

APPENDIX C: Lake/Site Specific Common Loon Management Plan

OUTLINE

1. Introduction

Site-specific lake management plans are under the umbrella of the *Conservation Plan for the Common Loon in Montana* prepared by Christopher Hammond and the Montana Common Loon Working Group (CLWG). Develop plans in conjunction with the appropriate representative(s) from the CLWG agencies and organizations involved in the Conservation Plan as well as landowners who have knowledge of historic and current concerns for a lake. These include, but are not limited to Montana Fish, Wildlife and Parks, Montana Loon Society, U.S. Forest Service, Plum Creek Timber Company, Montana Department of Natural Resources, U.S. Bureau of Indian Affairs, Montana Natural Heritage Program, and U.S. National Parks Service.

When preparing a plan, first incorporate the Conservation Plan and the Common Loon Working Group. Refer to Best Management Practices (BMPs) of the *Conservation Plan for the Common Loon in Montana*. Identify the reason for writing the site specific management plan. Apply the hazard and conflict ratings for nest areas, primary use areas, and staging areas (see box below). Include the sources of the information and the agencies and administrative units responsible for the plan's implementation. Provide the extent of site-specific information available for the common loon territory. Include an 8 ½ x 11" or larger map of the territory that illustrates observation points, land ownership, roads, public accesses/boat launches, territories and nest sites. Also show important feeding, courtship, and migration-staging areas for loons as well as bald eagle nests and perch trees. If possible use an aerial photo base for the map.

2. Lake History and Background

Provide background information and history. Include land and lakeshore ownership and use patterns. Specifically identify all land owners on the lakeshore that are adjacent to the nest site or that could have potential impact on nesting or chick rearing areas. Include a summary of habitat characteristics of the territory that might be important for common loon management.

3. History of Common Loon Use and Territory Description

Summarize what is known about common loon use on the lake. Include a subsection for each of the following (add additional subsections if relevant), referencing areas noted on the map:

- a. Historical Use (including the source and storage location of observation forms and other historical documentation)
- b. Habitat Conditions (island characteristics, water depth and quality, lakeshore vegetative cover, etc.)
- c. Nest Chronology and Chick Productivity
- d. Existing and Alternate Nest Site(s)
- e. Pair Behavior – Courtship, Nesting, Chick-rearing, and Feeding
- f. Prey (population trends and areas of concentrations of fish, leeches, crawdads, etc.)
- g. Predators (bald eagle or raven nests or perches, pike or bass habitat, otters, snapping turtles, etc.)

- h. Banding history

4. Potential Conflicts and Human Disturbance

Identify and discuss potential lake and land use conflicts and management problems in the territory. Where appropriate, include a subsection for each of the following (add additional subsections if relevant), referencing areas noted on the map:

- a. Shoreline Habitat
- b. Special Hazards or Contaminates
- c. Fluctuating Water Levels
- d. Fisheries Management (rotenone, stocking, spring run-off and water level control, gill netting, etc.)
- e. Human Disturbance from Development (existing and potential subdivisions and development, water and sewage systems, campgrounds, boat launches, roads, etc.)
- f. Human Recreational Disturbance (motorized watercraft areas and use patterns)
- g. Potential Hazard/Conflict Ratings

Potential Hazard Rating (Nesting)

1. Unlikely that the nest will become lost or unsuitable and known alternate nest sites are available; chick-rearing areas have protection from motorized recreation.
2. Likely that the nest will become lost or unsuitable in the foreseeable future, but known alternate nest sites are available; or likely that chick-rearing areas will not have protection from motorized recreation.
3. Nest or nest site is in immediate danger of becoming lost or unsuitable and alternate nest sites are not available; chick-rearing areas do not have protection from motorized recreation.

Potential Conflict Rating (Territorial)

1. Activities that could impact the territory are not occurring now, nor are any planned.
2. Activities that could impact the territory are not occurring now, but are anticipated for the foreseeable future. Examples are new subdivisions, new recreation site, increased watercraft use, road construction or timber harvest.
3. Activities that would impact the territory are occurring or are planned for the immediate future. Examples are new subdivisions, new recreation site, increased watercraft use, road construction or timber harvest.

5. Management Recommendations

Identify specific management direction for the nest site, territory, and lake. Identify what is needed for present and future management, such as nest-site protection, habitat improvement projects, research, land-use coordination, land exchanges, easements, or land purchases ([Appendix B](#)). Where appropriate, include a sub-section for each of the following (add additional subsections if relevant):

- a. Coordination with Landowners and Resource Managers
- b. Nest Site and Nursery Area Protection (dates and location of buoy placement, dates and extents of temporary closures, etc.) ([Appendix F](#))

- c. Recommended Monitoring (time periods, loon band identification, spring and summer loon counts, observation forms, and loon database) ([Appendix E](#))
- d. Banding Needs (individuals banded)
- e. Public Information ([Appendix H](#))
- f. Coordination with Fisheries management – netting, surveys, stocking schedules, prey habitat enhancement
- g. Recommended Protection of Wildlife and Water Quality by Law Enforcement
- h. Recommended Habitat Improvement Projects (nest platforms, dam reinforcement, etc.) ([Appendix G](#))
- i. Recommended Land Exchanges, Easements, or Purchases
- j. Recommended Research

6. Summary

Provide any additional observations and remarks that may be important for the management or survey of the lake.

7. Author's Name and Date

Include the author's name and date. Also include the author's mailing address, email address, and agency or organization.

8. References Cited

In addition to published information, include file data, personal communications, and other sources of information.

The CLWG recognizes that every lake and territory provides a unique set of management and conservation situations. Site specific management plans are created by area coordinators ([Appendix B](#)) and used to address common threats ([Appendix B](#)) that face nesting common loons. A plan summarizes common loon use of the lake which allows managers to focus their attention on those circumstances most likely to negatively impact breeding common loons.

EXAMPLE

SITE SPECIFIC LAKE MANAGEMENT PLAN FOR THE COMMON LOON ON DICKEY LAKE, TREGO, MONTANA

1. Introduction

The agencies primarily responsible for implementing this Site Specific Management Plan for Dickey Lake are the USFS and MT FWP.

Dickey Lake has been selected for a site-specific lake management plan because it is an important migration and nesting lake for the common loon. See “Priority Selection for Lake Management Plan” toward the end of this document and reference Best Management Practices (BMP) of the *Conservation Plan for the Common Loon in Montana*.

Common loon studies in the area began in 1982 by Don Skaar and in 1984 by Lynn Kelly. Sources of on-site information are from (Skaar 1991) and ([Kelly 1992](#)). Information sources also include common loon management and monitoring by the FS and MLS that has occurred from 1990 to present (2008).

2. Lake History and Background

Dickey Lake is a glacial lake that formed in the Pleistocene Age after the last retreat of glacial ice from the Rocky Mountain Trench (Strahler 1981). It is an oligotrophic lake known for its clean, clear water and emerald blue color. The lake is surrounded by forest land and most of the lakeshore drops abruptly into the water

Dickey Lake is approximately 604 acres and 74 feet deep with a mean depth of 59 feet. It is spring fed, has the main Summit Creek inlet at the east end, several small streams entering along the north edge and the outlet from the southwest Bay of the lake. The outlet water flows into a small pond (Dickey Pond). The pond was previously an old mill pond in the late 1920’s and early 1930’s and it was formed by damming Dickey Creek.

Dickey Lake is primarily surrounded by FS land although the southwest corner is privately owned. The private land has approximately 20 residences, one bible camp and one family owned campground. There is a FS campground and boat launch at the northwest end and a FS Day Use area midway along the south shore. U.S. Highway 93 runs along the north side of the lake and the old highway road runs right next to the south shore. See map.

Settlement of the lake began in the late 1930's and increased to approximately 4-5 residences in the 1940's. The number of residences increased to approximately 12 in the 1970's and presently in 2008 there are approximately 20. In the 1950's, a road at the north edge of the private land and ran along the flat area of the west shoreline then over toward the outlet and the old Metzner house.

In the 1980's, XXXX XXXXXXXX purchased the private land W of the Dickey Lake Bible Camp and surrounding Dickey Pond. Plans were drawn up for condos on this property and a marina at Dickey Pond. This did not happen and the land is now owned by XXXX XXXXXXXX and partners. No known plans for development exist at this time. In the mid-1990's, the old Metzner house on the north side of Dickey Pond burned down, leaving this area free of any houses.

3. History of Common Loon Use and Territory Description

a. Historical Use

Common loons have historically used this lake for feeding, spring/fall migration staging areas, courtship, nesting and chick-rearing. Loons generally arrive on the lake on the day of ice-out. From 1990-1999, the range of arrival time on the lake was from April 1-29. The average arrival date was April 12.

The common loon feeding area is mostly within 50-75 yards of the shoreline around the whole lake. Adult loons from adjacent lakes use the lake throughout the summer breeding season as well. In the absence of successful nesting on adjacent lakes or in the event of successful nesting when the chicks are large enough to dive on their own, the adult males will fly to adjacent lakes to feed. Single adult loons, and at times another pair, are often seen swimming and diving on Dickey Lake.

The spring/fall migration staging area is along an east/west line in the middle of the lake and parallel to the long north shoreline (more toward the west than east). See map. During this time, there is more feeding and diving in the staging area than at any other time of the season.

Historically, the common loon pair probably had courtship areas near potential nest sites. Common Loon pairs most likely nested where the shoreline was accessible. Flatter beach areas exist along the western shoreline, in the outlet (Bible Camp) bay and in a few places along the south shore. Most of these sites are now occupied by residences, the FS campground, the FS day-use area and the Bible Camp.

Today, the pair primarily uses the area at the east end of the lake as their courtship, nesting and chick-rearing areas. The chick-rearing area is the area behind the sign buoys and extends west along the north shore (outside the buoys). They have continued to use this courtship, nesting and chick rearing area from 1990 until the present.

In the spring of 2000, an adult loon was found dead near the FS overlook on the north shore. The FWP game warden (Jim Roberts) was called and it was determined that the loon had been shot by a 12 year old boy.

A 2nd loon pair nested late on Dickey Pond and successfully hatched chicks the 3rd week in June, 2007. The chick-rearing area was on the pond itself. In the spring of 2008, this pair attempted another nest midway along the N shore of the pond. The courtship and chick rearing areas for this pair are on the pond itself and also extend into the Bible Camp (outlet) bay of Dickey Lake.

Common loon studies in the area began in 1982 by Don Skaar and in 1984 by Lynn Kelly. The source of most of this historical documentation is from loon monitoring, observation forms and Spring and Summer Loon Counts from Christie Ferruzzi, Loon Rangers and Fortine Ranger District biologists from 1989 to the present. The hard-copy documentation resides at the Murphy Lake Ranger Station. Spring and Summer Loon Count Information is in the Montana NRIS Loon Database and hard copies also reside with Gael Bissell at the Kalispell FWP office.

b. Habitat Conditions

The main nesting and chick-rearing habitat for the primary pair is at the east end of Dickey Lake, where the water is crystal clear and about 4-14 feet deep. It is the quieter end of the lake away from the houses and the main watercraft recreation patterns (west 2/3 of the lake).

Forest Service designated old-growth forest occupies the east shore adjacent to the nesting area and tall shrubs overhang the shoreline. There are several tall trees that bald eagles and ravens use as perch trees. One is directly above the nesting platform. Highway 93 borders the nesting area to the north about 100 feet from the shoreline. The north shoreline has a steep bank sparsely covered with shrubs. The area above the shoreline is partially open along the highway right of way and partially forested as the highway moves farther from the lake. The "Old Highway" road runs along the south shore of the lake. The south shoreline has a low bank with high overhanging shrubs.

Loons use the whole lake for feeding, usually within about 50-75 yd. from the shoreline. The pairs concentrate much of their time and feeding activities in the nesting and nursery areas, but will use other parts of the lake as the chicks grow.

The main habitat for the second pair is Dickey Pond that is completely surrounded by private land. See map. The Pond has clear water and is about 5-12 feet deep. Much of the shoreline is grassy and somewhat marshy. The vegetation along the north shore of the pond is grassy with some low shrubs whereas the south shore has partial forest and high shrubs. The east end contains the inlet from Dickey into the Pond and the narrow west end has the outlet through the man-made dam into Dickey Creek. The north shore has an old foundation remaining from the Metzner house that burned down in the mid-1990s.

This pair's habitat includes the waters of the Bible Camp bay that is mostly surrounded by private land. Most of the shoreline has a low bank and the vegetation consists of high shrubs.

The Bible Camp is located on the east shore of the bay. The undeveloped west shoreline near the outlet has an accessible flat beach, but it progresses to the north into a high steep bank.

c. Nest Chronology and Chick Productivity

No successful chick production occurred from 1985-1989 as determined by loon monitoring by Kelly 1985-88 and Ferruzzi 1989. Due to the loss of historic nesting sites and no successful nesting from 1985-1989, it was suggested by Don Skaar (MLS) that a loon nesting platform be placed on the lake.

In 1990, three loon nesting platforms were built and placed by the FS on Dickey Lake – one at the E end and the other two at locations along the long N shore of the lake. Sign buoys were placed across the lake at the E end to protect that nest site. The loon pair nested on the platform at the E end the first year, but Highway 93 road construction had begun that year and traffic was rerouted along the S shore road. There was a lot of disturbance from the construction and traffic activity on both sides of the lake near the nest platform and the loon pair was not successful at hatching a chick. The pair nested again on the platform in 1991 and successfully hatched two chicks. Loons did not use the other two platforms that were on Dickey Lake and after three years, these were removed.

The primary loon pair has nested on the platform for the last 19 years (1990-2008) and mostly with successful chick production. The signed buoys have been placed across the east end of the lake every year as well. They have produced 1-2 chicks in 14 of the 19 seasons. This is a success rate of 74%. See „Nest Chronology and Chick Productivity Table“ below and detailed spreadsheet at XXXXXXXX RD.

Loss of the 1990 nest was due to the Highway 93 road construction on the N side and heavy traffic on the S side of the nest platform. In 1995, one nest was lost due to a major storm. Heavy wave action and rocking forced the adult off the nest. In 1997, a water ski course was set up near the southeast end. The boat turning in front of the sign buoys caused high waves and rocking that caused the loon to leave the nest. Adjustments in anchoring and the addition of a splashboard helped mitigate the effects of wave action and the washing of sod and vegetation from the nest platform.

In 1996, an alternate nest site was chosen by the loons on a very small peninsula along the south shore but still within the nesting territory at the east end within the sign buoys. This nest was lost and a full egg was recovered that had possibly been kicked out of the nest. The pair attempted to re-nest on the nesting platform, but abandoned the nest.

Nest Chronology and Chick Productivity Table

Year	Nest on Platform	Alternate Nest	Hatch Date	# Chicks Hatched	# Chicks Survived	Comments
1989		Outlet bay		0	0	
1990	X			0	0	
1991	X		6/7	2	2	
1992	X, Renest		6/27	1	1	
1993	X, Renest		7/1	1	1	
1994	X		5/30	2	2	
1995	X, Renest			0	0	2 loon eggs retrieved from water.
1996	Renest	X		0	0	1 st nest on sm. marsh on S shore at SE end- 1 egg found in water next to nest.
1997	X			0	0	
1998	X, Renest		7/1	1	1	
Year	Nest on Platform	Alternate Nest	Hatch Date	# Chicks Hatched	# Chicks Survived	Comments
1999	X		6/2	1	1	
2000	X		5/3	1	1	
2001	X		6/19	1	1	
2002	X			0	0	
2003	X			1	0	Lost chick when 2 weeks old.
2004	X			2	2	
2005	X			1	1	
2006	X			1	1	
2007	X			2	2	
2007		Dickey Pond	7/3	2	2	2chicks hatched by a 2 nd pair on Dickey Pond.
2008	X			2	2	2 nd pair nested on Dickey Pond, but lost nest after 1 week.
			Totals:	21	20	

Note: In 20 years, 21 chicks hatched and 20 chicks survived. Ave: 1 chick/year.

In 2003, one chick was hatched, but lost when it was about 2 weeks old, probably during a late night boating incident. It was reported by residents that there was a lot of tremeloeing and wailing at about 1:00 AM on this bright, full moon night.

Ravens and bald eagles regularly perch in trees along the east end and frequently visit the nesting area around the loon’s hatch time.

In 2007, the second loon pair nested late on Dickey Pond and successfully hatched chicks the 3rd week in June, 2007. In the spring of 2008, this pair nested again, midway along the north shore. The nest was abandoned after one week and no egg fragments were recovered. This nest site provided easy access to shoreline predators and dogs.

d. Existing and Alternate Nest Site

The existing nest for the primary pair is on a 6 X 6 ft. platform made of cedar logs. Sod and riparian vegetation has been placed on the wire mesh top. Every year, Guenter Heinz, FS, replaced missing vegetation and placed a pile of straw on top. A ten-inch board was nailed to the west side (windward side) of the platform to minimize the effects of washing from wave action. The platform is pulled to shore and tied to a tree at the water's edge in winter and then put out every spring in early May. It is placed about 40 feet from the shore where the clear water is 4-6 feet deep. The platform is anchored by three double cinder blocks spread out to minimize rocking from wave action. This same platform has been in use for 19 years. The nesting territory extends ~250 yards from the east shoreline westward to the sign buoys and is ~400 yards between the north and south shorelines. See map.

In 1996 an alternate nest site was used on a marshy jut of shoreline on the south shore of the southeast end. This nest was lost and the egg was found out of the nest. (This is not a good nest site as it is small, easily flooded, very close to the road and accessible to on-shore predators.) The pair then re-nested on the platform, but was unsuccessful.

Other potential nest sites for nesting platforms may be at various indentations along the north shoreline. The best would be in one of two small bays along the north shoreline, but at the east end. The small bays closer to the west end often have rope swings nearby. The use of platforms is good on this lake as most if not all of the accessible shoreline has human use of some kind.

In the springs of 2007 and 2008, the second pair nested on Dickey Pond, midway along the N shore of the pond. This site is completely surrounded by private land. The Pond is about 5-14 feet deep and also has clear water. The nest is a natural nest on the grassy and somewhat marshy shoreline. There are no overhanging shrubs. The pair uses the whole pond as their nesting territory and chick-rearing area. It is approximately 150 yards long and 20-25 yards wide.

e. Pair Behavior – Courtship, Nesting, Chick-rearing and Feeding

The primary pair carries out courtship activities (simultaneous bill dipping and diving and hanging close to the shore) in the territory at the east end and uses the marshy jut of land along the south shoreline for onshore nest testing and copulation. They await the placement of the nesting platform every year and stay close while this is occurring. They are usually nesting on the platform within 1-7 days of placement. In the event they lose the first nest, the pair usually re-nests on the platform within one week.

The primary pair uses this same territory behind the buoys for chick-rearing, but also will extend outside the buoys along the north shore. They usually move west along the north shoreline when predators (bald eagles or ravens) are focusing-in on the nesting area and newly hatched/young chicks. As the chicks grow, the family feeds further along the north shoreline.

The second pair on Dickey Pond probably carries out courtship activities on the pond and accessible shorelines of the pond. They may also use the Bible Camp bay near the outlet to the pond.

In 2007, the second pair nested on Dickey Pond and successfully hatched 2 chicks. They used the pond as the chick rearing area. There was concern about the ability of the chicks to get out of the pond and into Dickey Lake for feeding and learning to fly due to a board being placed across the cement inlet to the pond. The board was removed and they did leave the pond. The pair nested again midway along the north shore of the pond in 2008, but lost the nest after about 2 weeks. They did not re-nest.

f. Prey

Fish, crayfish and leeches are important food sources for loons on Dickey Lake. The predominant native fish species are the red shiner, coarse scaled sucker, fine scaled sucker and pygmy whitefish. The nonnative species are the Kamloops, brook trout, Kokanee, northern pike and small-mouthed bass. Dickey Lake is periodically stocked with Kokanee and Kamloops. Small fish, crayfish and leeches are found in the shallow waters along accessible beaches and provide food for chicks. It is important to note prey species habitat requirements, food needs and interactions in order to maintain habitat for all species affected.

g. Predators

A bald eagle nest exists on Murphy Lake that is 1-2 miles from Dickey Lake. The eagles perch in tall trees at various points along the lake and there are a few perch trees in the nesting area at the east end, one directly behind the nest platform. Ravens may also have a nest near the east end and they also congregate near the nesting area. The Bass on Dickey Lake may not be large enough to prey on young chicks, but the pike are. Fishermen report that the pike population is low. The 2007 and 2008 nest site on Dickey Pond unfortunately provides good access to terrestrial predators (dogs, coyotes). It also does not have shrub cover for screening from avian predators.

h. Banding

On 7/12/2004, the first loon was banded on Dickey Lake. It was a juvenile, and one of two chicks of the year from the east end nest. On 6/24/2005, both adults of the east end pair were banded. Then on 7/27/2005, one juvenile was banded and this was the only chick hatched that year. See Common Loons on Dickey Lake Band Table below and Master Band List for descriptions for all area lakes.

Common Loons on Dickey Lake Band Table

Maturity/Sex	Year Banded	Left Leg	Right Leg	Comments
Juvenile	7/12/2004	Silver/Red Stripe	Red/Yellow	
Adult Female	6/24/2005	Green/Green	Orange Stripe/Silver	
Adult Male	6/24/2005	Yellow/Red	Silver/White Dot	
Juvenile	7/27/2005	Silver/White Dot	Green/Green Stripe	Recovered, rehabilitated & released near Santa Cruz, CA

4. Potential Impacts and Human Disturbance

a. Shoreline Habitat

The forested east shoreline habitat that is adjacent to the nesting area is FS old-growth forest. It is fairly secure from harvest/logging activities, however this designation may not continue. Fuel reduction activities may be considered as long as old-growth character is maintained. Any management activities should mitigate potential disturbance to the loon nesting area.

b. Special Hazards or Contaminants

The roads are possible future sources of highway salt and dust abatement chemical contamination to the lake and the nesting area. A blanket of dust from the road along the south shore extends over the lake during the dry summer. There is potential for spills of hazardous materials from trucks traveling on Highway 93.

Water and sewer for the housing sites and the Dickey Lake Bible Camp are a potential concern for water quality. Some of the early houses get their drinking water from the lake, but also have septic systems that drain into the lake.

Oil and gas from boat motors are water contaminants. Boats also have the potential to introduce noxious weeds such as milfoil.

c. Fluctuating Water Levels

Water levels can fluctuate naturally in the spring and early summer especially in a rainy year. Water levels have been artificially raised in the summer when the outlet is blocked by an 8-10 inch board (reportedly by homeowners for boating purposes). Use of the nesting platform effectively addresses fluctuating water levels for the east end nest, but blocking the outlet is a problem for the Dickey Pond pair when they have chicks. The pond is not long enough for flight take-off and the chicks must be able to access Dickey Lake to learn to fly and to reach a larger food source.

d. Fisheries Management

Gill netting, survey and stocking activities can negatively impact loons if they are conducted from early spring – mid-July in the courtship, nesting or chick-rearing areas. Any activities should be addressed in regard to timing and potential impacts. Rotenone is not likely to be used on Dickey Lake as the lake is a water source for some residents.

e. Human Disturbance from Development

Common Loon pairs most likely nested, historically in the flatter, accessible beach areas along the western shoreline. Most of the house sites in the private section at the west end are now occupied. There is open land between the homes and Dickey Pond. The private land around and adjacent to Dickey Pond is not developed at this time, but any future development would have a

great impact on the future of loon nesting success for this pond this nesting area. It would make it virtually impossible to nest on Dickey Pond.

The FS campground and day-use areas are recreational sites where any additional developments or improvements could have potential effects to the shoreline (sediment) and water or contaminant (fertilizer, oil and gas from boats) drainage into the lake.

In the 1990's, the FS was contacted about closing the road from the South Shore Day Use area west past the Osler campground, the Dickey Lake Bible Camp and out to the county road. The FS made an attempt through signing and policy to direct traffic to the Day Use area from the east end access off of Highway 93. This effectively increased the amount of traffic past the E end nesting area and increased the amount of dust. Most of the local Trego community still uses the west access that does not pass the nesting area. This continues to be an issue and there is FS consideration of closing the road from the Day Use area to the Osler Campground and turning it into a walking trail. This would effectively increase and likely double the amount of traffic passing the nesting area to reach the Day Use area.

The south shore road passes close to the primary nest at the east end and any road work during the spring may cause disturbance including potential abandonment of the nest. There is a road pullout on FS land that has been used as a dispersed camping site. This is the location of the known, but poor alternate nest site and the loon mating area. Human use of this area has a great potential for disrupting loon courtship, nesting and chick-rearing activities.

f. Human Recreational Disturbance

The motorized watercraft use is mainly in the NW 2/3 of the lake. In the 1990's, motorized watercraft use on Dickey Lake increased significantly from what it had been in the 1980's. This is attributed to the increased number of people moving into the area, the doubling in size of the north FS Campground (early 1990's) and the increased use of the lake by watercraft. Boats and jet skis venture into the east end, so having the sign buoys across the lake during nesting and the first two weeks of chick rearing is critical.

In the 2000's, motorized watercraft use continues to increase, but it is mainly concentrated during good weather days and is often free from watercraft during poor weather days (as it has been historically). The effects in regard to global warming are uncertain, but if it means an increase in clear, sunny days, it most likely means an increase in concentrations of motorized activities.

Water quality problems associated with motorized recreation are shoreline erosion from increased wave action and pollution from poor boat fuel handling. Other potential conflicts are from speedboat or ski boat wakes that wash sod and vegetation from the nesting platform or cause extreme rocking that result in the adult loon leaving the nest. All have been observed on Dickey Lake.

Non-motorized recreation, mostly canoeing and kayaking is focused mainly from the South Shore Day Use area toward the quieter east 1/3 of the lake and the loon nesting area. Some also occurs in the Bible Camp bay and along the north shoreline from the FS Campground.

“During the nesting phase, any boat that moves slowly, hugs the shore and is likely to stop is a threat, whether motorized or not (Dolan 1994). The adult loon is likely to leave the nest, exposing the eggs to cooling and predators. Adult loons are also known to accidentally kick the eggs out of the nest when startled and then the eggs are lost when they sink into the water.

“During the chick-rearing stage, while the loons stay close to the shore, any boat that uses that area will disrupt the family’s behavior. However, once the loons start to use a larger area and move farther from shore, speedboats are more likely to separate families. Motorized boats and jet skis are involved in most accidental collisions and harassment” (Dolan 1994). “Young chicks are poor swimmers and divers and can easily be killed by a fast moving boat” (McIntyre 1988). Whenever a family group is separated, the chicks become more susceptible to predators.

g. Potential Hazard/Conflict Ratings

Using the criteria listed below, Dickey Lake has a **potential hazard rating of 1**. It is unlikely the nest or chick-rearing areas will become lost, but this hazard rating only applies as long as management continues to provide a nesting platform and sign buoys to protect the existing nesting and chick-rearing areas.

Potential Hazard Rating for Nests

1. Unlikely that the nest will become lost or unsuitable and known alternate nest sites are available; chick-rearing areas have protection from motorized recreation.
2. Likely that the nest will become lost or unsuitable in the foreseeable future, but known alternate nest sites are available; or likely that chick-rearing areas will not have protection from motorized recreation.
3. Nest or nest site is in immediate danger of becoming lost or unsuitable and alternate nest sites are not available; chick-rearing areas do not have protection from motorized recreation.

Dickey Lake has a potential conflict rating of 2-3. Ever-increasing recreational activities on the lake affect chick-rearing and feeding. The potential redirecting of all traffic from the east end to the FS Day Use area on the south shore will impact the east territory of the primary pair. Potential development of the private land around and adjacent to Dickey Pond would make that territory unusable for the Dickey Pond pair.

Potential Conflict Rating for Territory

1. Activities that could impact the territory are not occurring now, nor are any planned.
2. Activities that could impact the territory are not occurring now, but are anticipated for the foreseeable future. Examples are new subdivisions, new recreation site, increased watercraft use, road construction or timber harvest.
3. Activities that would impact the territory are occurring or are planned for the immediate future. Examples are new subdivisions, new recreation site, increased watercraft use, road construction or timber harvest.

5. Management Recommendations

a. Coordination with Landowners and Resource Managers

The Common Loon Working Group shall review the site-specific lake management plan for adequacy and interpretation of data and they will provide management recommendations. In all considerations such as housing, campground or recreation site development/improvements, land management activities or road construction/alteration, it is important to coordinate with and provide recommendations to landowners and resource managers.

Proper planning for water and sewage systems should address important water quality issues. Older water and sewage systems may need to change to higher standards. Coordination with state and county road crews and mitigation for any potential chemical contamination from roads is necessary for maintaining good water quality.

b. Nest Site and Nursery Area Protection

Due to the loss of historical nesting habitat, continued use of the nesting platform at the east end of Dickey Lake is highly recommended. The loon pair has used the platform for the last 19 years. The platform is moved out from the shoreline in early May. The sign buoys asking lake users to stay out of the nesting area are placed at the same time. The usual time the buoys are in place is about 6 weeks- 4 weeks during incubation and the first 2 weeks after the chicks hatch. This may be extended if the first nest is lost and a re-nest occurs. In the fall, the nesting platform is moved in to the shoreline to protect it from wind damage and later, possible vandalism by winter recreationists (building fires on or with it).

An increase in the amount of traffic passing the nesting area at the east end in order to access the South Shore Day Use area may cause nest disturbance and potential abandonment of the nest site. This should be an important factor in any FS decision made about access here and mitigation should be addressed.

The pullout along the south shore should not become known as a camping site as it directly impacts this loon territory for courtship, nesting and chick-rearing. It would be best to remove any pullouts from this area in order to keep traffic moving. Major highway or any road work during the spring should be noted as a concern for the nesting success of this loon pair.

To promote successful nesting on Dickey Pond, it is critical to work with the local landowner, XXXX XXXXXX, XXX and partners (XXXX XXXXXXXXXXX) and interested local homeowners, XXXX and XXXXX XXXXXXXX. We should pursue the potential planting of a vegetation screen to protect the nest from avian and onshore predators. Lake owners involved with placing the board across the outlet (raising the water level of the lake) should be coordinated with and provided information about effects to nesting loons. Coordination with FWP about this issue is recommended.

c. Monitoring

Monitoring of Common Loon activities on the lake from ice-out (usually 1st-2nd week in April) until flight south (mid-September- late October) in the fall is important for successful management. Monitoring of nesting and chick-rearing activities, usually May - mid-July provides critical knowledge to the manager about all aspects of loon behaviors, human activities and loon/human interactions. It is also important in the identification of loon bands for verification of historical nesting by resident pairs, foraging on other lakes and dispersal of previous year's chicks that have returned as young adults.

Continuation of the Spring and Summer Loon counts is critical for tracking successful nesting and productivity. The CLWG has a good structure set up using Area Coordinators, loon rangers and volunteers to accomplish these goals. A standard loon observation form is used to monitor loon activities and the same form is used for the Spring and Summer Loon counts. See Appendix E of the Conservation Plan for the Common Loon in Montana. This information can then be recorded in the Montana NRIS Loon Database.

d. Banding

Continued participation in the loon banding effort is critical to tracking the loon population, consistency of a specific pair on a territory, forage use of nearby lakes and dispersal to other lakes. A high powered spotting scope, monitoring, documentation and reporting are important to successful tracking of loon bands.

e. Public Information

The FS places a notice in the local newspaper every spring to provide information to the public about nesting loons and sign buoys being temporarily placed for the voluntary closure on local lakes. Informational signs regarding loon nesting are placed at boat launches. A loon ranger monitors loon activities and visits the boat launches to provide information to lake users. This has all been successful on Dickey Lake, as people have gotten used to the yearly temporary closure.

f. Coordination with Fisheries Management

The FS shall contact FWP for fish gill netting, surveys or stocking schedules and locations. Any activities shall be addressed in regard to timing and potential impacts to nesting and chick-rearing. These shall be recorded as part of this plan.

g. Protection of Wildlife and Water Quality by Law Enforcement

The FWP game warden provides law enforcement for any fishing and boating regulations on the lake. For motorized recreation, the warden's enforcement of the 200-ft. no-wake limit and boat fuel handling is essential for the protection of water quality. Law enforcement of fishing and boating regulations is also important for the safety and protection of loons, fish and other wildlife.

6. Summary

Dickey Lake is important for common loon nesting and foraging and it is used as a loon migration staging area (stop-over). Dickey Lake has a potential hazard rating of 1 and a potential conflict rating of 2 to 3. It is unlikely the nest or chick-rearing areas will become lost, but this hazard rating only applies as long as management continues to provide a nesting platform and sign buoys to protect the existing nesting and chick-rearing areas. The conflict rating is higher due to ever-increasing recreational activities, likely redirection of traffic past the nesting/nursery area and potential private land development around and adjacent to Dickey Pond.

Our efforts to protect the nest sites and chick-rearing areas from disturbance, monitor loon activities and work with the public should continue. It is essential to actively coordinate with private landowners, agencies and other groups to protect important habitat and mitigate potential effects to water quality. Continued increase in development and recreational activities could affect the productivity of loons using Dickey Lake. The development of lake management plans that address watercraft and jet-ski activity levels on area lakes must be a priority for agencies that manage loons.

7. Author and Date

Written by Christie Ferruzzi on February 20, 2009

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8. References Cited

- Dolan, P. M. 1994. The Common Loon (*Gavia immer*) in the Northern Region: Biology and Management Recommendations. USDA Forest Service, Region 1, Missoula, MT. 45 pp.
- [Kelly, L. M. 1992](#). The effects of human disturbance on Common Loon productivity in northwestern Montana. M. S. thesis, Montana State University, Bozeman, MT, 65 pp.
- McIntyre, J. W. 1988. The Common Loon: Spirit of Northern Lakes. University of Minnesota Press, Minneapolis. 228 pp.
- Skaar, D. 1991. Monitoring and protection efforts for loons on four lakes on the Fortine Ranger District. North American Loon Fund, Kootenai National Forest, Montana Department of Fish, Wildlife and Parks. 35 pp.
- Strahler, A. N. 1981. Physical Geology. Harper & Row, Publishers, New York. pp 468-473.

