

EXHIBIT 18

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HB 7

# DNRC Aquatic Plant Management Grant Projects

## 2011-2012 Summary



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## Executive Summary: Eurasian Watermilfoil (EWM) Control Projects

Eurasian watermilfoil (EWM) is present at five locations in Montana: the lower Jefferson River, upper Missouri River and associated reservoirs (to upper Canyon Ferry), Fort Peck Reservoir, lower Clark Fork (Noxon and Cabinet Gorge Reservoirs), and Beaver Lake. Control was initiated on all EWM infested water bodies in 2011 and 2012. There was insufficient funding to address curly leaf pondweed or flowering rush. Control options for flowering rush are not available at this time; however, research is on-going in Montana and Idaho. Control options for EWM in natural flowing-water systems are limited mainly to hand removal and barriers. Details of control projects are discussed below.



Figure 1: Bottom barriers were used to control EWM near boat dock in Beaver Lake



Figure 2: SCUBA divers were used to remove EWM from isolated infestations in Beaver Lake

**Flathead County- Beaver Lake EWM Removal Project (2010/2011/2012):** \$12,000: Contact Jed Fisher 406-758-5798; [weed1@digisys.net](mailto:weed1@digisys.net); or Flathead Lakers: Robin Steinkraus. 406-883-1346

[lakers@flatheadlakers.org](mailto:lakers@flatheadlakers.org): An infestation of EWM was reported in Beaver Lake in October 2010. A control and containment program was initiated immediately after discovery, and an eradication effort began in 2011. The project includes installation of bottom barriers (Figure 1), diver removal of plants (Figure 2), screened barriers to stop movement of the weed to connecting water bodies, and periodic monitoring of the lake and associated water bodies to assure that infestations are found and removed. **Results:** SCUBA divers removed about three pounds of EWM in July from the barrier location and an additional 23 pounds of EWM in August, with the majority from two small outlying infestations discovered during snorkel surveys. The lake will be monitored periodically and all plants removed. Fragrant water lily is also present in the dock area and is scheduled for removal in 2013.

**Jefferson Valley Conservation District - EWM Removal in Jefferson Slough (2012):** \$17,500: Contact Kris Hugulet, 406-287-7875, [jvmh57@qwestoffice.net](mailto:jvmh57@qwestoffice.net) and Celestine Duncan, field coordinator 406-443-1469 [weeds1@mt.net](mailto:weeds1@mt.net): The uppermost known infestation of Eurasian watermilfoil in the Missouri River headwaters is located in Jefferson Slough (Figure 3). The project included characterization of the slough, control of uppermost EWM infestations within the slough, and public education/outreach. **Results:** Crews hand pulled



Figure 3: Irrigation water flow is slowed by cattails, EWM and sediment from upstream.

4,458 pounds of aquatic plants (2,841 pounds EWM) in the upper 1.68 miles of the infestation within the slough and associated pond in late July 2012 (Figure 4). An estimated 28,000 pounds of EWM (47,000 pounds submersed aquatic plants) remain in the lower part of the channel to the confluence with the main Jefferson River. The slough was also characterized at 30 points for flow velocity, sediment depth, channel width, slope etc. (Figure 5). Gallatin County Weed District and Watershed Corp completed 1.5 miles of aquatic plant survey downstream the main channel from Drouillard Fishing Access Site on the lower Jefferson River. EWM was present throughout the channel with varying densities and in all substrates. Channel flow is heavily influenced by groundwater. An AIS display for fairs/meetings/and other public events was developed.

Figure 4: Crews removed 4458 lbs. of EWM and other aquatic plants in the upper portion of the infestation in Jefferson slough.



Figure 5: Measurements on slough channel included flow velocity, sediment depth, width/slope, and vegetation.

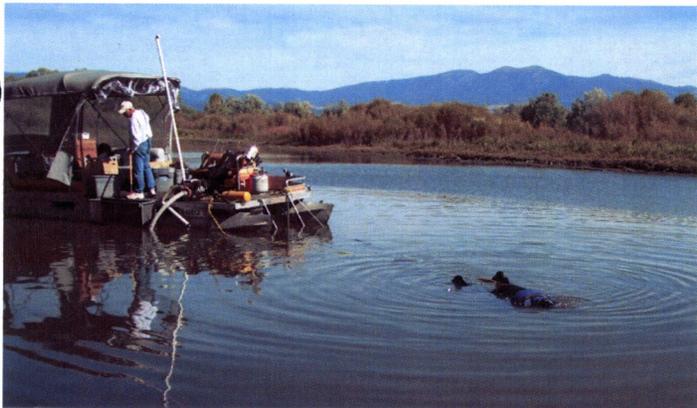
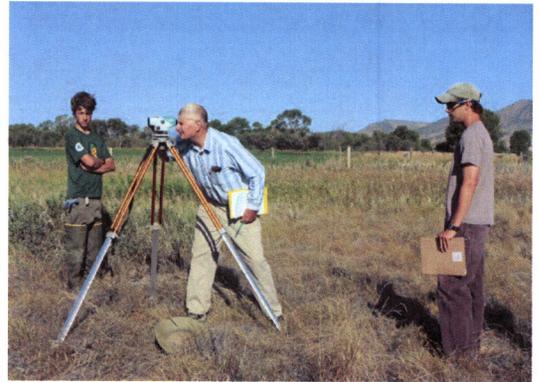


Figure 6: ACE diving removing EWM from Toston Reservoir in 2011.

**Toston Reservoir - EWM Removal project**

(2010/2011/2012): \$40,000: DNRC project: Contact Alicia Stickney 406-444-0547; [astickney@mt.gov](mailto:astickney@mt.gov). EWM was reported in Toston Reservoir in 2010. Manual removal with divers (Figure 6) and installation of bottom barriers has been on-going annually since fall 2010. Results: About 1300 pounds of aquatic plant material was removed in 2010. Although there was an increase in total biomass removed in 2011, the amount of EWM removed declined from 2011 to 2012 on most sites that had been pulled for three consecutive years. Total amount of EWM removed was 1,542 pounds in 2011 and 1,547 pounds in 2012.

**Petroleum County Conservation District - Fort Peck EWM Demonstration Project (2012):** \$5000 Contact: Laurie Riley, 406- 454-0056, [www.missouririvercouncil.info](http://www.missouririvercouncil.info). The project included an aquatic plant survey on the lower Missouri and funding to help support herbicide demonstration plots on Ft. Peck in the dredge cut and near Rock Creek. Results: Herbicide treatments were applied to 27 acres by Clean Lakes Inc. in 2012. Dr. Kurt Getsinger, USACE, is monitoring results of the treatments.



Figure 7: Herbicide treatment on EWM infestations in the dredge cuts.

**Sanders County Aquatic Invasive Plant Task Force – EWM control on Noxon and Cabinet Gorge Reservoirs:** \$111,000 expended on \$300,000 grant: Contact: John Halpop, 406-827-6934 [jhalpop@montana.edu](mailto:jhalpop@montana.edu). EWM was first reported in Montana at Noxon Reservoir in 2007. A survey of the lower Clark Fork reservoirs found about 400 acres infested with EWM, 700 acres with curlyleaf pondweed, and 100 acres of flowering rush. Results: Clean Lakes Inc. used Littline equipment (Figure 8 and 9) to treat 172 acres of EWM in 2012. Herbicide treatments included endothall, triclopyr, and diquat, applied alone and in combination, depending on site conditions and water flow. Herbicide prescriptions for the various sites were based on preliminary studies conducted in the reservoir in 2009 and 2010. Pre- and post-treatment aquatic plant sampling (Figure 10) was completed on Noxon Reservoir to quantify herbicide treatments. Plant data collected six weeks post-treatment indicated good to excellent (80 to 95%) control of EWM on the majority of treatment sites. Herbicide treatments will continue in 2013. The goal of the project is to reduce EWM infestations to a maintenance level.



Figure 8: Clean Lakes Inc during herbicide application with Littline system.



Figure 9. Close-up of Littline System.



Figure 10: Pre- and post- plant sampling was used to determine level of aquatic plant control with herbicides.

## Executive Summary: Inventory/Survey Projects: \$285,000

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There were 118 lakes or reservoirs and 15 rivers within five major watersheds in Montana where detailed surveys were conducted for aquatic invasive plants. Results of the surveys found that about 24 percent of lakes/reservoirs and 66 percent of rivers were found positive for at least one submersed aquatic invasive plant. The following tables summarize rivers, lakes, and reservoirs surveyed, and water bodies that were found positive for aquatic invasive plants in Montana.

**Table 1: Rivers and river segments that have been surveyed in Montana**

Beaverhead River  
Big Hole River (Notch Bottom Fishing Access Site to Pennington Bridge Fishing Access Site)  
Big Hole River  
Bitterroot River (6 points)  
Bitterroot River (river mile 41 to river mile 21)  
Blackfoot River (15 points)  
Clark Fork River (10 points)  
Clark Fork River Fishing Access Site  
Flathead River: 10 miles upstream from Flathead Lake  
Flathead River (river mile 66 to river mile 36)  
Gallatin River  
Jefferson River  
Jefferson Slough  
Madison River above Ennis Reservoir  
Madison River below Ennis Reservoir (portions)  
Missouri River (Three Forks to Toston Reservoir)  
Missouri River (Toston Dam to Canyon Ferry)  
Missouri River (Holter Lake to Great Falls)  
Missouri River (Fort Benton to Loma)  
Missouri (Coal Banks to Little Sandy; James Kipp)  
Missouri River (Judith Landing to Holmes Council)  
Missouri River (Fort Peck Dam to Frazer Rapids)  
Red Rock River (above and below lakes)  
Roe River  
Ruby River (above reservoir)  
Ruby River (below reservoir)  
Yellowstone River (portions Livingston to Glendive)

**Table 2: Lakes and reservoirs in Montana surveyed for aquatic invasive plants**

County	Lake or Reservoir		
Beaverhead	Clark Canyon Elk	Lima Poindexter Slough Upper and Lower Red Rock	
Big Horn	Tongue River		
Broadwater	Canyon Ferry Cottonwood Slough and associated ponds	Toston	
Carbon	Cooney		
Deer Lodge	Warm Springs Kids Pond		
Flathead	Ashley Beaver Blanchard Dollar Echo Egan Slough Flathead Lake	Foy Lake Hungry Horse Lake Five Lion Little Bitterroot Lower Stillwater McDonald	McGregor Stillwater Sylvia Tally Whitefish
Gallatin	Gallatin Pond	Hyalite	Hebgen
Granite	East Fork Echo Georgetown	Lower Willow Creek Moose	
Hill	Bear Paw	Fresno	
Jefferson	Jefferson Slough		
Lewis & Clark	Hauser Holding Reservoir Holter	Holter Helena	Willow Creek Canyon Ferry
Lake	Lower Crow Horseshoe Kicking Horse	Mary Ronan Loon Ninepipe	Pablo Swan Van
Liberty	Ewell		
Lincoln	Dickey Glen	Savage Spar	Thompson Chain Lakes
Madison	Cataract Cliff	Ennis Ruby	Wade Willow Cr
Meagher	Newlan		
Missoula	Alva Beavertail Hill Pond Big Sky Blanchard Brown Cottonwood Elbow Elsina	Frenchtown Pond Harpers Hidden Holland Inez Lindberg Lolo Marshall	Pierce Placid Rainy Salmon Seeley Summit Tuppers
Park	Dailey		
Philips	Nelson		
Pondera	Francis		
Powell	Conley Coopers	Mud Nevada	Tin Cup Upsata
Ravalli	Como Painted Rocks	Painted Rocks	
Sanders	Cabinet Gorge	Thompson Falls	Noxon
Teton	Bynum	Gibson	Fishkun
Valley	Fort Peck		

**Table 3: Lakes and reservoirs infested with aquatic invasive plants in Montana<sup>1</sup>**

<b>Lakes/ Reservoirs</b>	<b>County</b>	<b>Aquatic Invasive Plant</b>
Beaver Lake	Flathead	EWM, Fragrant Water Lily
Blanchard Lake	Flathead	Fragrant Water Lily
Cabinet Gorge Reservoir	Sanders	EWM, CLP, FR
Echo Lake	Granite	Fragrant Water Lily
Ennis Lake	Madison	CLP
Flathead Lake (northern half)	Lake/ Flathead	FR
Flathead Lake (flowering rush survey)	Flathead	FR
Flathead Lake (portions-southern)	Flathead	FR
Fort Peck Dredge Cuts (Below Ft Peck Dam)	Valley	EWM
Fort Peck Reservoir (portions)	Valley others	EWM
Fort Peck Trout Pond	Valley	CLP
Gallatin Pond	Gallatin	CLP
Hauser Lake	Lewis & Clark	CLP
Hebgen Reservoir	Gallatin	CLP
Helena	L&C	CLP
Helena Holding Reservoir	L&C	CLP
Hidden Lake	Missoula	Fragrant Water Lily
Holter (high risk sites)	L&C	CLP
Horseshoe Lake	Lake	Fragrant Water Lily
Hungry Horse Reservoir	Flathead	FR
Inez	Missoula	Fragrant Water Lily
Kicking Horse Reservoir	Lake	CLP
Loon Lake	Lake	Fragrant Water Lily
Ninepipe Reservoir	Lake	CLP
Noxon Reservoir	Sanders	EWM, CLP, FR
Pablo Reservoir	Lake	CLP, FR
Placid Lake	Missoula	Fragrant Water Lily
Salmon Lake	Missoula	Fragrant Water Lily
Seely Lake	Missoula	Fragrant Water Lily
Thompson Falls Reservoir	Sanders	CLP, FR
Toston Reservoir	Broadwater	EWM, CLP
Upsata Lake	Powell	Fragrant Water Lily

<sup>1</sup> A total of 118 lakes or reservoirs have been surveyed with 29 infested for one or more submersed aquatic invasive plant (24%). Soughs were considered part of the river.

CLP = Curly Leaf Pondweed, EWM = Eurasian Watermilfoil, FR = Flowering Rush

**Table 4: Rivers infested with aquatic invasive plants in Montana<sup>2</sup>**

<b>River or River Segment</b>	<b>County</b>	<b>Aquatic Invasive Plant</b>
Jefferson (lower)	Jefferson	EWM, CLP
Jefferson Slough	Jefferson	EWM, CLP
Missouri (Three-Forks to Toston Reservoir)	Broadwater	EWM, CLP
Missouri River (Toston Dam to Canyon Ferry)	Broadwater/ Gallatin	EWM, CLP
Missouri (Ft Peck Dam to Frazer Rapids)		EWM
Bitterroot River (6 points)		CLP
Bitterroot River (river mile 41 to river mile 21)	Ravalli	CLP
Clark Fork River (10 points)	Missoula	CLP
Clark Fork River Fish Access Site	Powell/Missoula	CLP
Clark Fork River	Sanders	CLP, FR
Cottonwood slough/ditch/pond/ deposition area where Missouri enters Canyon Ferry (considered part of Missouri)	Broadwater	EWM, CLP
Flathead River: 10 miles upstream from lake; FR at Fennon Slough but not observed above	Flathead	CLP, FR
Flathead River (river mile 66 to river mile 36) about 10 miles below Kerr Dam	Lake	CLP starts at river mile 45, FR
Gallatin	Gallatin	CLP
Madison	Madison	CLP
Madison (below Ennis Reservoir-portions)	Madison	CLP
Missouri (Fort Benton to Loma)	Chouteau	CLP
Missouri (Judith Landing to Holmes Council)	Chouteau	CLP
Roe	Cascade	CLP

<sup>2</sup> A total of 15 rivers or sections of rivers have been surveyed with 10 positive for submersed aquatic invasive plants (66%). Jefferson slough is considered separate from the main Jefferson. Cottonwood slough is considered part of the Missouri. CLP = Curly Leaf Pondweed, EWM = Eurasian Watermilfoil, FR = Flowering Rush

**Aquatic Invasive Species Grants and Contracts Awarded During the 2013 Biennium**

<b>Sponsor/Contractor</b>	<b>Project</b>	<b>Amount</b>
Clark Fork Coalition	Survey for Aquatic Invasive Species in Upper Clark Fork River Basin Waters	\$20,325
Missoula County Weed District	Survey for Aquatic Invasive Species in Missoula County Waters	\$25,130
Flathead Lakers	Survey for Aquatic Invasive Species in Flathead Basin Lakes and Beaver Lake Eurasian Watermilfoil Control	\$31,810
Mississippi State University	Surveys in Upper Missouri, Big Horn Reservoir, Yellowstone River, Flathead Lake.	\$91,000
Montana Department of Agriculture	Surveys in Upper Missouri, Yellowstone River and Other Waters.	\$47,320
Duncan, Celestine	Control Aquatic Invasive Species in State Waters Technical Support	\$43,000
Invasive Species Action Network	Aquatic Invasive Species Technical Support	\$2,000
Flathead County Weed District	Beaver Lake Eurasian Watermilfoil Emergency Control	\$4,293
ACE Diving	Toston Eurasian Watermilfoil Control	\$20,000
Lake County	Lake County Aquatic Invasive Species Survey	\$15,000
Carbon County Weed District	Cooney Reservoir Eurasian Watermilfoil Project 2012	\$5,500
Liberty County Weed District	Lake Elwell/Tiber Dam Aquatic Invasive Species Monitoring	\$7,000
Jefferson Valley CD	Eurasian Watermilfoil Control, Inventory & Public Outreach Missouri River Headwaters	\$13,000
Powell County Weed District	Clark Fork and Blackfoot River Basin Aquatic Noxious Weed Survey	\$7,400
Petroleum County CD	Fort Peck Dam to Frazer Rapids Survey and Herbicide Trials in Fort Peck	\$9,000
Erik Hanson	Small Scale Dredge Work	\$10,000
Montana Department of Fish, Wildlife, and Parks	Aquatic Invasive Species Monitoring 2012-2013	\$40,000
Jefferson County	Big Pipestone Creek Watershed Restoration Plan	\$11,000
	<b>Total</b>	<b>\$402,778</b>

Note: Total authorized amount for aquatic invasive species control was \$400,000. The total awarded amount of \$402,778 reflects both the authorized amount and the use of reverted funds on completed aquatic invasive species control projects.