple-use interests of the local community. The history of local attempts to establish joint management mechanisms by BPL and Lakeville, including two separate initiatives through the years on the part of the Lakeville community to take responsibility for management, and a recent attempt to establish a viable local entity, have been less than successful. It is recommended that an important objective of management in this, and perhaps other similar communities and parcels, be an effort on the part of the Bureau of Public Lands to develop and establish a balanced, working, joint entity of some kind, to both enhance local involvement and to increase potential support for the Bureau program. 	<ul style="list-style-type: none"> • The Bureau appreciates that the community of Lakeville has a special interest in the management of the Keg Lake Lot due to its recreational values and adjacency to municipally owned lands. In general the Bureau works closely with adjacent landowners and interested municipalities in the management of its lands, for example coordinating its recreational trails systems with those on adjacent lands. The plan has been revised to include a recommendation that the Bureau coordinate with the town of Lakeville in planning and management of trails and recreational facilities on the Keg Lake Lot. • As explained in this Plan, in addition to this ongoing coordination, public input is sought on the overall management objectives for Bureau lands during the development of the 15-year management plans. An advisory committee is established as part of that planning process to review and comment on the draft plans. Following adoption of a final plan. Every five years, the Bureau will report to the advisory committee on the status of plan goals and recommendations. Because of the potential interest in Bureau activities on the Keg Lake Lot, the Bureau will also send this report to Lakeville town officials.
<p>From: D. Gordon Mott, Forester*</p>	
<ul style="list-style-type: none"> • Bureau should consider looking at Weymouth Brook and East Branch riparian areas for “old growth” designation. These riparian buffers should be extended to 300 feet and silvicultural prescriptions should encourage softwoods so beavers will be discouraged from damming Weymouth Brook. Along with the increased riparian buffers, a wider area should be protected for its rich wildlife values, especially the areas known by locals to contain a significant deer population. Only foot traffic should be allowed 	<ul style="list-style-type: none"> • The land along Weymouth Brook has a late-successional character in places especially where hemlock is most abundant, but does not meet the Bureau’s criteria for old-growth stands. However, the Bureau’s management under riparian guidelines and legacy/reserve tree policy will maintain or enhance the current late-successional character. The Bureau will designate a “no-cut” area on the distinct floodplain along the brook. This will be within the larger wildlife allocation.

in this area.	
From: D. Gordon Mott, Forester*	
<ul style="list-style-type: none"> • A trailered boat launch should be added to Duck Lake (though limiting boat/motor size recommended). A hand-carry boat launch should be added to Keg Lake, with the path doubling as access to the small sand beach. 	<ul style="list-style-type: none"> • Bureau staff visited the Keg Lake Lot to evaluate the potential for these boat launches. They determined that there is potential for both launches but a more detailed assessment of appropriate siting is needed. Bureau will continue to evaluate as funding allows.
Comments on Mattawamkeag Lands	
From: Debra O’Roak**	
<ul style="list-style-type: none"> • The Bible Point Trail should be kept open for all uses, especially snowmobiling. 	<ul style="list-style-type: none"> • Bible Point is owned in fee by the Bureau and managed as a State Historic Site. The lands surrounding Bible Point are owned privately, but subject to a conservation easement held by the Bureau. The conservation easement identifies vehicular, mountain bike and snowmobile access into a boat access site at the outlet of Mattawamkeag Lake, and a trail open to pedestrians, mountain bikes and snowmobiles continuing south to Bible Point. Snowmobile access to Bible Point is therefore secure in the easement terms. ATV access is left up to the Grantor’s discretion, therefore, ATV riders must seek permission from the Grantor before accessing Bible Point.
General Plan Area Comments	
From: D. Gordon Mott, Forester*	
<ul style="list-style-type: none"> • Advanced planning and management should be conducted to prepare for the on-coming spruce budworm epidemic. This should include information collection, economic preparations, advanced selection of pesticides, reducing fir composition and increasing mixedwood composition of the forest, and producing revenues to be used for pest protection. 	<ul style="list-style-type: none"> • The Bureau has been preparing for the spruce budworm’s return since the last outbreak. Most preparations have been silvicultural in nature, such as diversifying age structure of softwood stands, favoring spruce instead of fir where feasible, and harvesting fir at a relatively early age. This method follows the University of Maine’s Cooperative Forestry Research Unit’s findings for budworm planning on the southern portion of susceptible forest. The IRP directs the Bureau to use silvicultural strategies first, but if these fail and a major budworm outbreak occurs, use of biological methods will be second, followed by chemical methods if biological methods fail. If chemical means are deemed necessary, the choice of chemical will be made at that time.

From: Richard Bard, Department of Inland Fisheries and Wildlife*

- | | |
|--|---|
| <ul style="list-style-type: none">• Black Terns (state listed endangered species) have been documented southeast of Fourth Machias Lake and should be mentioned along with deer wintering areas southeast and west of Fourth Machias Lake. Consult with IF&W on timber management in DWA (either through regional offices or wildlife biologist assigned to Bureau). | <ul style="list-style-type: none">• The Black Terns and deer wintering areas will be noted in the plan. IF&W is consulted on timber and other types of management within deer wintering areas currently either through the wildlife biologist assigned to the Bureau or the regional offices (or both). |
|--|---|

* indicates written comments made on First Draft of the Plan

** indicates written comments made on Final Draft of the Plan

Appendix D. Glossary

“Age Class”: the biological age of a stand of timber; in single-aged stands, age classes are generally separated by 10-year intervals.

“ATV Trails”: designated trails of varying length with a variety of trail surfaces and grades, designed primarily for the use of all-terrain vehicles.

“All-Terrain Vehicles”: motor driven, off-road recreational vehicles capable of cross-country travel on land, snow, ice, marsh, swampland, or other natural terrain. For the purposes of this document an all-terrain vehicle includes a multi-track, multi-wheel or low pressure tire vehicle; a motorcycle or related 2-wheel vehicle; and 3- or 4-wheel or belt-driven vehicles. It does not include an automobile or motor truck; a snowmobile; an airmobile; a construction or logging vehicle used in performance of its common functions; a farm vehicle used for farming purposes; or a vehicle used exclusively for emergency, military, law enforcement, or fire control purposes (Title 12, Chapter 715, Section 7851.2).

“Bicycling/ Recreation Biking Trails”: designated trails of short to moderate length located on hard-packed or paved trail surfaces with slight to moderate grades, designed primarily for the use of groups or individuals seeking a more leisurely experience.

“Boat Access - Improved”: vehicle-accessible hard-surfaced launch sites with gravel or hard-surface parking areas. May also contain one or more picnic tables, an outhouse, and floats or docks.

“Boat Access - Unimproved”: vehicle-accessible launch sites with dirt or gravel ramps to the water and parking areas, and where no other facilities are normally provided.

“Campgrounds”: areas designed for transient occupancy by camping in tents, camp trailers, travel trailers, motor homes, or similar facilities or vehicles designed for temporary shelter. Developed campgrounds usually provide toilet buildings, drinking water, picnic tables, and fireplaces, and may provide disposal areas for RVs, showers, boat access to water, walking trails, and swimming opportunities.

“Carry-In Boat Access”: dirt or gravel launch sites accessible by foot over a short to moderate length trail, that generally accommodates the use of only small watercraft. Includes a trailhead with parking and a designated trail to the access site.

“Class I Rapid”: Easy. Fast moving water with riffles and small waves. Few obstructions, all obvious and easily missed with little training. Risk to swimmers is slight and self rescue is easy.

“Class II Rapid”: Novice. Straightforward rapids with wide, clear channels that are evident without scouting. Occasional maneuvering may be required, but rocks and medium-sized waves are easily missed by trained paddlers. Swimmers are seldom injured and group assistance, while helpful, is seldom needed.

“Class III Rapid”: Intermediate. Rapids with moderate, irregular waves that may be difficult to avoid and that can swamp an open canoe. Complex maneuvers in fast current and good boat control are often required; large waves or strainers may be present but are easily avoided. Strong eddies and powerful current effects can be found, particularly on large-volume rivers. Scouting is advisable for inexperienced parties. Injuries while swimming are rare; self-rescue is usually easy, but group assistance may be required to avoid long swims.

“Clear-cut”: an single-age harvesting method in which all trees or all merchantable trees are removed from a site in a single operation.

“Commercial Forest Land”: the portion of the landbase that is both available and capable of producing at least 20 cubic feet of wood or fiber per acre per year.

“Commercial Harvest”: any harvest from which forest products are sold. By contrast, in a pre-commercial harvest, no products are sold, and it is designed principally to improve stand quality and conditions.

“Community”: an assemblage of interacting plants and animals and their common environment, recurring across the landscape, in which the effects of recent human intervention are minimal (“Natural Landscapes Of Maine: A Classification Of Ecosystems and Natural Communities” Maine Natural Heritage Program. April, 1991).

“Cross-Country Ski Trails”: designated winter-use trails primarily available for the activity of cross-country skiing. Trails may be short to long for day or overnight use.

“Ecosystem Type”: a group of communities and their environment, occurring together over a particular portion of the landscape, and held together by some common physical or biotic feature. (“Natural Landscapes Of Maine: A Classification Of Ecosystems and Natural Communities.” Maine Natural Heritage Program, April, 1991).

“Folist Site”: areas where thick mats of organic matter overlay bedrock, commonly found at high elevations.

“Forest Certification”: A process in which a third party “independent” entity audits the policies and practices of a forest management organization against a set of standards or principles related to sustainable management. It may be limited to either land/forest management or product chain-of-custody, or may include both.

“Forest Condition (or condition of the forest)”: the state of the forest, including the age, size, height, species, and spatial arrangement of plants, and the functioning as an ecosystem of the combined plant and animal life of the forest.

“Forest Stewardship Council (FSC) Certification”: A third-party sustainable forestry certification program that was developed by the Forest Stewardship Council, an independent, non-profit, non-governmental organization founded in 1993. The FSC is comprised of representatives from environmental and conservation groups, the timber industry, the forestry

profession, indigenous peoples' organizations, community forestry groups, and forest product certification organizations from 25 countries. For information about FSC standards see http://www.fscus.org/standards_criteria/ and www.fsc.org.

“Forest Type”: a descriptive title for an area of forest growth based on similarities of species and size characteristics.

“Group Camping Areas”: vehicle or foot-accessible areas designated for overnight camping by large groups. These may include one or more outhouses, several fire rings or fire grills, a minimum of one water source, and several picnic tables.

“Horseback Ride/Pack Stock Trails”: generally moderate to long-distance trails designated for use by horses, other ride, or pack stock.

“Invasive Species”: generally nonnative species which invade native ecosystems and successfully compete with and displace native species due to the absence of natural controls. Examples are purple loosestrife and the zebra mussel.

“Late successional”: The condition in the natural progression of forest ecosystems where long-lived tree species dominate, large stems or trunks are common, and the rate of ecosystem change becomes much more gradual. Late successional forest are also mature forests that, because of their age and stand characteristics, harbor certain habitat not found elsewhere in the landscape.

“Log Landings”: areas, generally close to haul roads, where forest products may be hauled to and stored prior to being trucked to markets.

“Management Roads”: roads designed for timber management and/or administrative use that may be used by the public as long as they remain in service. Management roads may be closed in areas containing special resources, where there are issues of public safety or environmental protection.

“Mature Tree”: a tree which has reached the age at which its height growth has significantly slowed or ceased, though its diameter growth may still be substantial. When its annual growth no longer exceeds its internal decay and/or crown loss (net growth is negative), the tree is over-mature.

“Motorized”: a mode of travel across the landbase which utilizes internal combustion or electric powered conveyances; which in itself constitutes a recreational activity, or facilitates participation in a recreational activity.

“Mountain Bike Trails”: designated trails generally located on rough trail surfaces with moderate to steep grades, designed primarily for the use of mountain bicycles with all-terrain tires by individuals seeking a challenging experience.

“Multi-aged Management”: management which is designed to retain two or more age classes and canopy layers at all times. Its harvest methods imitate natural disturbance regimes which

cause partial stand replacement (shelterwood with reserves) or small gap disturbances (selection).

“Natural Resource Values”: described in Maine’s Natural Resource Protection Act to include coastal sand dunes, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, great ponds and rivers, streams, and brooks. For the purposes of this plan they also include unique or unusual plant communities.

“Non-motorized”: a mode of travel across the landbase which does not utilize internal combustion, or electric powered conveyances; which in itself constitutes a recreational activity, or facilitates participation in a recreational activity.

“Non-native (Exotic)”: a species that enters or is deliberately introduced into an ecosystem beyond its historic range, except through natural expansion, including organisms transferred from other countries into the state, unnaturally occurring hybrids, cultivars, genetically altered or engineered species or strains, or species or subspecies with nonnative genetic lineage.

“Old Growth Stand”: a stand in which the majority of the main crown canopy consists of long-lived or late successional species usually 150 to 200 years old or older, often with characteristics such as large snags, large downed woody material, and multiple age classes, and in which evidence of human-caused disturbance is absent or old and faint.

“Old Growth Tree”: for the purposes of this document, a tree which is in the latter stages of maturity or is over-mature.

“Pesticide”: a chemical agent or substance employed to kill or suppress pests (such as insects, weeds, fungi, rodents, nematodes, or other organism) or intended for use as a plant regulator, defoliant, or desiccant. (from LURC Regulations, Ch. 10)

“Primitive Campsites”: campsites that are rustic in nature, have one outhouse, and may include tent pads, Adirondack-type shelters, and rustic picnic tables. Campsites may be accessed by vehicle, foot, or water.

“Public Road or Roadway”: any roadway which is owned, leased, or otherwise operated by a government body or public entity. (from LURC Regulations, Ch. 10)

“Public Use Roads”: all-weather gravel or paved roads designed for two-way travel to facilitate both public and administrative access to recreation facilities. Includes parking facilities provided for the public. Management will include roadside aesthetic values normally associated with travel influenced zones.

“Recreation Values”: the values associated with participation in outdoor recreation activities.

“Regeneration”: both the process of establishing new growth and the new growth itself, occurring naturally through seeding or sprouting, and artificially by planting seeds or seedlings.

“Regulated Acres”: On Bureau lands, regulated acreage is the portion of the commercial forest landbase on which the sustainable harvest will be calculated at or near maximum sustainable levels.

“Remote Ponds”: As defined by the Maine Land Use Regulation Commission: ponds having no existing road access by two-wheel drive motor vehicles during summer months within ½ mile of the normal high water mark of the body of water with no more than one noncommercial remote camp and its accessory structures within ½ mile of the normal high water mark of the body of water, that support cold water game fisheries.

“Riparian”: an area of land or water that includes stream channels, lakes, floodplains and wetlands, and their adjacent upland ecosystems.

“Salvage”: a harvest operation designed to remove dead and dying timber in order to remove whatever value the stand may have before it becomes unmerchantable.

“Selection”: related to multi-aged management, the cutting of individual or small groups of trees; generally limited in area to patches of one acre or less.

“Service Roads”: summer or winter roads located to provide access to Bureau-owned lodging, maintenance structures, and utilities. Some service roads will be gated or plugged to prevent public access for safety, security, and other management objectives.

“Silviculture”: the branch of forestry which deals with the application of forest management principles to achieve specific objectives with respect to the production of forest products and services.

“Single-aged Management”: management which is designed to manage single age, single canopy layer stands. Its harvest methods imitate natural disturbance regimes which result in full stand replacement. A simple two-step (seed cut/removal cut) shelterwood is an example of a single-aged system.

“Snowmobile Trails”: designated winter-use trails of varying length located on a groomed trail surfaces with flat to moderate grades, designed primarily for the use of snowmobiles.

“Stand”: a group of trees, the characteristics of which are sufficiently alike to allow uniform classification.

“Succession/ successional”: progressive changes in species composition and forest community structure caused by natural processes over time.

“Sustainable Forestry/ Harvest”: that level of timber harvesting, expressed as treated acres and/or volume removals, which can be conducted on a perpetual basis while providing for non-forest values. Ideally this harvest level would be “even-flow,” that is, the same quantity each year. In practice, the current condition of the different properties under Bureau timber

management, and the ever-changing situation in markets, will dictate a somewhat cyclical harvest which will approach even-flow only over time periods of a decade or more.

“Sustainable Forestry Initiative (SFI)”: A third party sustainable forestry certification program that was developed in 1994 by the American Forest and Paper Association, which defines its program as “a comprehensive system of principles, objectives and performance measures that integrates the perpetual growing and harvesting of trees with the protection of wildlife, plants, soil and water quality.” To review SFI standards see http://www.afandpa.org/Content/NavigationMenu/Environment_and_Recycling/SFI/The_SFI_Standard/The_SFI_Standard.htm.

Appendix E. Memorandum of Understanding between Bureau of Parks and Lands and Atlantic Salmon Commission

MEMORANDUM OF UNDERSTANDING BETWEEN THE MAINE ATLANTIC SALMON COMMISSION AND THE MAINE BUREAU OF PARKS AND LAND

This Memorandum of Understanding (hereinafter referred to as the "MOU") is made and entered into by and between the Maine Atlantic Salmon Commission (herein referred to as the "ASC") and the Maine Bureau of Parks and Lands (hereinafter referred to as "BPL") for the purpose of establishing the arrangement whereby the ASC monitors the conservation easement that it holds and the BPL monitors the fee property it owns. The BPL and the ASC will keep the Maine Chapter of the Nature Conservancy (hereinafter referred to as "TNC") informed as to changes with this MOU and use of the endowment fund. The total property is 24,846 acres of land (18,443 acre easement and 6,403 acre fee land) in the Machias River Corridor.

WHEREAS, a Conservation Easement Deed has been made and entered into on approximately 18,443 acres, including the Machias River corridor and key tributaries;

WHEREAS, the State of Maine through the ASC has the responsibility of monitoring and enforcing the terms of that easement, and for managing salmon habitat in the Machias River and its tributaries;

WHEREAS, the State of Maine through the BPL has purchased approximately 6,403 acres of land in the Machias River Corridor.

WHEREAS, the State of Maine through the BPL has responsibility for monitoring and enforcing the laws and regulations of the State on said land, and managing recreational use on both the fee and easement lands;

WHEREAS, the State of Maine through the BPL has management responsibilities regarding pedestrian and water recreation on the fee and easement lands;

NOW, THEREFORE the ASC and the BPL in consideration of the above agree to the following:

A. Maine Atlantic Salmon Commission Agrees to:

1. Develop and maintain an easement-monitoring plan for the property utilizing the easement baseline documentation report developed by the BPL.
2. Hire a reputable firm to monitor the easement according to state protocol, including maps, aerial photos, establishment of permanent photo points, documentation of conservation values to be protected, as outlined in the easement, and location of existing roads, buildings and recreational facilities. This will involve maintaining six or more copies of the baseline documentation report at the following locations: one copy with ASC, one copy with BPL, one copy with landowner(s), one copy with the firm to be hired, and one copy with the Maine State Planning Office which will reside in a fireproof file.
3. Monitor the terms of the conservation easement on the property according to the monitoring plan.
4. Coordinate and facilitate annual meetings with the landowner and the monitoring firm/agent to ensure that activities on the property are consistent with the terms of the easement.
5. Maintain a file at ASC's office of all correspondence, reports, and meeting notes regarding the monitoring of the Machias River easement.

6. Maintain regular communications with the landowner and the BPL aimed at achieving the goals of the easement and keeping parties informed regarding issues, concerns, and potential problems.
7. Respond to reports of potential easement violations and communicate findings to landowner(s) as appropriate to ensure compliance and enforcement of the easement.

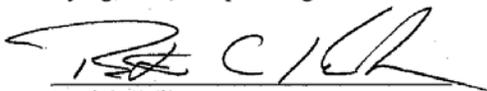
B. The Bureau of Parks and Lands Agrees to:

1. In recognition of the BPL's recreational management responsibilities, develop a recreational management plan to provide for low impact, traditional-use recreation within the corridor.
2. Contact the ASC prior to the construction or reconstruction of campsites to ensure that these activities will not adversely affect salmon habitat.
3. Maintain all campsites to ensure that erosion is minimized
4. Consult with ASC prior to any timber harvesting on fee lands. Harvesting objectives shall meet or exceed harvest plans set forth in the easement.
5. Consult with the ASC prior to building or reconstructing roads and bridges within fee area to ensure said roads and/or bridges do not impact salmon habitat and natural springs.

C. BPL and ASC Mutually Agree-That:

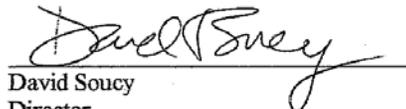
1. This MOU is intended to be in perpetuity and shall begin on the date of signing.
2. Both parties can amend this MOU upon written agreement after consultation with TNC.
3. The Maine Community Foundation will manage the endowment fund in compliance with the Designated Endowment Fund Agreement between The Nature Conservancy and Maine Community Foundation (attached).
4. Annual distributions from the endowment fund will be shared on an equal basis unless the BPL and the ASC mutually agree to a different distribution within a given year. In all cases, ASC will receive funds sufficient to monitor and enforce the easement terms as a first priority for distributions from the fund.
5. Endowment distributions that are not used within a given year shall be re-invested in the endowment.
6. Endowment fund principle shall only be used if unforeseen circumstances dictate said use, the ASC and BPL are in agreement to its use, and TNC has been informed of the reasons and concurs with said use.

By signature, both parties agree to the terms of this Memorandum of Understanding:



Patrick Keliher
Executive Director
Maine Atlantic Salmon Commission

Date 4/28/04



David Soucy
Director
Bureau of Parks and Land

Date 5/06/04

Appendix F. IF&W Survey Findings of Upper Unknown Lake

Upper Unknown Lake Fishery Management

By

Richard Dill

**Maine Department of Inland Fisheries and Wildlife – Division of Fisheries
and Hatcheries**

September 3, 2008

Upper Unknown Lake Fishery Management

Introduction

Upper Unknown Lake is a shallow, humic, eutrophic lake located in T4 ND in Hancock County, Maine. The lake supports principal fisheries for warm water fish species including chain pickerel (*Esox niger*) and yellow perch (*Perca flavescens*). Upper Unknown Lake was noted in the 1988 Department of Conservation Bureau of Public Lands: Duck Lake Unit Management Plan as a candidate for chemical reclamation to provide a marginal brook trout fishery to be sustained by hatchery stocked fish. However, the Maine Inland Fisheries and Wildlife (MIFW) management recommendation put forth following the initial lake survey in 1980 was that the pond should be managed for warm water fish species. In 2008, the Bureau of Public Lands (BPL) will be updating the Management Plan for the Duck Lake Unit, and at the request of the Grand Lake Stream Guides Association is revisiting the reclamation proposal for the pond included in the 1988 Plan. At the request of BPL, MIFW fisheries staff from Region F in Enfield resurveyed the pond in July of 2008 to reassess the current species composition and relative abundance of fish inhabiting the lake, as well as to conduct a water quality profile of the lake.

Study Area

Upper Unknown Lake has a surface area of 58 acres and a mean and maximum depth of 7.75 and 14 feet, respectively. The lake is surrounded with a mixed growth forest, except for the inlet area, which flows through a bog. The shoreline varies from sandy to rocky coves on the south side, mainly marsh on the west side, and mud and rock bottom over the rest of the lake including the outlet cove. In addition to chain pickerel and yellow perch, other fish species inhabiting the lake include brown bullhead (*Ictalurus nebulosus*), white sucker (*Catostomus commersoni*), pumpkinseed (*Lepomis gibbosus*) and golden shiner (*Notemigonus crysoleucas*).

The lake can be accessed from three different directions: from the west over dirt roads originating near the town of Burlington and traversing around the north side of Nicaous Lake; from the north off Route 6 in Springfield on the Bottle Lake Road and then the Depot Road; and from the east from the town of Grand Lake Stream along the Fourth Lake Machias Road. BPL provides a small parking area approximately 100 feet south of the camping area between Middle and Lower Unknown Lakes. The foot trail into Upper Unknown Lake is approximately ½ mile in length, with a footbridge crossing over the outlet of the Pond. The outlet from Upper Unknown Lake flows about 1/3 of a mile directly into Middle Unknown Lake. Other than ephemeral beaver dams at the outlet of Upper Unknown and just before the stream confluence to Middle Unknown, there are no other natural barriers in the stream that would prevent upstream passage of fish from Middle to Upper Unknown.

Methods

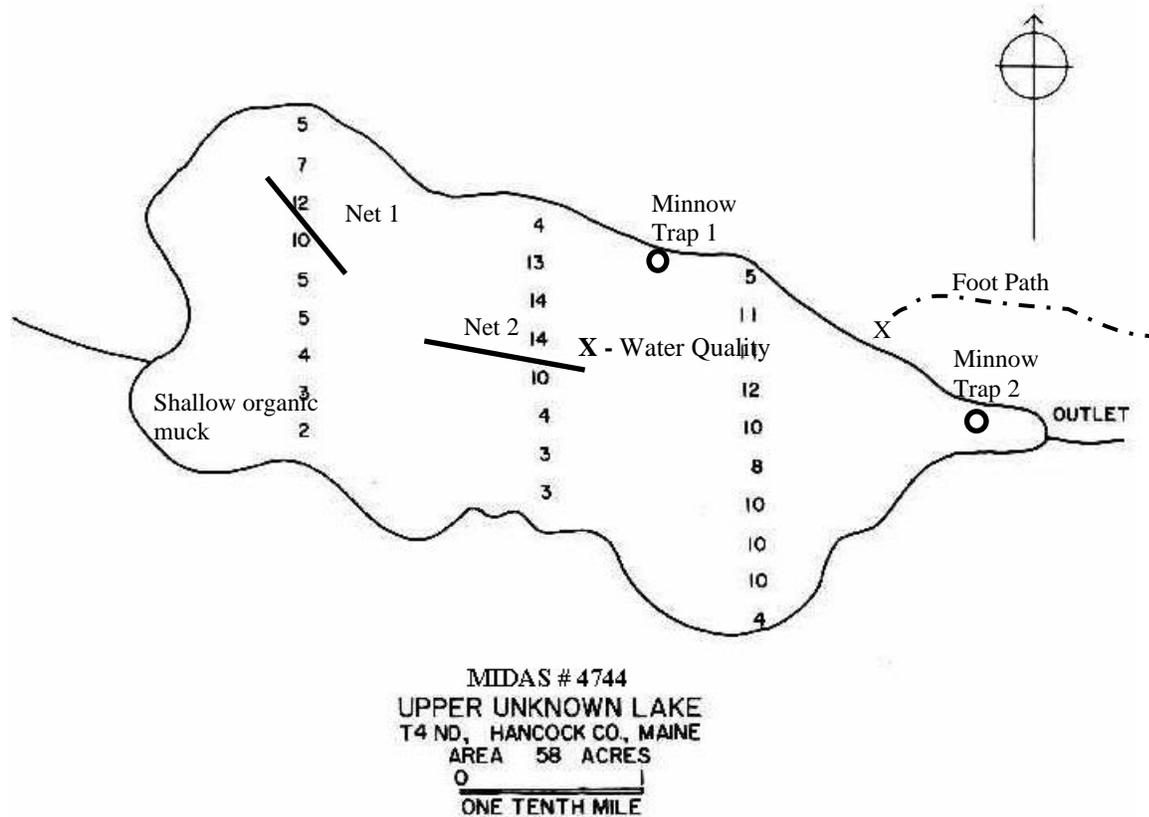
Water Quality

Water temperature (°C) and dissolved oxygen (ppm) data were collected at the surface of the lake and then at one foot intervals to the bottom at the deepest area of the lake using a Yellow Springs Instrument (YSI) Model 55 dissolved oxygen meter. Total alkalinity, pH, and specific conductivity measurements were taken at the surface and from a depth of 12 feet using a standard Kemmerer sampling bottle. Water color, relative turbidity level, and Secchi disk depths were recorded as well.

Fish Sampling

Two 200-foot green, multi-size mesh gill nets were set for approximately 22 hours each to collect a sample of fish across all size classes from the lake. Net 1 was set in the North West cove of the lake from 6 to 10 feet deep. Net 2 was set in the middle of the lake from west to east running from 10 to 12.5 feet deep. Two minnow traps, one near the outlet and one several hundred yards to the west of the camp site were baited with bread and fished approximately 21 hours each (Figure 1).

Figure 1: A map of Upper Unknown Lake showing depths, and locations for gill net and minnow trap set locations and water quality sampling for the 2008 survey conducted by MIFW.



Summary of Findings

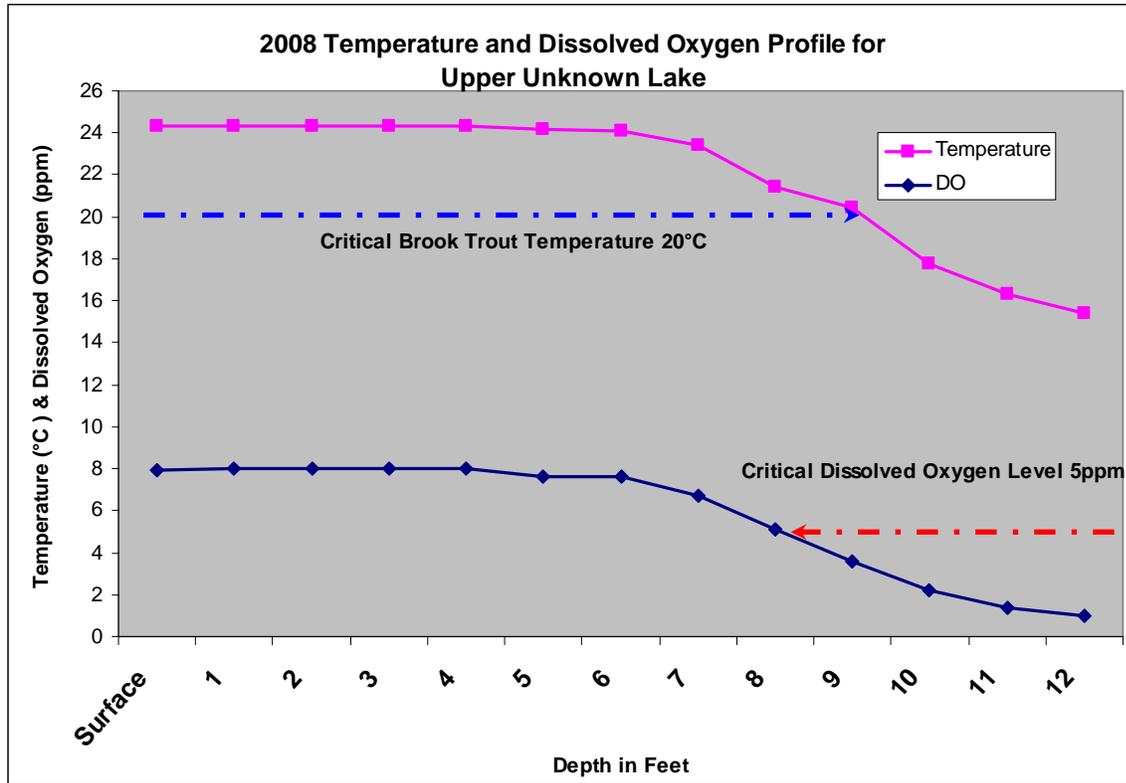
Water quality

Critical water temperature for summer holdover of brook trout is approximately 20°C (68°F) (Bonney 2001). While trout are tolerant of short term exposures (hours to days) to warmer

temperatures, cold water refugia is necessary for long term growth and survival. The water temperature of Upper Unknown Lake ranged from 24.3°C (76°F) at the surface to 15.4°C (60°C) near bottom, similar to what was observed in 1980 (26°C and 14°C, respectively). Water temperature began to stratify at 8 feet, and by 10 feet was 6.5°C cooler than the surface (Figure 2).

The critical dissolved oxygen threshold for brook trout is approximately 5.0 parts per million (ppm) (Bonney 2001). Trout occasionally occupy areas with lower oxygen levels, but usually for only short periods of time, for example while feeding. Dissolved oxygen was 7.9 ppm at the surface, but began to drop steadily at a depth of 6 feet. By 8 feet deep the oxygen level was 5.1 ppm; it then dropped to 3.6 ppm at 9 feet, and was 1.0 ppm at a depth of 12 feet (Figure 2).

Figure 2: Temperature and dissolved oxygen profile for Upper Unknown Lake located in Hancock County, Maine, July 28, 2008.



The surface pH of the pond was 6.1, while the pH at 12 feet was 5.3. Total alkalinity was 1 or less at both the surface and at 12 feet, and specific conductance was 21µS at the surface and 24µS near bottom. Watercolor was light brown, turbidity was moderate, and the Secchi disk reading was 8.3 feet and not on bottom.

Fish Sample

A total of 41 fish were collected in the two overnight gill net sets, thirty-four in Net 1 and seven in Net 2. The catch was predominately yellow perch (34), followed by chain pickerel (6), and one white sucker. Brown bullheads were captured in the 1980 survey; however we did not capture any in our netting efforts this year.

Yellow perch ranged in length from 110mm to 290mm (4 to 11.5 inches) and pickerel from 420mm to 510mm (16.5 to 20 inches), however a larger pickerel estimated to be at least two feet long was observed escaping from Net 1. The lone sucker was 590mm long. In addition to fish, a large snapping turtle with an estimated carapace diameter of over 2 feet was entangled in one of the nets. The turtle was not fully entangled, and we were able to release the turtle alive and uninjured.

The two minnow trap sets captured only three fish, one golden shiner and two pumpkinseed sunfish.

Conclusion / Recommendations

Reclamation

Chemical reclamation can be an effective tool for fisheries managers when trying to reestablish or create a principal fishery. However, reclaiming a pond is costly and labor intensive, therefore its' preferred use in Maine is in waters with a high likelihood success of producing a good quality fishery that is somehow degraded or threatened because of introductions of undesirable, non-native, or invasive species of fish. Chemical reclamation is also used at times to protect unique fish populations or ecosystems.

The July 2008 temperature and dissolved oxygen profile for Upper Unknown Lake is similar to that observed in 1980, with very low dissolved oxygen levels across the entire zone of cold water (below 8 feet) important for summer hold over of brook trout. The lack of dissolved oxygen during the summer months below 8 feet will likely result in low brook trout survival and at best, marginal growth for those few that may persist in the lake. We might assume that if the warm water species of fish were removed from the lake that the overall biological oxygen demand on the lake would be decreased, however it's the disproportionately high rates of community respiration (primarily microbial activity breaking down organic matter) that is affecting the dissolved oxygen levels, not the fish.

The low surface and bottom pH of Upper Unknown is likely due to natural organic acids, as evidenced by the brown color of the water. Organic acids are produced from the breakdown of organic matter in the pond. Brook trout are known to be very tolerant of low pH, with adults able to survive in chronic pH conditions as low as 5.0. It is unlikely that low pH would have an adverse affect on a brook trout population in Upper Unknown, wild or stocked.

An inspection of the outlet stream from Upper Unknown Lake discovered no natural barriers that would prevent undesirable fish species from moving back up into the lake post reclamation (i.e. upstream dispersal from Middle Unknown Lake). The recommendation in the 1998 Duck Lake Unit Management Plan was for the construction of a barrier dam at the outlet of the lake to keep undesirable species out, and in order to do this a road will have to be built to dam site location. The cost of the chemical (rotenone) used to reclaim the pond, road construction, and dam construction would be significant, and likely not justified given the low probability of success of creating a year around cold water fishery for brook trout.

Other Coldwater Fishery Options

Another option for Upper Unknown Lake is a seasonal coldwater fishery, in which fish are stocked at a catchable size with a goal of the majority being harvested each year by the time summer quality becomes an issue. Hatchery fall yearling brook trout, which range in size from 10 to 16 inches, would provide opportunities for late season fall open water fishing, ice fishing, and spring open water fishing. The pond would not need to be reclaimed to produce a seasonal fishery, in fact the pickerel and yellow perch would likely provide for some fast action, especially during the winter ice fishing season with the bonus of an occasional brook trout mixed in. Because it is small, Upper Unknown Lake likely freezes earlier in the year than some of the larger surrounding water bodies (e.g. Duck Lake, Nictous Lake, West Lake, Sysladobsis, and West Grand) and would provide an early season alternative. It's likely that as winter progresses, use will be low, especially in years with a lot of snow but the hold over trout will be still available for early spring fishing. Finally, yet another option for the pond would be to stock fall yearling splake. Splake are known to be a bit hardier than brook trout, and a less discriminate forager, more likely to take advantage of young of year yellow perch.

Recommendations

- 1.) The proposal to reclaim Upper Unknown Lake in order to create a put-grow-and take brook trout fishery should not be included in the Bureau of Public Lands - 2008 Management Plan for the Duck Lake Unit for the reasons explained above.
- 2.) Continue to manage the lake as a warm water lake, with principal fisheries for chain pickerel and yellow perch.
- 3.) Explore stocking fall yearling brook trout or splake to create a seasonal fishery for brook trout or splake.
- 4.) Stock fall yearlings at a rate 5 per acre or higher to produce high catch rates, thus generating angler interest.
- 5.) Solicit public input to gauge the support for a seasonal coldwater fishery at Upper Unknown Lake.
- 6.) Consult with BPL concerning a seasonal cold water fishery at Upper Unknown Lake, does it fit with BPL management objectives for the Duck Lake Unit, specifically Upper Unknown Lake.

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