

STATE OF MAINE
LAND USE PLANNING COMMISSION

Irving's Proposed Fish River Chain of Lakes
Concept Plan in Northern Aroostook County,
Maine; Zoning Petition 768

WITNESS LIST
NATURAL RESOURCES COUNCIL OF MAINE

NRCM's list of witnesses regarding the proposed Fish River Chain of Lakes Concept Plan is as follows:

Witness list:

1. **Catherine B. Johnson**, B.A., College of the Atlantic, J.D., University of Maine School of Law, Forests and Wildlife Project Director at the Natural Resources Council of Maine, 28 years' experience reviewing, commenting on, and testifying on applications to LUPC (formerly LURC), the Bureau of Parks and Lands, and the Maine Forest Service. Will testify on all issues included in written testimony dated May 2, 2018.

Respectfully submitted on behalf of the Natural Resources Council of Maine, May 2, 2018,


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**STATE OF MAINE
LAND USE PLANNING COMMISSION**

**In the Matter of Zoning Petition, ZP 768
Irving's Proposed Fish River Chain of Lake Concept Plan in Northern Aroostook County,
Maine**

Pre-filed Testimony of Catherine B. Johnson, Natural Resources Council of Maine

Submitted on behalf of the Natural Resources Council of Maine

May 2, 2018

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1. Overview and Summary

Irving's request to rezone 51,015 acres in the Fish River Chain of Lakes region presents Maine's Land Use Planning Commission (LUPC) with one of its most significant permitting challenges in years. It is no easy task to evaluate and reach a decision on the second largest development proposal in Maine history – one that could substantially transform the character of an entire region of the state.

The Natural Resources Council of Maine (NRCM) recognizes portions of the proposed concept plan are in areas that have substantial amounts of development and that there is a strong interest on the part of many leaseholders on Irving's lands in having the ability to purchase the leased lots on which their camps sit. We also appreciate the strong connection that local residents – and people from throughout Maine and beyond – have with the landscape and natural resources of this area.

The Fish River Chain of Lakes region is treasured both for the lakes where Mainers have had seasonal camps for generations and for the lakes that have unspoiled lakeshores, vast stretches of wildlife habitat, beautiful scenery, and primitive recreation opportunities. Some additional development on Long and Cross Lakes could be compatible with the natural landscape and heritage of the region. However, residential and resort development on the undeveloped shores of Square and Cross Lakes would forever change the natural, unspoiled aspect of the Fish River region. And once those undeveloped areas are gone, they are gone forever.

The Commission must determine whether the applicant has met the burden of proof that the proposed rezoning meets LUPC's statutory and regulatory review criteria and the policies of the Comprehensive Land Use Plan (CLUP). The most fundamental questions the

Commission must decide are whether the proposal will protect the principal values that define the jurisdiction's distinctive character and whether there is a publicly beneficial balance between development and conservation above and beyond that which would exist under the existing zoning framework.

After review of Irving's proposal, NRCM concludes that the project fails to meet the legal requirements. We cannot support the application as proposed. Specifically, we conclude the following:

A. **Irving's proposed development on Square Lake and Cross Lake E would cause permanent harm to the character and natural resources of the region.**

Square Lake and the southern end of Cross Lake are largely undeveloped. They currently provide a crucial balance to the extensively developed Long Lake and northern portion of Cross Lake, and provide a diversity of lake experiences throughout the Fish River Chain. Square Lake and the southern end of Cross Lake provide opportunities for residents of and visitors to the region to experience solitude, natural beauty, wildlife sightings, and paddling, fishing, and camping opportunities in a primitive setting not otherwise found on the more developed portions of Cross and Long Lakes. The existing character would be lost with the amount and location of development proposed for Square Lake and the southern end of Cross Lake. The significant increases in boating use projected by Irving are just one example of how the character of the region will be substantially changed for the worse.

B. **The proposed amount and location of permanent conservation is insufficient to achieve a publicly beneficial balance with the development proposed, to**

provide comparable conservation, and to avoid or mitigate adverse impacts to natural, scenic, and recreational resources. Of the 51,015-acre concept plan, Irving is proposing to permanently protect through easement only 14,778 acres. This constitutes only 29 percent of the concept plan area. By comparison, the Moosehead Region Concept Plan protected 95.56 percent of the plan area in a permanent conservation easement. And of the proposed 14,778 acres, approximately 38 percent is in LUPC protection zones that likely would not have permitted development in any event. In addition, no added protection is proposed for crucially important tributaries and aquatic habitat in the 30-year zone that are so important to the water quality and health of the fisheries in all four lakes included in the concept plan area.

- C. **The conservation easement lacks clear enforceable provisions, and other provisions and vague concept plan commitments do not ensure that the conservation objectives of the easement or of the plan as a whole will be achieved.** The easement includes no specific goals for the forest management plan to ensure that the conservation values of the easement will be protected. For the 30-year area, the plan proposes to rely on the non-transparent “outcome-based forestry” program, which is a time-limited, voluntary program that would not bind any buyer to whom Irving might sell the land and which does not guarantee that natural resource values on the land are protected.

The Commission and Maine people have only one chance to get this development right. Irving has indicated that they may sell portions of the land included in the concept plan after approval. This makes it even more imperative that all commitments and conservation

expectations incorporated in the plan are fully applicable to and enforceable in relation to future owners. The people of Maine will live with the decisions made in this rezoning process forever. Irving has made some limited changes in its amendments, but the application before the Commission still proposes development in inappropriate locations that would cause irreversible harm to the character and special qualities of the Fish River Chain of Lakes region, violating LUPC's overriding purpose of protecting the principal values of the jurisdiction. For these reasons, we oppose the Irving plan as currently proposed and urge that it be denied.

2. Qualifications of witness

The Natural Resources Council of Maine (NRCM) is a nonprofit environmental advocacy organization protecting, restoring, and conserving Maine's environment, for today and for generations to come. NRCM was established in 1959. We work to improve the quality of Maine's rivers, reduce poisonous chemicals threatening human and wildlife health, decrease air and global warming pollution, and conserve Maine lands. Using law and science, NRCM represents the voices of 20,000 supporters statewide and beyond.

NRCM has participated in multiple legislative debates regarding LUPC's (previously LURC's) governing statutes and in numerous rule making, policy development, rezoning, and permitting proceedings before the Commission.

I have worked for the Natural Resources Council of Maine as its North Woods Project Director (now called Forests and Wildlife Project) for 28 years. In that capacity, I have participated in numerous legislative debates regarding LUPC's governing statutes, and in policy development, rulemaking, rezoning, and permitting proceedings before LUPC, the Maine Forest Service, the Bureau of Parks and Lands, the Maine Natural Areas Program, and

the Land for Maine's Future program. I participated in the development of LMF's model conservation easement and I have reviewed the conservation easements for a large number of North Woods conservation easement projects, including the Pingree, West Branch, Katahdin Forest, and Down East projects.

I directed NRCM's extensive involvement in Plum Creek's proposed concept plan for the Moosehead region, reviewed multiple revisions of that plan and the proposed conservation easement over five years, and was NRCM's principal witness in that proceeding.

I was also the Growth Management Project Director for NRCM for four years. In that capacity, I participated in numerous legislative debates, and rulemaking and policy development proceedings involving the State of Maine's Growth Management Program. I evaluated draft comprehensive land use plans submitted by dozens of Maine towns to the State of Maine for certification. I authored portions and oversaw the publication by NRCM of several handbooks for use by towns involved in growth management planning including *Sprawl Stoppers*, *Working Landscapes*, and a periodical entitled *Growth Management News*, addressing then current growth management issues.

I am also the Senior Staff Attorney for NRCM, advising the organization on a variety of legal issues.

I received my bachelor's degree in human ecology from the College of the Atlantic and my law degree from the University of Maine. Prior to working for NRCM, I was a trial attorney in Damariscotta, handling a wide variety of civil and criminal cases, including real estate disputes, timber trespass cases, and contract disputes.

Before becoming a lawyer, I worked for the U.S. Forest Service as a forestry technician in the field, laying out forested areas to be pre-commercially thinned or sprayed with herbicides. I also planted trees for a private timber company.

I am an avid hiker, canoeist, camper, and cross-country skier. I have spent my entire adult life hiking, canoeing, and back country skiing Maine's mountains, forests, rivers, and lakes.

3. The amount and location of development on Square Lake and at Cross Lake E will irreparably harm the principal values of the jurisdiction and should be eliminated.

The Land Use Planning Commission (hereafter, LUPC or the Commission) "has identified four principal values that define the jurisdiction's distinctive character: The economic value of the jurisdiction derived from working forests and farmlands...Diverse and abundant recreational opportunities... [including] recreational activities which require or are significantly enhanced by large stretches of undeveloped land ... Diverse, abundant and unique high-value natural resources and features ... Natural character values, which include the uniqueness of a vast forested area that is largely undeveloped and remote from population centers."¹ "Remoteness and the relative absence of development are perhaps the most distinctive of the jurisdiction's principal values, due mainly to their increasing rarity in the Northeastern United States."²

The laws governing LUPC state that no land may be rezoned unless there is substantial evidence that the proposed rezoning would have "no undue adverse impact on existing uses or resources."³ As indicated below, the proposed rezoning would have a wide variety of undue adverse impacts on a variety of natural resources and existing uses.

¹ CLUP, p. 2

² CLUP, p. 2

³ 12 MRS 685-A (8-A)(B)

Square Lake is the most undeveloped of all the lakes in the Fish River Chain of Lakes. Unlike the other lakes, it has extensive undeveloped shorelines and back lands. Cross Lake has significant development in its northern half, but, like Square Lake, includes extensive undeveloped shorelines in its southern end. Square Lake and Cross Lake E are inappropriate locations for the development proposed.

A. Square Lake West proposed development should be eliminated and the area added to the permanent conservation easement

The 30 lots proposed for Square Lake West are located just east of the Eagle Lake Public Reserved Land Unit. The Eagle Lake Unit, as well as the smaller public land unit on Square Lake, are designated and managed for remote recreation.⁴ The Bureau of Parks and Lands' (BPL) Northern Aroostook Management Plan describes the area as "semi-remote."⁵ The water access sites in the eastern part of Eagle Lake are "regularly used throughout the summer season."⁶ "Regular use of most water-access campsites suggests demand for this type of experience."⁷ Demand for that type of experience is likely to grow if Irving's proposed concept plan is approved. Allowing additional development units on the doorstep of the Public Reserved Lands would degrade the semi-remote character of those lands.

Road access to Square Lake West I also raises multiple problems. The proposed access road to Square Lake West would be approximately 18 miles long, of which 2-3 miles would go across public lands. It is completely inappropriate and potentially a violation of Article IX, Section 23 of the Maine Constitution, for our Public Reserved

⁴ BPL's Northern Aroostook Management Plan, p. 53

⁵ BPL's Northern Aroostook Management Plan, p. 47

⁶ BPL's Northern Aroostook Management Plan, p. 47

⁷ BPL's Northern Aroostook Management Plan, p. 48

Lands to be effectively privatized as a private subdivision access road. In addition, this proposed road would cross the Goddard Brook deer wintering area.

Further emphasizing the inappropriately remote location of this proposed development and acknowledging the lack of fire, safety, and emergency services, the proposed easement would authorize the construction of fire, safety, and emergency structures within the proposed permanently protected easement, thus decreasing the conservation value of the easement.

The access problems caused by the inappropriately distant location of Square Lake West are further extended by the proposal to allow the construction of a parking lot and boat landing in Square Lake West to accommodate those home owners who may want to access their lots by water. This additional development further degrades the undeveloped character of Square Lake.

There currently exist 19 camps on leased lots north of Square Lake West. Located on leased lots and distant from public services, these camps have a much lower impact on the character of the lake than would the proposed 30 new lots. The 30 new lots would be on owned lots, and, with structures providing fire, safety, and emergency services, a boat ramp, a parking lot, and road access are more likely to be year-round homes with greater impacts on water and wildlife resources resulting from more regular occupancy, more impervious surfaces from larger dwellings, accessory buildings and driveways, domestic pets, and lawns. Thirty new lots in the middle of this block of undeveloped land would adversely impact habitat for those bird and wildlife species that need large blocks of undeveloped lands.

NRCM strongly recommends that the Square Lake West development area be eliminated from the plan and that the land included in Square Lake West be added to the permanently protected easement.

B. Square Lake E/Yerxas proposed development should be eliminated and the area added to the permanent conservation easement

The applicant notes that Yerxas was a traditional, relatively low impact sporting camp in the past.⁸ A 1915 advertisement for Square Lake Camps describes them as: “12 cabins with open fires, 14 outing camps for hunters.”⁹ NRCM would potentially support the creation of a similar size and type of development in that location. Recent examples of the modernization of traditional sporting camps in a manner more consistent with historical use of the lakes on which they are situated are Little Lyford Camps and the Gorman Chairback Camps.

However, the current proposal for a full-scale resort with the option of unlimited commercial development, including convenience stores, retail shops, gas station, restaurants, tennis courts, and a 50-slip marina on Square Lake will have a variety of adverse impacts on natural resources and on the undeveloped character of the south end of Square Lake, the most undeveloped and natural section of lakes in the entire plan area and in the entire region. In addition to the 50 slips for mooring, the marina would allow “boat and related sales and rentals, indoor and outdoor storage of boats and marine equipment, bait and tackle shops, boat repair, and marine fuel and other service facilities.” The scale and uses proposed for this marina might be appropriate on Long Lake but are completely inappropriate for Square Lake. The adverse impacts

⁸ Volume 1, Question 12, p. 6

⁹ Donald A. Wilson, *Maine Lodges and Sporting Camps*, 2005, p. 22

are further increased by the proposal to allow an additional 85 residential lots, including shorefront lots, in Square Lake E.

The applicant repeatedly stresses the “hub and spokes” analogy to justify a major development at Yexas. However, their own analogy falls short when looking at the current configuration of development in the region. Currently the commercial development hubs in the region are the villages of Sinclair and Guerette. Both are located on public roads and provide commercial and public services to seasonal and year-round residents of the region as well as to visitors to the region. The concept plan appropriately provides for the opportunity for the expansion of these types of uses in Sinclair and Guerette with the proposed general development zones in those areas.

From Sinclair and Guerette, the so-called “spokes” of proposed residential development span out to Cross and Long Lakes. At the far ends of those spokes should be the least-developed areas protecting the beauty, undeveloped shorelines, opportunities for recreation, and natural resources that draw residents and visitors to the region: Square Lake, the south end of Cross Lake, and the undeveloped beach at the south end of Long Lake. Maintaining these undeveloped areas at the ends of the “spokes” is crucial for maintaining a diversity of lake experiences.

Instead, the plan proposes to create a major new commercial hub at Yexas, converting it to a developed area similar to Long and Cross Lakes, thereby destroying the region’s ability to provide a diversity of lake experiences.

Creating a new commercial hub at Yexas also threatens the long-term prosperity of the existing villages of Sinclair and Guerette. While these communities currently

provide some commercial and public services, like many very small communities in rural Maine, they could use more, not less, commercial activity. Siphoning off future commercial activity to a new hub at Yexas, instead of encouraging it in Sinclair and Guerette, could potentially adversely affect these communities.

One of the most valuable of the natural resources in the concept plan area is the fisheries, particularly brook trout fisheries. In a 2006 report, the Eastern Brook Trout Joint Venture, a group of state and federal fisheries managers and scientists from Maine to Georgia, assessed the status of and threats to native brook trout populations.¹⁰ Key findings include that intact populations of brook trout exist in only five percent of the watersheds where they were originally found; that “the vast majority of historically occupied large rivers no longer support self-reproducing populations of brook trout;” and that intact populations of brook trout in lakes and ponds “are almost exclusively located in Maine.”¹¹ Maine’s brook trout resources were assessed as “the last true stronghold for brook trout in the Eastern United States.”¹² Maine contains more than 96 percent of all remaining lake and pond populations of native brook trout.

The Fish River watershed is exceptional even within Maine, containing both a large-river-resident population of wild brook trout in the Fish River and its tributaries (upstream of Fish River Falls), and multiple large lakes that support intact populations of wild brook trout. All of the lakes within the proposed Concept Plan support wild brook. Long Lake, Cross Lake, and Square Lake all support brook trout

¹⁰ Eastern Brook Trout Joint Venture (2006). Eastern Brook Trout: Status and Threats, p. 2

¹¹ Eastern Brook Trout Joint Venture (2006). Eastern Brook Trout: Status and Threats, p. 32

¹² Eastern Brook Trout Joint Venture (2006). Eastern Brook Trout: Status and Threats, p. 32

fisheries and landlocked salmon fisheries of “statewide significance.”^{13 14 15} Mud Lake is shallower and habitat is not as favorable for brook trout, but brook trout move through Mud Lake seasonally.

Surveys of Maine licensed anglers indicate that brook trout is the most frequent and the most preferred target for anglers in both open water and ice fishing seasons, and surveyed anglers preferred wild trout over hatchery trout.¹⁶ When asked about factors they considered when planning fishing trips in Maine, the top-rated factor for anglers was “that the area offers solitude and pristine views of nature.” This was ranked even higher than “the water body offers the type of fishing I prefer.” Seventy-nine percent of anglers agreed that “viewsapes are an important factor when fishing ponds in remote areas of Maine.”¹⁷

BPL’s Northern Aroostook Management Plan describes Square Lake: “Square Lake, the largest in the Fish River chain of lakes, provides ideal habitat for landlocked salmon and brook trout, and has suitable spawning areas for each species. In particular, the lake's inlet from Cross Lake and its outlet (the Thorofare) provide primary spawning and nursery areas.”¹⁸

The Department of Inland Fisheries and Wildlife (IF&W) has identified Square Lake as having the most potential of all the concept plan lakes for brook trout habitat

¹³ Maine Lake Survey, Long Lake, Maine Department of Inland Fisheries and Wildlife.

https://www.maine.gov/ifw/docs/lake-survey-maps/aroostook/long_lake_t17_r4.pdf

¹⁴ Maine Lake Survey, Cross Lake, Maine Department of Inland Fisheries and Wildlife.

https://www.maine.gov/ifw/docs/lake-survey-maps/aroostook/cross_lake.pdf

¹⁵ Maine Lake Survey, Square Lake, Maine Department of Inland Fisheries and Wildlife.

https://www.maine.gov/ifw/docs/lake-survey-maps/aroostook/square_lake.pdf

¹⁶ Responsive Management (2016). Maine Anglers Participation in and Opinions on Freshwater Fishing, Pages 15, 17, 128, 130.

¹⁷ Responsive Management (2016). Maine Anglers Participation in and Opinions on Freshwater Fishing, p. 213

¹⁸ BPL’s Northern Aroostook Management Plan, p.47

protection (although there are important tributaries on the other lakes which also merit protection, see below, section 5(D).)¹⁹

Among the Fish River Lakes in the concept plan area, today only Square Lake offers the combination of a remote, largely undeveloped lake and high-quality fisheries for wild brook trout and landlocked salmon. Long Lake is very developed and surrounded by farm land, and the fishery relies on stocked salmon; Mud Lake does not offer a high-quality wild brook trout or salmon fishery; Cross Lake and Eagle Lake are already largely developed.

Located between Cross Lake and Eagle Lake, Square Lake has a remarkably different character. Cross and Eagle are both served by developed boat launches relatively close to the communities of Eagle Lake (Eagle Lake) and Guerette (Cross Lake). Both Cross and Eagle have long stretches of shoreline with existing recreational and camp development and sections of shoreline that are paralleled by state highways. Located between them, Square Lake is remote, surrounded by unorganized townships under LUPC jurisdiction, and primarily accessible only by boating through the thoroughfares that connect it to Cross Lake and Eagle Lake. The only existing boat launch on Square Lake is a remote site on the northeast shore accessible over unimproved, private gravel roads. No public roads provide access to the shoreline. Square Lake has relatively little camp development, and what it has is clustered in two relatively small areas. This leaves long stretches of completely undeveloped shoreline.

The combination of a large, largely undeveloped lake, remote access by boat via the two thoroughfares, and an exceptionally high-quality fishery for wild brook trout

¹⁹ Based on discussion with local anglers and MDIFW regional staff.

provides an experience not available elsewhere in the Fish River Lakes region, and similar to far more remote parts of Maine like the Allagash Wilderness Waterway. Square Lake provides a sharp contrast to the more developed lakes that surround it. This remote, scenic character is highly desired by Maine anglers, who cite “areas that offer solitude” and “pristine views of nature” as the top factor influencing their decision about where to go fishing—above even the quality of the fishery.²⁰

Under the proposed concept plan, this remote character would be destroyed by the addition of more than 130 new development units, including a full-scale resort, a new public boat launch, a 50-unit marina, and unlimited commercial development. In addition, increased traffic from the new development proposed for Cross and Long Lakes can be anticipated. In addition to the harm to the fishery from both the impacts of lakefront development and increased angler exploitation, the character of Square Lake would change irrevocably. As a region, the Fish River Lakes would become more homogeneous, with all the lakes in the chain having a moderate to high level of development. The existing diversity among—and contrast between—the other developed lakes and undeveloped Square Lake would be lost. Users seeking a remote, undeveloped experience with “solitude and pristine views of nature” would need to seek it elsewhere in Maine; it would be lost in the region covered by the concept plan.

One hundred and thirty development units on Square Lake along with a new publicly available boat launch, an additional 200 new lots elsewhere in the plan area, and the conversion of 425 existing seasonal lots to year-round dwellings would greatly increase the amount of boat traffic on Square Lake. NRCM shares the Bureau of Parks and Lands’ (BPL) skepticism about the applicability of the Recreation

²⁰Responsive Management (2016). Maine Anglers Participation in and Opinions on Freshwater Fishing, p. 213

Opportunity Spectrum (ROS) and the Water Recreation Opportunity Spectrum (WROS.) We agree that those evaluation systems are “heavily influenced by the parts of the country where the relative scarcity of lakes and ponds (e.g. western US vs. Maine) tips the scale a bit towards greater acceptability of boating numbers.”²¹ One of the principal attributes that distinguishes the LUPC jurisdiction from other parts of Maine and the country is the opportunity for a solitary experience on a lake.

In contrast to the abstract, hypothetical assumptions about current boating use on Square Lake, NRCM’s understanding from those who use Square Lake is that the maximum number of boaters on the busiest weekend on Square Lake would be six to eight boats and that the average number of boaters during a normal, non-holiday week would be in the single digits. This much lower number also suggests that rather than characterize the lake as “Rural Natural” or “Rural Developed,” it would more accurately be characterized as “Primitive” or “Semi-Primitive.” Certainly that is how those who use the lake characterize it.

The concept plan projects future use at 67 boats/day and suggests that that would be within acceptable levels. However, that increase would be 8 – 50 times the current number, an increase NRCM believes would totally and adversely change the currently undeveloped, natural character of Square Lake.

Access to Square Lake East/Yexas is also problematic. Access would be along approximately five miles of logging roads. Having the relatively small number of vehicles that might be associated with a much smaller traditional sporting camp could be compatible with ongoing timber hauling operations, but the number of personal vehicles that would be associated with the creation of a major resort, extensive

²¹ BPL Comments, Oct. 31, 2017, p. 2

marina, and residential subdivision containing 130 lots would dramatically increase the likelihood of conflicts and safety issues with the forest products industry.

For all of the above reasons (and others mentioned below), NRCM strongly recommends that the development on the eastern shore of Square Lake be eliminated and the area be included in the permanent conservation easement. If the size is substantially reduced, a recreational facility similar to a Level B recreational facility as defined in LUPC rules 10.27(Q)(1) (the equivalent of 50 dwelling units) could be appropriate for this location. Similar type facilities have been successfully developed on former sporting camp sites at Little Lyford Pond and Gorman Chairback. This is the scale of development distant from public paved roads and other similar development that could be compatible with the principal values of the jurisdiction.

C. Cross Lake E proposed development should be eliminated

Cross Lake E raises many of the same issues that the Square Lake developments raise. The southern end of Cross Lake, south of the existing boat launch, is undeveloped. It provides important scenic vistas, wildlife habitat, and opportunities for recreation in a natural, undeveloped setting not otherwise found on Cross Lake.

The proposed development of up to 60 lots at Cross Lake E would totally change the character of the area. The area identified for development is a prominent hillside visible from much of Cross Lake. As the Fish River Lakes Leaseholders Association noted: “60 additional dwelling units with roads, clearing, and lights, will put a huge scar on the very scenic hill at the remote Cross Lake E location.”²² Even with the best hillside development standards, development on those slopes adjacent to the lake will completely alter the character of the southern part of the lake, significantly decreasing

²² Fish River Leaseholders, Dec. 11, 2017, p. 8

the opportunity for a diversity of recreational experiences on Cross Lake. It would transform the area from a semi-primitive character to a more developed character.

Cross Lake E also would fragment a large block of undeveloped shoreline on Cross Lake. Minnow Brook, which flows through or immediately north of the Cross Lake E development area, has been identified as meriting special protection for brook trout (see section 5 (D) below). Run-off from residential development and access roads to reach that development would likely drain into Minnow Brook and adversely impact the brook trout.

NRCM also notes that local residents in the Sandy Point & Connection Roads Owners Association have indicated that Cross Lake already has water quality problems due to existing development and land management activities.²³ We are aware that the Department of Environmental Protection (DEP) conducted considerable analysis of the likely water quality effects of the proposed development combined with unregulated land management activities and potential future development on Cross Lake. They concluded that Cross Lake would fail to meet the phosphorus standards.²⁴ They further noted that to achieve the standards without applying sophisticated BMPs, the number of lots on Cross Lake would need to be reduced.²⁵

Irving has made some limited revisions and on the basis of that, their witness now states that “there is a reasonable likelihood that water quality within the Cross Lake watershed will be maintained.”²⁶ [emphasis added.] Given the existing water quality

²³ Sandy Point & Connection Roads Owners Association, Dec. 28, 2017, p. 2-5

²⁴ DEP Comments, Dec. 7, 2017, p. 1.

²⁵ DEP Comments, Dec. 7, 2017, p. 13

²⁶ Stantec memo, April 9, 2018, p. 1

problems in Cross Lake and the relatively low level of confidence (“reasonable likelihood”) that Irving’s witness has that the water quality in the lake will be maintained (when it currently needs to be improved) if the concept plan is approved, NRCM believes that the number of lots on Cross Lake should be decreased by eliminating Cross Lake E development in order to ensure that the water quality of the lake is protected and improved for the long term.

To maintain the undeveloped character and protect the scenic beauty of the southern part of Cross Lake, to maintain the opportunity for recreation in a primitive setting, to protect wildlife and brook trout habitat, and to ensure the long-term protection and improvement of the water quality of Cross Lake, NRCM recommends that the Cross Lake E development area be eliminated.

- 4. The amount and location of permanent conservation areas should be increased in order to achieve a publicly beneficial balance with the development proposed, to provide comparable conservation, and to avoid or mitigate adverse impacts to natural, scenic, and recreational resources.**

Three separate regulatory requirements trigger a need for conservation measures in the concept plan:

- Publicly beneficial balance – A concept plan must provide “a reasonable and publicly beneficial balance between appropriate development and long-term conservation of lake resources;”²⁷
- Comparable conservation -- If a waiver of the adjacency principle is requested, comparable conservation is required to ensure that the plan “is at least as protective of the natural environment as the subdistricts it replaces;”²⁸ and

²⁷ LUPC Chapter 10, Section 10.23 (H)(6)(f)

- Mitigation – If the plan has adverse impacts that cannot be avoided or minimized, those impacts must be mitigated or off-set with other conservation measures.²⁹

The plan proposes to create 330 new house lots, including a resort on Square Lake with the option of unlimited commercial development, convenience stores, retail shops, gas station, restaurants, tennis courts, and a 50-slip marina that would also include extensive addition development and commercial activity. The plan also proposes 43 new general development lots for community, economic, or industrial uses. In addition, the plan proposes to sell 425 leased lots, allowing them to be converted over time from seasonal to year-round dwellings. This constitutes the second largest development proposal in Maine history.

To balance and compensate for all this development, the applicant proposes a conservation easement on 14,778 acres. This constitutes only 29 percent of the concept plan area. By comparison, the Moosehead Region Concept Plan, the most recent concept plan approved by the Commission and the only other concept plan in LUPC history to propose this level of development, protected 95.56 percent of the plan area in a permanent conservation easement. Twenty-nine percent is insufficient to meet the regulatory requirements and inconsistent with past practice.

In addition to the insufficiency of the amount of land in the conservation easement, the types of lands proposed for easement are inadequate. Conservation easements designed to meet the three regulatory criteria listed above should include two types of land: 1) those lands that have particular ecological value, and 2) lands where development rights exist under current zoning and are being relinquished.

The proposed easement fails on both criteria.

²⁸ LUPC Chapter 10, Section 10.23 (H)(6)(d)

²⁹ 12 MRS §685-A(8-A)(B)

Regarding ecologically important areas, it is baffling why the Cross Lake Bog was removed from the easement area in the amended application. It is one of the most ecologically significant features in the plan area and should be protected. Given that the parcel likely has little value for either development or forest management, including it in the easement would seem obvious.

Another ecologically important area is the stream complex north of the proposed easement in Cross Lake Township from the town line with New Canada east to Rt. 161. This area includes a great deal of land identified by IF&W³⁰ as inland wading bird and waterfowl habitat. As described below, protection for aquatic habitat (particularly for brook trout) and riparian corridors in the entire concept plan area is currently inadequate.

Other ecologically important areas currently not proposed for permanent protection include mature forest areas and those areas identified by the applicant as unique natural areas.³¹ As the Maine Natural Areas Program (MNAP) noted, mature forest is the habitat least likely to be protected on the proposed concept plan landscape.³² NRCM agrees with MNAP's recommendation that some areas "of mature forest within the concept plan area at a scale that is meaningful for wildlife habitat"³³ be protected. While the amended application notes that there are currently 2500 acres of late successional forests within the plan area, the proposal is to maintain "Ten percent of each of the 5 major stand types of concern." It is unclear from the information provided how much acreage this would include, whether those parcels are a meaningful size for wildlife, and whether these late successional stands will be permanently

³⁰ Concept Plan, Map 20

³¹ Concept Plan, Map 19

³² MNAP Comments, Feb. 20, 2018, p. 5

³³ MNAP Comments, Feb. 20, 2018, p. 5

protected. As is the case for MNAP, we lack sufficient information to know if the unique natural areas identified by Irving would meet this need, but it is possible.

An additional important consideration when considering the configuration of conservation land for this concept plan is the need for regional connectivity of conservation lands. Conservation lands that are isolated islands provide less conservation benefit than those that are connected by natural forest lands. Regional connectivity is a particular challenge in this region of the state because of both dispersed current and potentially future development and the existence of extensive agricultural lands. Conservation planners have identified areas within the concept plan as a high priority for ensuring regional habitat connectivity. See area 3 on map attached as Exhibit 1. In order to ensure that the conservation lands provide as much regional connectivity as possible, we recommend additional conservation east of Rt. 161, north of Cross Lake connecting the stream complex mentioned above with the Cross Lake Bog. Likewise, to avoid fragmentation of habitat providing regional connectivity by future development along Rt. 161 south of Guerette and east of Cross Lake D in the north end of Madawaska Township, we encourage the inclusion of a corridor of permanent conservation along the road.

As mentioned above, in addition to protecting ecologically important areas, it is important that the permanently protected lands include significant areas that are at risk of development under current zoning in order to ensure that there is a net public benefit when considering the significant amount of development proposed, and that any proposed mitigation actually provides additional public benefit.

As both IF&W and MNAP noted in their comments,³⁴ a large proportion of the lands proposed for permanent conservation are already provided a significant measure of protection under existing laws and regulations. While it is difficult to calculate with precision due to

³⁴ IF&W Comments, Dec. 6, 2017, p. 6-7; MNAP Comments, Feb. 20, 2018, p. 5

occasional overlapping protection zones how much of the proposed easement lands is already effectively protected by regulation, NRCM estimates that approximately 38 percent (5575 acres) of the proposed easement is already afforded protection under existing wetland, shoreland, fish and wildlife, or floodplain protection zones. Thus, no significant development rights for those lands are being relinquished. Given that the easement lands constitute only 29 percent of the concept plan area, it would appear that actual development rights are being extinguished on only approximately 18 percent of the concept plan area.

One very high priority area for additional permanent conservation to extinguish potential development rights is the area immediately inland from the proposed Yexas/Cross Lake E development area. If any development were to be approved for Yexas/Cross Lake E, it would be imperative to limit that development area by adding adjacent lands to the permanent conservation easement. Otherwise, the land adjacent to that development zone will be at extremely high risk of development following the 30-year expiration of the concept plan. Unlimited development beyond any approved development zone would eventually lead to the degradation of Square Lake and the loss of the currently undeveloped character of that lake and the loss of that type of lake experience in the entire region.

In order to satisfy the three regulatory criteria, significant additional permanent conservation is required as described. Attached (Exhibit 2) is a sketch map depicting the proposed additional conservation areas described above.

- 5. The concept plan currently lacks specific, enforceable provisions to ensure that the intent of various provisions in the easement and in the concept plan related to natural resource protection is achieved.**

Both the easement and the concept plan as a whole contain language suggesting that natural resources will be protected or that certain outcomes will be achieved but the easement and the plan lack specific enforceable provisions to ensure that the putative outcomes will, in fact, be achieved.

A. The easement management plan must include more specific objectives and standards.

The proposed easement lacks any specific goals or description of what is required in the “multi-resource management plan.” Without specific goals, it would be impossible for the holder of the easement to assure any particular outcomes. By contrast with this proposed easement, the multi-resource management plan that was approved as part of the Moosehead Region Concept Plan contains specific management objectives and performance standards for a wide variety of natural resources including rare, threatened, and endangered fish, wildlife, plants, communities and ecosystems, deer wintering areas, inland waterfowl and wading bird habitats, and vernal pools, and addressing issues such as the use of exotic species and genetically modified species, and the protection of aquatic habitats and riparian buffers.³⁵

To provide any meaningful natural resource protection and additional public benefit, management of the easement lands must provide greater conservation protection than required under current laws and regulations. To ensure a greater level of natural resource protection, the goals, objectives, and standards of the management plan must be significantly more specific.

³⁵ Moosehead Region Concept Plan, Appendix D

B. The easement permits uses that are inconsistent with the goal of providing permanent conservation protection.

Both IF&W and MNAP commented that the proposed easement would permit many uses that are inconsistent with the conservation of natural resources on the property.³⁶ NRCM shares those concerns. While some of these uses have been limited in the revised easement, there are still multiple allowed uses that should be restricted in the easement. In particular, we note that the easement would permit additional rights of way over the protected property, which is inappropriate. NRCM urges that uses that would degrade the conservation values of the easement not be allowed.

C. Outcome based forestry cannot be relied on to ensure natural resource protection.

Outcome based forestry (OBF) is a voluntary agreement between the landowner and the Maine Forest Service. It is time-limited to five years and is not transferrable to a future owner. It also is not transparent to the public; the public has no opportunity to comment on the substance of this private agreement or to ensure that it is enforced.

Given the voluntary, time-limited, non-transparent, and non-regulatory character of OBF, it is inappropriate that it be incorporated into a concept plan. NRCM agrees with the Maine Forest Service³⁷ that reference to OBF should be removed from the concept plan. If the applicant proposes that forest management practices in the concept plan are intended to provide public benefit to satisfy regulatory requirements for concept plans, those forest management practices must be specifically defined, be

³⁶ IF&W Comments, Dec. 6, 2017, p. 3-5; MNAP Comments, Feb. 20, 2018, p. 2-4

³⁷ MFS Comments, Dec. 1, 2017

enforceable, and exceed the minimum standards already required by law and regulation.

D. Given the quality and significance of the Fish River Lakes brook trout fishery, specific measures designed to protect riparian buffers, and to ensure that stream crossings are protective of aquatic habitat should be required throughout the concept plan area.

The proposed concept plan proposes up to 75 new dwellings on Long Lake, up to 125 new dwellings on Cross Lake, and up to 130 new dwellings on Square Lake, all lakes known for their high-quality fisheries. The petitioner acknowledges, “The Fish River chain of lakes is well known for some of the best salmon and trout fishing in Maine.”³⁸

Overall, this increased development will have negative impacts on water quality and aquatic habitat for brook trout in the Fish River Chain of Lakes, and at the same time will increase the number of anglers utilizing and harvesting wild brook trout in the concept plan area. Recognizing these anticipated impacts, IF&W notes that: “MDIFW is concerned that the level of development proposed in the Plan has the potential for negative effects on aquatic resources in the region if not otherwise addressed.”³⁹

Expanding on those concerns, IF&W states:

³⁸ Volume 1—Petition for Rezoning, May 2017, p. 5

³⁹ IF&W Comments, Dec. 6, 2017, p. 9

- “Increased use of fisheries resources and degradation to habitat in the Plan area could have severe consequences for maintaining wild brook trout and quality landlocked salmon fisheries, some of which are of statewide significance.”⁴⁰

- “The factors for such declines are two-fold: first, increased angling pressure will lead to increased harvest of wild and hatchery stocks. . . . Second, based on past observations, increased human development has the potential to result in aquatic habitat degradation from shoreline development, construction of roads in riparian areas, increased water temperatures and increased nutrient levels (e.g. phosphorous) in receiving waters, etc.”⁴¹

An additional concern is that as access to and use of the lakes within the concept plan area increases, the risk of introduction of non-native species that are predators on and competitors with brook trout goes up. In its assessment of threats to wild brook trout in Maine lakes and ponds, IF&W has identified “1 or More Non-Native Fish”, “Smallmouth Bass”, “Other Cool/Warmwater Fish (Perch, Sunfish, Muskellunge),” and “Largemouth Bass” as the top four threats to wild brook trout in Maine lakes and ponds.⁴² The Eastern Brook Trout Joint Venture noted that “Non-native fish are the dominant threat to Maine’s lake and pond populations of brook trout. Many of these fish are illegally introduced by sportsmen who want to catch species of fish other than brook trout.”⁴³

Smallmouth bass and muskellunge are both already established in the Fish River below Fish River Falls, which appears to be an impassable barrier to both. Both are

⁴⁰ IF&W Comments, Dec. 6, 2017, p. 9

⁴¹ IF&W Comments, Dec. 6, 2017, p. 9

⁴² Eastern Brook Trout Joint Venture (2006). Eastern Brook Trout: Status and Threats, p. 34

⁴³ Eastern Brook Trout Joint Venture (2006). Eastern Brook Trout: Status and Threats, p. 34

popular sportfish across the US, and interest in these species as sportfish in Maine is growing rapidly. As development and use increase in the Fish River Lakes, the risk of illegal introductions of smallmouth bass and muskellunge above Fish River Falls increases. Experience in other large Maine lakes—Moosehead, the Rangeley Lakes region, Sebago, the Belgrade Lakes, and the Cobbossee chain of lakes—indicates that illegal introductions of these and other species should be anticipated. The impacts of both smallmouth bass and muskellunge have been devastating to wild brook trout in every Maine lake where they have been introduced. This potential will increase substantially with the amount of additional development proposed in the Concept Plan area.

MDIFW has also noted that the proposed conservation easement, although it contains “numerous sensitive tributaries to the southern end of Square Lake that are important wild brook trout habitat,”⁴⁴ will not offset these anticipated impacts.

IF&W notes that “the Plan’s easement does not appear to provide added benefit for resource protection as this area would still be working forest subject to road building, related stream crossings, stand conversion, and associated wetland, stream, and riparian habitat impacts” and notes that “the proposed conservation areas contain no special provisions for the protection of fisheries and aquatic habitat and, in particular, for wild brook trout.”⁴⁵

Nor are any provisions proposed that would protect riparian areas and aquatic habitat in the portions of the concept plan area that are not subject to the easement. In order to mitigate the inevitable adverse impact that so much new development would

⁴⁴ IF&W Comments, Dec. 6, 2017, p. 5

⁴⁵ IF&W Comments, Dec. 6, 2017, p.5-6

have on aquatic habitat, specific protective measures should be required. IF&W suggests several improvements to address these failings:

1. Stream crossing standards: “MDIFW recommends that all new, modified, and replacement stream crossings be sized to span 1.2 bankful width of the stream” and that “stream crossings be open bottomed (i.e. natural bottom).”⁴⁶
2. Riparian Buffer Standards. “MDIFW proposes to select key tributaries to each lake and implement habitat protection according to MDIFW’s “Forest Management Recommendations for Brook Trout.” (See Exhibit 3.) This special management would cover the entire tributary system from the confluence with the lake to headwater springs.”⁴⁷ Particularly important tributaries include:⁴⁸
 - a. Long Lake: Mud Brook, Barn Brook, and Chapel Brook.
 - b. Mud Lake: the thoroughfare connecting Mud and Cross Lakes.
 - c. Cross Lake: Minnow Brook, the thoroughfare connecting Cross and Square Lakes.
 - d. Square Lake: Butler Brook, Barstow Brook, California Brook, Goddard Brook, and Little Goddard Brook.

NRCM supports IF&W’s recommendations.

E. Remote rental cabins should not be allowed in the concept plan area.

The plan proposes to allow remote rental cabins in locations that are generally suggested but are not specifically designated in any way that would allow evaluation

⁴⁶ IF&W Comments, Dec. 6, 2017, p. 11

⁴⁷ IF&W Comments, Dec. 6, 2017, p. 10

⁴⁸ Recommendations based on Eastern Brook Trout Joint Venture data, stream size, and discussion with local anglers and MDIFW regional staff.

of the appropriateness of the location. These suggested locations include a number of locations within the proposed easement area.

The number of remote rental cabins is unclear. The easement proposes limiting remote rental cabins to nine, but the plan describes 13 different locations⁴⁹, and there appears to be no enforceable limit on remote rental cabins for the plan area as a whole. The plan also suggests that these cabins could be managed as a commercial enterprise by a private party.⁵⁰ As described, these rental cabins constitute another unlimited, commercial development use of the property.⁵¹

IF&W has raised concerns about the adverse natural resource impacts of these proposed rental cabins and recommends their exclusion on the easement lands.⁵² NRCM agrees with IF&W's concerns.

On the other hand, remote campsites as defined by existing LUPC rules provide a public recreational opportunity that has relatively low impact on natural resources and is consistent with the conservation goals of the concept plan.

Remote rental cabins have a much greater impact on natural resources than remote campsites. The proposed change in definition from the existing LUPC definition for remote rental cabins would no longer limit their use to primitive recreation or snowmobiling but would open it to all types of motorized recreation. The construction of the cabins would require greater motorized access and would have a permanent development impact including the potential installation of septic systems and power generation sources. The cabins would also more likely be used

⁴⁹ Concept Plan, p. 21

⁵⁰ Concept Plan, p. 21

⁵¹ BPL also notes that commercialization of the rental cabins or campsites "would drive users to free Eagle Lake sites," increasing the pressure on the already popular sites on Eagle Lake. BPL Comments, p. 2

⁵² IF&W Comments, Dec. 6, 2017, p. 3

throughout the season than campsites, extending the impact on fish and wildlife habitat.

Similarly, while NRCM supports the creation of remote campsites as defined by LUPC rules, we believe the proposed change in definition of remote campsites would open up those campsites to more intensive motorized use and is inconsistent with the conservation goals of the concept plan.

Given the potential for commercialization and increased motorized use and development impacts on natural resources, NRCM recommends that remote rental cabins not be allowed in the concept plan area. We further recommend that the remote campsite definition existing in current LUPC regulations be retained to limit potential adverse natural resource impacts.

F. Scenic standards for development, particularly on hillsides, should be specific and mandatory.

The plan includes language discussing the potential visual impacts of development. However, the language is largely advisory (“should be avoided,” “may include provisions,” “consideration”) rather than setting specific standards. Furthermore, the responsibility for developing standards is delegated to a future, unknown developer with no apparent oversight. A standard that says that standards must be developed is not a standard.

By contrast, the Moosehead Region Concept Plan includes very specific and enforceable standards related to scenic impacts and vegetation clearing associated with development. There is no apparent reason why the same type of standards would not be appropriate for this concept plan.

6. Conclusion

The proposed Fish River Chain of Lakes concept plan would dramatically change the character of the region for the worse, does not strike a publicly beneficial balance between development and conservation, does not provide comparable conservation given the development proposed, would have an undue adverse impact on the natural resources of the region, and includes provisions that would be ineffective, lack specificity and could not be enforced.

Therefore, NRCM opposes the application as proposed, and urges the Commission to deny the application.

Respectfully submitted on behalf of the Natural Resources Council of Maine, May 2, 2018.

Catherine B. Johnson
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Natural Resources Council of Maine
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(207) 430-0109

Notarization

I, Catherine B. Johnson, being first duly sworn, affirm that the above testimony is true and accurate to the best of my knowledge.

Date: May 2, 2018

Catherine B. Johnson

Catherine B. Johnson

Forests and Wildlife Project Director

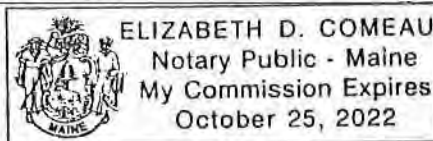
Natural Resources Council of Maine

Personally appeared the above-named Catherine B. Johnson and made affirmation that the above testimony is true and accurate to the best of her knowledge.

Date: 5/2/2018

Elizabeth D. Comeau

Notary



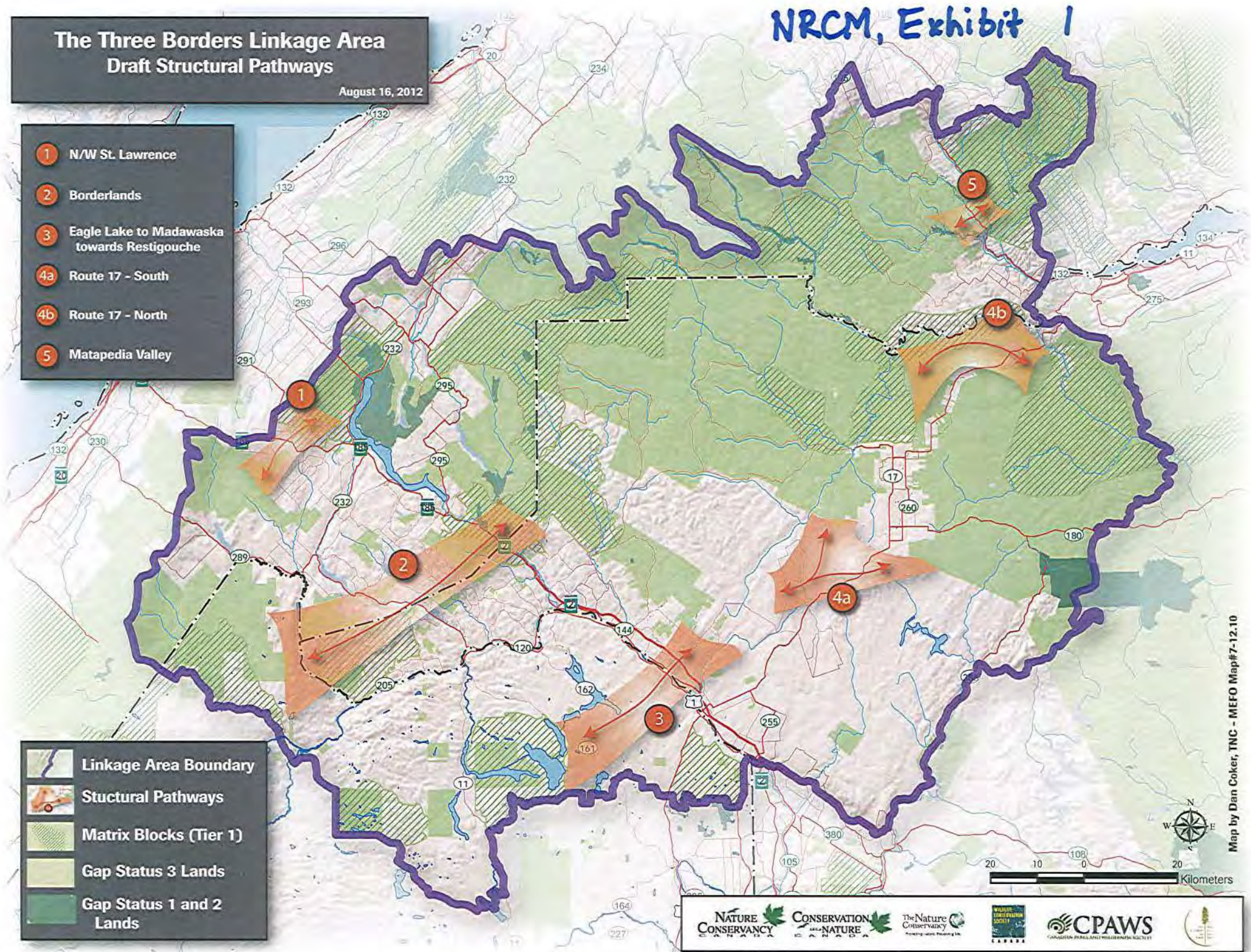
The Three Borders Linkage Area Draft Structural Pathways

August 16, 2012

NRCM, Exhibit 1

- 1 N/W St. Lawrence
- 2 Borderlands
- 3 Eagle Lake to Madawaska towards Restigouche
- 4a Route 17 - South
- 4b Route 17 - North
- 5 Matapedia Valley

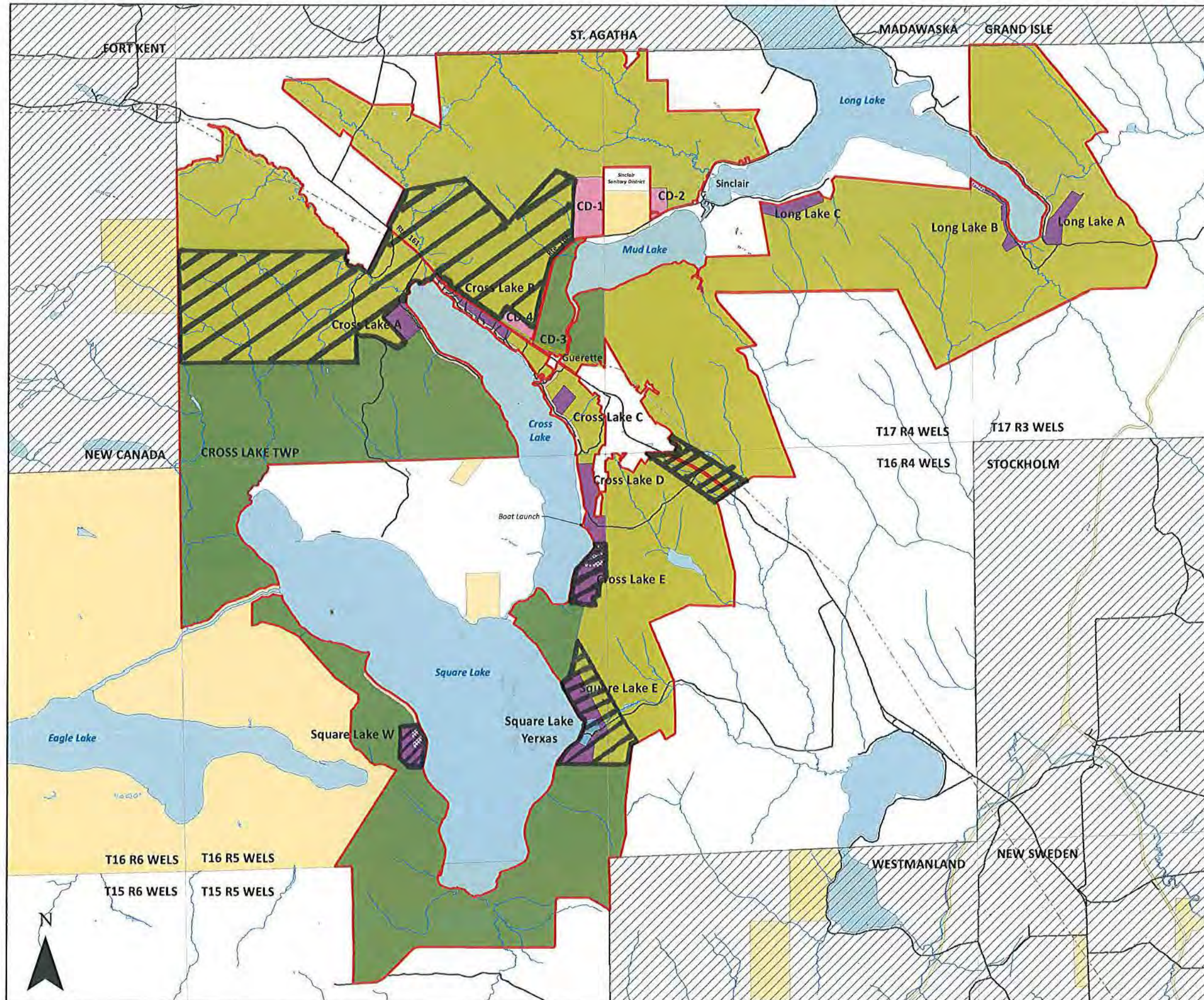
-  Linkage Area Boundary
-  Structural Pathways
-  Matrix Blocks (Tier 1)
-  Gap Status 3 Lands
-  Gap Status 1 and 2 Lands



Map by Dan Coker, TNC - MEFO Map#7-12.10

CONCEPT PLAN SUMMARY

Fish River Chain of Lakes Concept Plan



Legend

- Major Roads
- - - Transmission Line
- Streams
- ▨ Organized Towns
- Water Bodies
- Proposed Recreational Lodging Area
- Proposed Comm/Econ Development Areas
- Proposed Residential Development Areas
- Proposed Open Space
- Existing/Expanded D-FRL-RS
- Maine Public Reserve Land
- Conservation Easement Area
- ▭ Concept Plan Area

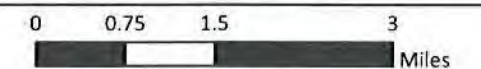
Note

1. The Concept Plan includes other elements (such as water access sites, outpost facilities and public elements) that are described in the Petition. See Map 33 Remote Campsites and Remote Rental Cabins and Map 34 Publicly Accessible Water Access Sites for the location of these elements.

▨ Proposed permanent conservation easement



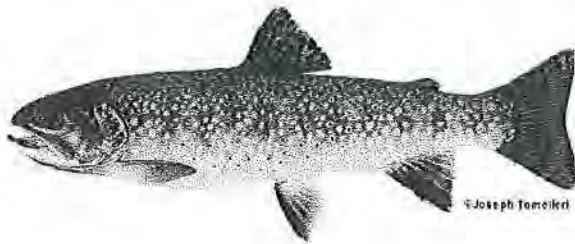
IRVING WOODLANDS, LLC



April 2018

MAP 21

MAINE DEPARTMENT OF INLAND FISHERIES AND WILDLIFE



Forest Management Recommendations for Brook Trout

Background

Brook trout (*Salvelinus fontinalis*), commonly referred to as squaretail, brookie, and speckled trout, are native to Maine. This colorful fish is the most preferred sport fish sought by Maine anglers. Size may vary, depending on water temperature, productivity, and food sources, but 3 year-old brook trout in Maine lakes may range from 7.5 to 17.5 inches long. Stream populations are typically slower growing where lengths of 6 to 10 inches are more common place, although some populations mature and reproduce at lengths smaller than 6 inches.

Maine is the last stronghold for brook trout in the eastern United States. There are more than twice as many watersheds supporting brook trout in Maine than all of the other 16 states within the eastern brook trout range combined. Maine is also the only state with extensive intact lake and pond dwelling populations of wild brook trout.

Brook trout require clean, cool, well oxygenated water and are very sensitive to changes in habitat and water quality. Rivers and streams typically provide spawning and nursery habitat. Adults are commonly resident in streams, but migrate throughout and between drainages to meet seasonal life history requirements.

Stream habitat suitability is maintained by the presence of intact, stable, mature wooded riparian corridors that: conserve forest soils, provide shade to reduce stream warming, protect stream water quality, provide cover for fish, provide a source of woody debris and leaf litter from mature trees that maintain critical in-stream habitat for fish and the aquatic insects they feed upon (leaves provide the energy source that drives productivity in streams). Floodplain and fringe wetlands associated with streams are a significant source of springs and groundwater discharge that maintain stream flows and cool temperatures during warm low flow summer periods. Protection of these important riparian and wetland functions insures that the overall health of the stream habitat and watershed is maintained.

Maine brook trout fisheries are unique and highly valuable, but vulnerable to habitat alteration that may be caused by poorly planned and implemented land management activities, including road and trail construction, as well as timber harvesting. However, well planned

forestry operations can protect habitat and help ensure that forests remain as forest, which is the most beneficial land use for brook trout and many other fish and wildlife.

Management Recommendations

Brook trout are not afforded any special state or federal regulatory protection, and as such provided management recommendations are advisory.

The MDIFW recommends following Best Management Practices (BMPs) during all road and trail building activities, as well as timber harvesting. BMPs are detailed in the booklet entitled "Best Management Practices for Forestry", which offers guidance on managing and protecting water quality, installing road-stream crossings, and providing fish passage. This information is available at:

www.maine.gov/dacf/mfs/publications/handbooks_guides/bmp_manual.html or contact the Maine Forest Service at 1-800-367-0223).

Potential harmful impacts to fish and wildlife may be further minimized by designating "low impact riparian protection areas" adjacent to streams and stream-associated fringe and floodplain wetlands in forest management and harvest plans. Smaller streams may be greatly influenced by land management practices; these systems benefit the most from well-managed and intact riparian corridors.

The MDIFW also recommends limiting the harvest of trees and alteration of other vegetation within 100 feet of streams and their associated fringe and floodplain wetlands to maintain an intact and stable mature stand of trees, characterized by heavy crown closure and resistant to wind-throw. In some situations wider buffers should be considered where severe site conditions (i.e., steep slope, vulnerable soils, poor drainage, snow pack, etc) increase risk to soil and stand instability. Any harvest within the riparian buffer zone should be selective and less valuable trees may remain uncut to enhance stand integrity and maturity.