Compatibility Determination

USE: Recreational Fishing

REFUGE NAME: Umbagog National Wildlife Refuge

DATE ESTABLISHED: November 12, 1992

ESTABLISHING AND ACQUISITION AUTHORITIES:

1. Emergency Wetlands Resources Act of 1986 [16 U.S. C. 3901 (b)]

2. Migratory Bird Conservation Act [16 U.S.C. 715d]

3. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

4. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(b)(1)]

REFUGE PURPOSES:

1. "the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions." 16 U.S.C. 3901(b) (Emergency Wetlands Resources Act of 1986).

2. "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. 715d (Migratory Bird Conservation Act).

3. "for the development, advancement, management, conservation, and protection of fish and wildlife resources…" 16 U.S.C. ¤ 742f(a)(4) (Fish and Wildlife Act of 1956).

4. "for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude…" 16 U.S.C. ¤ 742f(b)(1) (Fish and Wildlife Act of 1956).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

"The mission of the National Wildlife Refuge System (Refuge System) is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (Refuge System Improvement Act of 1997, Public Law 105-57).

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?
The use is recreational fishing, a priority public use of the Refuge System under the Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the Refuge System Improvement Act of 1997.

(b) Where would the use be conducted?
The use would be conducted at all refuge bodies of water that are open to fishing including lakes, ponds, streams, and rivers. Boat access for fishing and other activities is available at a number of locations both on and off refuge ownership near Umbagog Lake. Two State of New Hampshire public boat launches provide boat-trailer access to the upper Androscoggin River and Umbagog Lake. One launch is located upstream of the Errol Dam, and the other is at the southern end of Umbagog Lake. Additional boat-trailer access is provided on refuge-owned land at the Steamer Diamond landing on the Androscoggin River, refuge headquarters on the Magalloway River, and the refuge canoe launch in Wentworth Location, about 4 miles north of the refuge office.

(c) When would the use be conducted?
The use would be conducted during the hours and seasons specified in the fishing regulations of the states of New Hampshire and Maine.

(d) How would the use be conducted?
The use would be conducted under New Hampshire and Maine State fishing regulations for open water and ice-fishing, with some additional restrictions to protect fish, wildlife, and habitat, and to reduce potential public use conflicts. This compatibility determination applies primarily to shoreline fishing and fishing access from refuge lands. The open waters of great ponds (i.e., ponds greater than 10 acres), Umbagog Lake, and associated major rivers, fall under State regulation, and for the most part, are accessible from State boat launches and the three launches on the refuge.

Fishing will be permitted according to State regulations at Mountain Pond and from the shore of Whaleback Ponds, Little Bear Pond, Bear Pond, Long Pond, Round Pond, Brown Owl Pond, the Swift and Dead Cambridge Rivers, and refuge streams. Bear Pond and Long Pond have rudimentary car top boat launches, and we are not proposing to add or improve boat launches at these sites. Access will be by foot only. However, fishing from boats will be permitted at these locations.

Fishing from shore near residential areas and remote campsites will not be permitted to minimize conflicts with adjacent private landowners, lessees and campers. In addition, fishing from shore on islands will be prohibited, with the exception of permit holders at remote campsites on Umbagog Lake. Fishing derbies and tournaments from refuge lands are not allowed.

Motorized boats may be launched from the Steamer Diamond Landing on the Androscoggin River and the refuge headquarters on the Magalloway River. All boats launching or landing on refuge lands must follow State boating regulations and be registered, if applicable, with the appropriate State.

The public must inspect motor boats and trailers and clean them of aquatic invasive species before launching at refuge sites. That cleaning should take place on dry ground away from the water. Exotic, nuisance plants or animals on boats, trailers, diving equipment, or in bait buckets can disrupt aquatic ecosystems and negatively impact native fish and plant species. Umbagog Lake and its associated rivers appear to be relatively free of aquatic invasive plants, and cleaning of boats, trailers, and other equipment will help keep them that way. Signs, education, and periodic enforcement will remind the public of these regulations.

Unauthorized introductions of both non-native and native fish can also significantly disrupt aquatic ecosystems and destroy natural fisheries. No fish of any species may be introduced onto the refuge without appropriate State and refuge permits. This includes unused baitfish and eggs.

Loons, waterfowl, and other water birds may be poisoned after accidentally swallowing lead fishing tackle. Many ducks and other water birds find food at the bottom of lakes. Most of these birds also swallow small stones and grit to aid in grinding their food. Some of the grit may contain lead from angling equipment. They may also ingest lead and other fishing tackle by consuming bait fish or escaped fish that still have fishing tackle attached. An investigation into causes of mortality in loons in New England found 52 percent of loon carcasses submitted to Tufts University Wildlife Clinic had died of lead poisoning from ingestion of lead sinkers (Pokras and Chafel. 1992). Although other studies have reported lower percentages, lead toxicity clearly poses a threat to wildlife. During the past few years, three loon carcasses have been recovered from Umbagog Lake that showed signs of poisoning from lead sinkers. Because of that threat, no lead fishing sinkers or jigs will be permitted on the refuge. Discarded tackle and line also pose a threat to fish-eating birds, including eagles, osprey, and loons.

It is illegal to abandon property or dispose of waste on a refuge (see 50 CFR 27.93 and 27.94), whether fishing-related or not. It is also illegal to disturb or injure any non-target plants or wildlife (see 50 CFR 27.51) on a refuge. The refuge will develop educational signs and initiate public outreach on littering to be placed at all boat launches and refuge kiosks. We will also consider ways to develop a collection box for used lures and line for proper disposal at launch sites.

At the discretion of the refuge manager, some areas may be seasonally, temporarily, or permanently closed to fishing if wildlife or habitat impacts or user conflicts become an issue. In cooperation with State fisheries biologists, we may manipulate the fisheries and/ or habitat to promote or improve the fishery resource, if warranted. That may include changing fishing regulations (season dates, creel limits, methods of take), adjusting water levels (in cooperation with the current Federal Energy Regulatory Commission license holder for Errol Dam), introducing or removing fish barriers, manipulating instream or streambank habitat, designating riparian buffers, or limiting timber harvest in the vicinity of refuge waters.

(e) Why is the use being proposed?

The use is being proposed to accommodate one of the priority public uses of the Refuge System. We have the opportunity to provide recreational fishing opportunities in a manner and location that will offer high quality, wildlife-dependent recreation and maintain the level of current fish and wildlife values.

AVAILABILITY OF RESOURCES:

We do not anticipate charging fees for fishing, and, therefore, we do not anticipate additional income or appropriations specifically geared toward the Recreational Fishing Program. The resources necessary to provide and administer this use are available within current and anticipated refuge budgets. Staff time associated with the administration of this use is spent maintaining associated road infrastructure, collecting visitor use data where applicable, analyzing use patterns, monitoring potential impacts of the use on refuge resources, and providing information to the public. Costs are estimated to be approximately $6,000 per year.

Table 1. Anticipated Costs for Umbagog NWR Recreational Fishing Program

Item	Cost
Routine Maintenance	$2,000 annually. This is the expected cost to maintain the three public boat launches (Magalloway River, refuge office, and Steamer Diamond landing) and includes laying gravel, maintenance of parking areas, removal of garbage, and restroom maintenance at the Magalloway River launch.
Outreach Supplies and Materials	$500. This includes signage for closed launch sites, buoys and nesting site closure signs, interpretative brochures, fishing regulations brochures.
Monitoring	$500 periodically, to be carried out in cooperation with the States.
Law Enforcement	$3,000 annually for a Refuge Law Enforcement Officer.
Total	**$6,000**

ANTICIPATED IMPACTS OF THE USE:

Fishery Information

Although NHFG, MEDIFW, and the Service have carried out several limited surveys of Umbagog Lake, no comprehensive, refuge area-wide fishery or angler surveys have been carried out to date in the Magalloway River, Rapid and Dead Cambridge Rivers and C Pond. The limited documentation available confirms more than 20 species of fish present in water bodies near the refuge. The species in Table 2, below, have been reported from Umbagog Lake and associated rivers (Magalloway, Androscoggin, Rapid, Dead and Swift Cambridge Rivers):

Table 2. Fish species reported

Umbagog Lake and Androscoggin River	
Native species	**Introduced species**
Brook trout	Landlocked salmon
Brown bullhead (hornpout)	Brown trout (confirmed in upper lakes, but not Umbagog)
Creek chub	Lake trout

Lake chub	Splake
Fallfish	Rainbow trout (below Errol Dam only)
Pearl dace	Rainbow smelt
Finescale dace	Landlocked alewife
Northern redbelly dace	Yellow perch
Common shiner	Smallmouth bass
Golden shiner	Largemouth bass
Fathead minnow	Chain pickerel
Longnose sucker	Northern pike (probably extirpated)
White sucker	
Pumpkinseed sunfish	
Slimy sculpin	

Magalloway River (below Aziscohos Dam)	
Native species	**Introduced species**
Brook trout	Landlocked salmon
Brown bullhead (hornpout)	Brown trout (confirmed in upper lakes, but not Magalloway River)
Lake chub	Splake
Golden shiner	Rainbow smelt
White sucker	Yellow perch
Slimy sculpin	Smallmouth bass
	Chain pickerel

Rapid River	
Native species	**Introduced species**
Brook trout	Landlocked salmon
Creek chub	Brown trout (confirmed in upper lakes, but not Rapid River)
Lake chub	Rainbow smelt
Fallfish	Yellow perch
Blacknose dace	Smallmouth bass
Northern redbelly dace	
Longnose dace	
Common shiner	
Golden shiner (possibly introduced?)	
White sucker	
Slimy sculpin	

Dead Cambridge River	
Native species	**Introduced species**
Brook trout	Smallmouth bass
Brown bullhead (hornpout)	Yellow perch also likely present in lower reaches
Creek chub	

Fallfish	
Blacknose dace	
Longnose dace	
Common shiner	
White sucker	
American eel (historic record in C Pond)	

The changes in both the abundance and species composition of the Umbagog Lake fishery during the past 150 years have created a fishery today that bears very little resemblance to that which was present prior to the establishment of the first Errol Dam in 1853. During the 1800s, the lake supported a thriving brook trout population.

Prior to 1900, introductions of Atlantic salmon, chain pickerel, rainbow smelt, yellow perch, and several other species occurred in the Androscoggin River and/or in the Rangeley Lakes. Changes that are more recent include the introduction in the mid-1980s and subsequent population expansion of smallmouth bass in the lake. Northern pike have also been reported from the lake in recent years, but their present population status remains unclear (Bonney, 2002 Howatt, 2019).

Umbagog Lake is primarily a warm-water fishery, with an average depth of 12 feet. An area located in the northeast section of the lake, near Sunday Cove, and extending to a depth of approximately 50 feet, supports a limited cold water salmonid fishery (landlocked salmon, brook trout). As an interstate body of water, the lake is governed by special State fishing regulations. A licensed New Hampshire or Maine angler may fish any part of the lake, which includes the waters of the Androscoggin River upstream of the Errol Dam, the waters of the Magalloway River within the State of New Hampshire and the waters of the Rapid River upstream to the marker at Cedar Stump in the State of Maine.

C Pond, the Rapid River, and parts of the Dead Cambridge River support wild brook trout fisheries. Wild brook trout also occur upstream of the refuge on the Magalloway and Diamond Rivers. The smallmouth bass originally introduced into Umbagog Lake have been expanding into all those water bodies, including C Pond and Pond in the River.

Bass may compete with and negatively impact brook trout and landlocked salmon fisheries. The MEDIFW has created a fish barrier on the Dead Cambridge River to prevent smallmouth bass expansion from impacting the C Pond brook trout fishery. Maine continues to monitor smallmouth bass populations in the Rapid River. The Rapid River is of particular concern because of its high quality brook trout and salmon fishery and increasing popularity with anglers. Boucher (1995) reported over 31,000 angler-hours (8,000 fishing trips) of use on the Rapid River in 1995. Smallmouth bass fishing in Umbagog Lake has increased tremendously over the past decade.

Umbagog Lake and associated rivers are subject to atmospheric mercury deposition, which can cause mercury contamination of fish, and toxicity to wildlife that feed on them, such as loons and bald eagles. New Hampshire and Maine have both issued statewide health advisories about human consumption of freshwater fish with mercury contamination. Of particular concern is the

consumption of warm water species, since they tend to have higher levels of mercury in their tissue.

Because Umbagog Lake and its rivers are accessible to fishing from the two New Hampshire State boat launches and three refuge boat launches, we do not expect opening the rest of the refuge for fishing to result in a dramatic change from existing conditions.

Potential impacts of fishing may include:

- **Accidental or deliberate introductions of non-native fish** that may negatively affect native fish, wildlife, or vegetation: Illegal fish introductions have a long history in the Umbagog area. The refuge will continue to work with both States in providing educational outreach and signs on that subject and trying to contain introductions once they occur.

- **Accidental introduction of invasive plants, pathogens, or exotic invertebrates**, attached to fishing boats: With the exception of a few isolated occurrences of purple loosestrife, refuge waters appear to be relatively free of invasive aquatic plants and mollusks. However, we have not carried out extensive surveys of aquatic invasive plants. We can mitigate their impacts by continuing education, outreach, and initiating an intensive water monitoring program.

- **Negative effects on loons, eagles, osprey, waterfowl, and other wildlife from lost fishing gear** (i.e. from ingesting lead sinkers, hooks, lures, litter, or becoming entangled in fishing line or hooks): Lost fishing tackle may harm loons, waterfowl, eagles, and other birds externally by catching and tearing skin. Fishing line may also become wrapped around body parts and hinder movement (legs, wings), impair feeding (bill), or cause a constriction with subsequent reduction of blood flow and tissue damage. An object above or below the water surface may snag entangled animals, from which they are unable to escape. Nineteen percent of loon mortalities in Minnesota were attributed to entanglement in fishing line (Ensor et al. 1992). Entanglement in fishing line has also caused mortality in bald eagles.

  Birds may also ingest sinkers, hooks, floats, lures, and fishing line. Ingested tackle may cause damage or penetration of the mouth or other parts of the digestive tract, resulting in impaired function or death. Lead tackle is particularly toxic to wildlife. An investigation into causes of mortality in loons in New England found 52 percent of loon carcasses submitted to Tufts University Wildlife Clinic had died of lead poisoning from ingestion of lead sinkers (Pokras and Chafel. 1992). Three Umbagog loon carcasses recovered and analyzed in the past few years showed signs of lead poisoning from lead sinkers or had ingested fishing hardware. Fishing hardware and line have also been found in and around osprey and bald eagle nests both on and off the refuge. Because of that threat, no lead fishing sinkers or jigs will be permitted on the refuge.

  The refuge will continue to provide education and outreach on the hazards of lead sinkers and discarded fishing tackle.

- **Disturbance to wildlife** (particularly breeding and brood-rearing loons, waterfowl, eagles, osprey, and wading birds): Fishing seasons in Maine and New Hampshire coincide in part with spring and early summer nesting and brood-rearing periods for many species of aquatic-dependent birds. Anglers and other boaters may disturb nesting birds by approaching too closely to nests, causing nesting birds to flush. Flushing may expose eggs to predation or cooling, resulting in egg mortality. Both adult and flightless young birds may be injured or killed when run over by speeding boats. We will continue to close refuge areas seasonally to fishing, boating, and camping around sensitive nest sites, in conjunction with the States of Maine and New Hampshire. We will also continue our public outreach and the placement of warning signs. We monitor public use to help improve our management of public use, fisheries, and wildlife.

- **Negative impacts on water quality** from motorboat and other pollutants, human waste, and litter: Extensive water quality testing on the Umbagog system has not been carried out. The levels of pollutants from boat fuel and impacts on local aquatic systems are unknown. Hydrocarbon contamination can be harmful to fish. We will initiate public outreach and education on littering, pollutants, proper waste disposal, and the advantages of 4-stroke engines, will be initiated to help mitigate water quality impacts. Water quality testing will be carried out as funding levels permit.

- **Bank and trail erosion** from human activity (boat landings, boat wakes, foot traffic, camping), which may increase aquatic sediment loads of streams and rivers, or alter riparian or lakeshore habitat/vegetation in ways harmful to fish or other wildlife: Boat access will be restricted to designated areas only. These areas will be considered for future improvements designed to reduce erosion while containing impacts to a small area. These improvements may include boardwalks, docks, and/or paving where warranted. We will monitor the campsites and launch sites, and may modify, restore or close them if conditions warrant. Wetlands guard much of the refuge shoreline, making it extremely difficult to access for shore-based fishing. We do not intend to construct any new trails or boardwalks to provide shore-based fishing access, with the exception of the Mt. Pond area. All new trail and access construction will follow best management practices. Therefore, at current levels of use, we do not expect trail erosion to increase because of foot traffic related to fishing.

- **Negative impacts from fishing boats and foot traffic to sensitive wetlands** or peatlands and rare wetland plants. Boat access sites and trails will be located away from sensitive wetlands, peatlands, and rare plants. Habitat features, important to trout such as over-hanging banks, will be protected from disturbance.

- **Illegal fishing** resulting in over-harvest.

- **Vegetation disturbance associated with installation of new boat launch and fishing access sites:** Although, if funded, new accessible fishing structures will be located within the floodplain of the Magalloway River, ground disturbance will be minimal. Because fishing will occur from non-motorized watercraft or a dock, no erosion is

expected from bank fishing or trampling of vegetation. A trail already runs to Mt. Pond from Mt. Pond Road, and improvements to that trail and its access site should not result in additional impacts on vegetation.

- **Conflicts between anglers and other user groups:** We know that some conflicts among motorized and non-motorized users have arisen on the refuge in the past. In addition, local cabin owners have expressed concerns about trespass and inappropriate human waste disposal by boaters, primarily canoeists and kayakers. Should any significant conflicts become evident, we may need to manage public use on the refuge to minimize conflicts. That may include providing additional education and outreach, providing additional sanitary facilities, or creating zones to separate groups of users.

PUBLIC REVIEW AND COMMENT:

This compatibility determination has been thoroughly coordinated with all interested and/or affected parties. Parties contacted included New Hampshire Fish and Game Department (NHFG), and Maine Department of Inland Fisheries and Wildlife (MEDIFW). We notified the public through local venues, the refuge website, and notification in the Federal Register (as part of other expansions and openings on national wildlife refuges). A 30-day comment period on the draft documents began on March 16, 2020. Due to the unprecedented pandemic response, the comment period was extended an additional 15 days, to April 29, for a total period of 45 days.

Comments on the plan were received from a total of four individuals during the 45-day comment period. Substantive comments were reviewed and considered when finalizing the plan. No substantive changes were made between draft and final versions.

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

____X__ Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

To ensure compatibility with refuge purpose(s) and Refuge System mission, fishing can occur at Umbagog NWR in accordance with State and Federal regulations, and refuge-specific restrictions to ensure that public use, wildlife, and habitat management goals are achieved, and that the program is providing a safe, high-quality fishing experience for participants. We will evaluate this program annually and if monitoring indicates that this use or any of its components are not compatible (materially interferes with or detracts from fulfillment of the Refuge System mission or the purposes of the refuge), we would curtail, modify or eliminate the use or component.

Additionally, stipulations are necessary to ensure compatibility:

- We will prohibit lead sinkers and other lead fishing tackle to prevent ingestion by wildlife

and possible lead poisoning.

- We will permit boat launching only in designated areas to prevent erosion and degradation of wetlands or water quality and ensure public safety.
- We will not permit fishing from or near residential areas and remote campsites to minimize conflicts with adjacent private landowners, lessees and campers.
- We will close wildlife nesting and brood-rearing areas seasonally to all public use, to prevent the disturbance of wildlife. This may include temporarily closing or relocating remote campsites or temporarily closing access sites.

JUSTIFICATION:

Fishing is one of the six priority public uses of the Refuge System and has been determined to be a compatible activity on many refuges nationwide. Recreational fishing with the associated stipulations does not materially interfere with or detract from the mission of the Refuge System nor does it diminish the purposes for which Umbagog NWR was established. It will not pose significant adverse effects on refuge resources, significantly interfere with other public uses, or cause any undue administrative burden. We can make annual adjustments in the fishing program to ensure continued compatibility.

SIGNATURE:
Refuge Manager

Paul J Casey — (Signature)

7-7-2020 — (Date)

CONCURRENCE:
Regional Chief

Sean B. Kane — (Signature)

7/29/2020 — (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE: 7/29/2035 — (Date)

REFERENCES:

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