

2011 Missoula Aquatic Plant Lake Point Survey

Water bodies Surveyed: Seeley Lake, Salmon Lake, Placid Lake, Lake Alva, Lindbergh Lake, Lake Inez, Brown's Lake, Rainy Lake, Holland Lake, Hidden Lake, Cooper's Lake

Date and Crew Members:

8/16/2011- Holland lake (Gunnar Rocksund, Lindsey Bona-Eggeman, Sarah Holden, Steffany Rogge-Kindseth)

8/17/2011- Lindbergh Lake (Gunnar Rocksund, Lindsey Bona-Eggeman, Sarah Holden)

8/23/2011- Lake Inez (Gunnar Rocksund, Lindsey Bona-Eggeman, Sarah Holden)

8/24/2011- Brown's Lake (Gunnar Rocksund, Lindsey Bona-Eggeman, Sarah Holden, Karen Laitala)

8/25, 8/30/2011- Seeley Lake (Gunnar Rocksund, Lindsey Bona-Eggeman, Sarah Holden, Erik Hanson & crew)

9/1/2011- Salmon Lake (Gunnar Rocksund, Sarah Holden, Celestine Duncan, Erik Hanson & Crew)

9/6/2011- Cooper Lake (Gunnar Rocksund, Sarah Holden)

9/7, 9/8/2011- Placid Lake (Gunnar Rocksund and Sarah Holden)

9/12, 9/14/2011- Lake Alva (Gunnar Rocksund, Sarah Holden, Lindsey Bona-Eggeman)

9/13/2011- Hidden Lake (Gunnar Rocksund and Sarah Holden)

9/13/2011- Rainy Lake (Gunnar Rocksund and Sarah Holden)

Points Surveyed: points ranged from 5-2 throws of the rake per point

Seeley-44

Lindbergh-11

Holland-6

Salmon-42

Inez-9

Hidden-13

Placid-100

Brown's-8

Coopers-20

Alva-20

Rainy-26

Non-Native Aquatic Plants= Negative

The Big Blackfoot Watershed lies in West-Central Montana, in the counties of Missoula, Powell and Lewis and Clark. The Chain of Lakes region includes the entire Clearwater River watershed as well as the upper portions of the Swan River watershed and lies primarily within Missoula County, extending into Lake County.

Montana Fish Wildlife & Parks (FWP) has conducted fishing pressure and boat user surveys that show the watershed that we are focusing on is a very valuable resource for fishing and other water recreation, and sees a high volume of traffic as a result. Fishing pressure survey results from 2005-2009 show that 17 of the 20 most fished lakes in Missoula County and 14 of the 20 most lakes fished in Missoula, Lake, Powell, Ravalli, Mineral and Granite Counties of Western Montana are within our project area. Boater surveys, while showing high use for our project area, also show that a majority of water users in Western Montana recreate in our project area as well as neighboring waters like Flathead Lake and the Noxon and Cabinet Gorge Reservoirs. Out-of-state boaters will often recreate on multiple water bodies on the same trip. Results of boat/trailer inspections from Noxon and Cabinet Gorge Reservoirs done from May to July 2009 show that a full 25 percent of boaters were from Missoula County, representing almost half of the non-local boat traffic. Additionally, of the 268 trailers inspected (around 10-15% of all trailers), 9.5% were positive for either Eurasian watermilfoil or curly leaf pondweed. A number of the lakes close the Swan Pass would probably be defined as oligotrophic, with little to no vegetation growing in the littoral zone. Lakes with a high density of camps and houses had noticeably more vegetation. The Clearwater River with its slow moving water and back channels shows great potential for the introduction invasive plants.

Recommendations: With the recent discovery of EWM in the Flathead, yearly surveys are recommended in the main high-use lakes (Seeley, Salmon, Placid, Lindbergh, Alva, Inez, Brown's and Holland). Next year the Clearwater River, below Salmon Lake to the confluence with the Blackfoot and the Blackfoot should be surveyed.

Seeley Lake: This Lake has the highest amount of usage and is the most populated with houses and cabins. There was a substantial amount of vegetation growing in the lake, a lot of lily pads and bulrushes. 13 species of submerged aquatic plants were identified. Secchi reading= 16'. Points were taken at 5'-15' deep.

Salmon Lake: This Lake also has high usage and has a high amount of vegetation growing in it. Flowering Rush was reported in the lake but has never been found since the report. 42 points were taken and 9 species of submerged aquatic plants were identified. Points were taken at depths between 5' and 16'. Secchi depth = 16'.

Placid Lake: Placid Lake is another lake with a lot of camps and houses. The vegetation was high on this lake. 15 different species of submerged aquatic plants were identified. 100 points were taken on this Lake at depths between 3' and 18'. No secchi reading. No pictures

Lake Alva: Lake Alva is a very rocky clear lake. The banks are steep and drop off quickly. The inlet and outlet lend themselves to the establishment of aquatic invasive plants. In the inlet and outlet there is more sediment and shallow areas. Alva has no cabins or private property only Forest Service campgrounds. Only 10 different aquatic species were identified in the lake and 27 points were taken. The depths of the sample were between 5'-18' and a secchi reading of 23'.

Lindbergh Lake: This Lake was one of the first lakes we monitored. One side of the lake has camps and the other does not. We monitored on the camp side. The lake is very clear and rocky,

with little vegetation growing in the littoral zone. Consequently, we only identified 3 species and 11 points were sampled. Erik Hanson also sampled on this lake.

Lake Inez: This Lake is very similar to Alva and Lindbergh in its aquatic plant community make-up. The water is very clear and it has rocky steep embankments. The areas near the inlet and outlet as well as near private docks that is potential areas for aquatic invasive species to establish, the inlet is especially vegetated. Only 9 points were taken and only 4 species of aquatic plants were identified. No secchi taken.

Brown's Lake: Is located in Powell County and is a popular fishing destination. This lake has a mucky bottom and grows a lot of aquatic vegetation. From our survey the vegetation is pretty ubiquitous across the Lake and lacks diversity. We sampled 8 points and only identified 5 species of aquatic plants. We sent one sample to MSU for identification as potential curly leaf pondweed, it came back negative. No secchi was taken.

Rainy Lake: Rainy Lake is a non-motorized use lake but sees a fair amount of usage from fisherman and canoes. We noted that there were not AIS informational signs at the kiosk. 26 points were taken and 9 species of aquatic plants were identified. Points were taken at 1'-18' deep, a secchi reading of 18' was taken.

Holland Lake: This was the first lake monitored this summer. The Lake is very clear and has steep embankments. Holland Lake has private cabins, a guest resort and state owned campgrounds. Very little aquatic vegetation was growing in the littoral zone in Holland Lake. 6 points were sampled and 5 species of aquatic plants were identified. No secchi was taken.

Hidden Lake: This is a non-motorized use lake. Not a high priority lake, chances of AIS infesting this lake are low. 13 points were taken and 6 aquatic species were identified. Secchi reading = 13' and points were taken between 4' and 19'.

Cooper's Lake: Cooper's lake is located in Powell County. This is another high elevation lake with minimal aquatic vegetation growing on the bottom. Cooper's lake is deep and clear with a secchi reading of 36'. 20 points were taken and 5 aquatic species were identified. Points were taken between 5'-20'. We noted the need for an AIS informational sign at the boat dock.

Project Year	2011	<u>AIS Present</u>	<u>Sample Sent</u>	<u>Species Present</u>
<u>Lake</u>	<u>Date</u>			
ALVA	9/14/2011	NO	NO	PTMPR, CHARA, NAIFL, PTMIL, NITEL, RANTR, ELOCA, MAR, MYPSI, PTMRI
ALVA	9/12/2011	NO	NO	PTMPR, CHARA, NAIFL, PTMIL, NITEL, RANTR, ELOCA, MAR, MYPSI, PTMRI
BROWN'S	8/24/2011	NO	YES	NAIFL, PTMRI, CHARA, CEYDE, MYPSI, PTMIL
COOPER	9/6/2011	NO	YES	PTMRI, MYPSI, CHARA, BW, NITEL
HIDDEN	9/13/2011	NO	NO	CHARA, NYMOR, ELOCA, PTMRO, PTMRI,, MYPSI,
HOLLAND	8/16/2011	NO	NO	ELOCA, MYPSI, PTMRO, PTMIL. CEYDE
INEZ	8/23/2011	NO	NO	ELOCA, PTMRO, MYPSI, NYMOR
LINDBERG	8/17/2011	NO	NO	ELOCA, PTMRO, PTMNA
PLACID	9/7, 9/8/2011	NO	NO	PTMRO, PTMIL, CEYDE, PTMRI, ELOCA, CHARA, MYPSI, NAIFL, RANTR, NITEL, PTMPR, PTMZO, MAR, QUI, HPPVU
RAINY	9/13/2011	NO	NO	CHARA, PTMZO, ELOCA, PTMRO, PTMRI, MYPHI, MYPSI, PTMIL, PTMPR
SALMON	9/1/2011	NO	NO	ELOCA, PTMRO, MYPSI, NYMOR, RANTR, CHARA, PTMRI, MAR, BW
SEELEY	8/25, 8/30/2011	NO	NO	PTMNA, ELOCA, PTMRO, BW, RANTR, PTMNA, NAIFL, PTMRI, CHARA, MYPSI,

Common aquatic plants in Montana and Bayer Codes

Common name	Scientific name	Bayer code
arrowhead, wedgeleaf	<i>Sagittaria cuneata</i>	SAGCU
celery, water (eelgrass)	<i>Vallisneria americana</i>	VAIAM
chara	<i>Chara spp.</i>	CHARA
coontail	<i>Ceratophyllum demersum</i>	CEYDE
Elodea, common	<i>Elodea canadensis</i>	ELOCA
flowering rush	<i>Butomus umbellatus</i>	BUTUM
marestalk, common	<i>Hippuris vulgaris</i>	HPPVU
naiad, slender	<i>Najas flexilis</i>	NAIFL
Nitella	<i>Nitella spp.</i>	NITEL
pondweed, American	<i>Potamogeton nodosus</i>	PTMNO
pondweed, curly leaf	<i>Potamogeton crispus</i>	PTMCR
pondweed, flatstem	<i>Potamogeton zosteriformis</i>	PTMZO
pondweed, floatingleaf	<i>Potamogeton natans</i>	PTMNA
pondweed, horned	<i>Zannichellia palustris</i>	ZAIPA
pondweed, Illinois	<i>Potamogeton illinoensis</i>	PTMIL
pondweed, leafy	<i>Potamogeton foliosis</i>	PTMFO
pondweed, Richardard	<i>Potamogeton richardsonii</i>	PTMRI
	<i>Potamogeton (Stuckenia)</i>	
pondweed, sago	<i>pectinatus</i>	PTMPE
pondweed, variableleaf	<i>Potamogeton gramineus</i>	PTMGR
pondweed, whitestem	<i>Potamogeton praelongus</i>	PTMPR
rush, brownfruit	<i>Juncus pelocarpus</i>	IUNPE
stargrass, yellow	<i>Heteranthera dubia</i>	HETDU
waterbuttercup, white	<i>Ranunculus aquatilis</i>	RANTR
waterlilly, fragrant	<i>Nymphaea odorata</i>	NYMOR
watermilfoil, Eurasian	<i>Myriophyllum spicatum</i>	MYPSP
watermilfoil, northern	<i>Myriophyllum sibiricum</i>	MYPSI
watermilfoil, western	<i>Myriophyllum hippuroides</i>	MYPHI
BLADDERWORT		BW
pondweed, fern-leaf	<i>Potamogeton robbinsii</i>	PTMRO
marigold		MAR
Quilwort		QUI