

Aquatic Invasive Species Early Detection, Monitoring, and Control Annual Report

Abstract: Aquatic invasive species (AIS) are non-native species capable of degrading natural resources, causing harm to water-based infrastructure, and diminishing recreational opportunities. The Montana Fish, Wildlife & Parks AIS Bureau conducts early detection surveys to pinpoint new AIS populations, enabling containment or potential eradication. This report provides a summary of the 2024 sampling season's early detection and monitoring survey initiatives for aquatic invasive species, undertaken by Montana Fish, Wildlife & Parks and collaborative partners, along with updates on control and eradication projects.

2024 Report Highlights

- ▶ Provide results of AIS early detection efforts
- ▶ Foster a greater understanding of the threats of AIS to Montana's waters
- ▶ Encourage partners and others to sample, report, and look for AIS invaders
- ▶ Highlight eradication and control projects



FWP AIS lab technician, Katie Richter, and MSU undergraduate research assistant, Lydia Bushey, collect crayfish specimens at Newlan Creek Reservoir.

The Montana Fish, Wildlife & Parks (FWP) Aquatic Invasive Species Bureau implements an AIS Management Plan, encompassing coordination, prevention of new introductions, early detection, monitoring, control, eradication, and outreach and education. The plan aims to mitigate the detrimental effects of AIS by preventing and managing their introduction, spread, and impact within and from Montana.

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Early Detection and Monitoring – Background

Aquatic Invasive Species (AIS) pose significant economic, ecological, and recreational threats to Montana's waters. The preservation of Montana's waters hinges on effective prevention measures to curb the introduction and spread of AIS. In cases where prevention proves insufficient, early detection is critical to prevent further spread. Montana Fish, Wildlife & Parks (FWP) initiated its statewide AIS early detection and monitoring program in 2004. This program empowers FWP biologists to identify small or localized AIS populations, scrutinize suspicious reports, and analyze existing population trends. Surveys can result in eradication treatments or the formulation of long-term control and management strategies. FWP's survey initiatives encompass a range of AIS species, whether present or undetected in Montana, including zebra and quagga mussels, Corbicula clams, New Zealand mudsnails, faucet snails, Eurasian watermilfoil, flowering rush, curlyleaf pondweed, and fragrant waterlily. Further details, including past reports, standard operating procedures for sampling, and management plans, can be accessed at <https://fwp.mt.gov/conservation/aquatic-invasive-species/reports>.

Early Detection and Monitoring Methods

To maximize sampling efforts, FWP evaluates the risk of AIS introductions to waterbodies. An annual work plan guides these efforts but remain adaptable due to the constantly evolving variables used to assess risk. Site prioritization depends on factors such as previous years' sampling efforts and detections, water calcium levels, water quality data, angler pressure data, and input from partners.

Sampling Methods

To capture a diverse range of species, FWP utilizes a variety of survey methods. These methods encompass plankton nets, kick nets, dredges, benthic sleds, plant rakes, shoreline visual surveys, artificial substrate samplers, rock picking, mussel detection dogs, eDNA, snorkeling, and scuba diving. A comprehensive description of Montana's survey methods is outlined in the AIS Field Sampling and Lab Operating Procedures (Montana Fish, Wildlife & Parks, 2019). Additionally, the transfer of fish between hatcheries or water bodies can facilitate the spread of AIS.



Figure 1. Ron Koontz, FWP Early Detection Technician, utilizes a kick net to survey for macroinvertebrate AIS Surveys.

Certification for the sale or movement of fish is contingent upon passing an AIS inspection and fish health inspection for commercial, federal, and state hatcheries. The FWP Fish Health Laboratory collaborates closely with the FWP AIS Bureau to annually inspect all federal, state, and commercial hatcheries, as well as waterbodies used for wild fish stock transfers.

2024 AIS Sampling Efforts and Results

New Detections in 2024

FWP tracks the distributions of AIS across Montana. FWP technician and/or partners discover new populations each year. In 2024, new detections of AIS included the following locations:

- ▶ Big-eared radix (*Radix auricularia*)
 - Ninepipe Reservoir – Ronan, MT
 - Elk Grove Community Park – Four Corners, MT
- ▶ Chinese mystery snail (*Cipangopaludina chinensis*)
 - Finley Point on Flathead Lake – Polson, MT
- ▶ Curlyleaf pondweed (*Potamogeton crispus*)
 - Tongue River Reservoir – Decker, MT
 - Ross Fork Creek – Hobson, MT
- ▶ Fragrant waterlily (*Nymphaea odorata*)
 - Fennon Slough – Bigfork, MT
- ▶ Magnificent bryozoan (*Pectinatella magnifica*)
 - Smith Lake – Kila, MT
- ▶ New Zealand mudsnails (*Potamopyrgus antipodarum*)
 - Creek in Pioneer Park – Billings, MT
- ▶ Yellow floating heart (*Nymphoides peltata*)
(1st documented occurrences in Montana)
 - Private pond north of Belgrade
 - Private pond in Paradise Valley



Figure 2 (above). Brian Hagan, FWP AIS early detection technician, shows of his impressive rake toss harvest as he searches for invasive aquatic plants.



Figure 3. New magnificent bryozoan finds in Smith Lake near Kila, MT.

Dreissenid Mussel (Zebra and Quagga Mussels) Sampling Results

There is no evidence of dreissenid mussels detected in 2024 from any survey or sample processed. Plankton samples undergo analysis at FWP’s AIS Early Detection lab. Figure 4 illustrates the distribution of plankton sampling efforts by each entity. In total, FWP and partners collected 3,555 plankton samples from Montana waters. While most samples are gathered by FWP, contributions from partners play a crucial role in statewide sampling. FWP is committed to close collaboration with partners, including training new entities, to enhance AIS sampling at the local level.

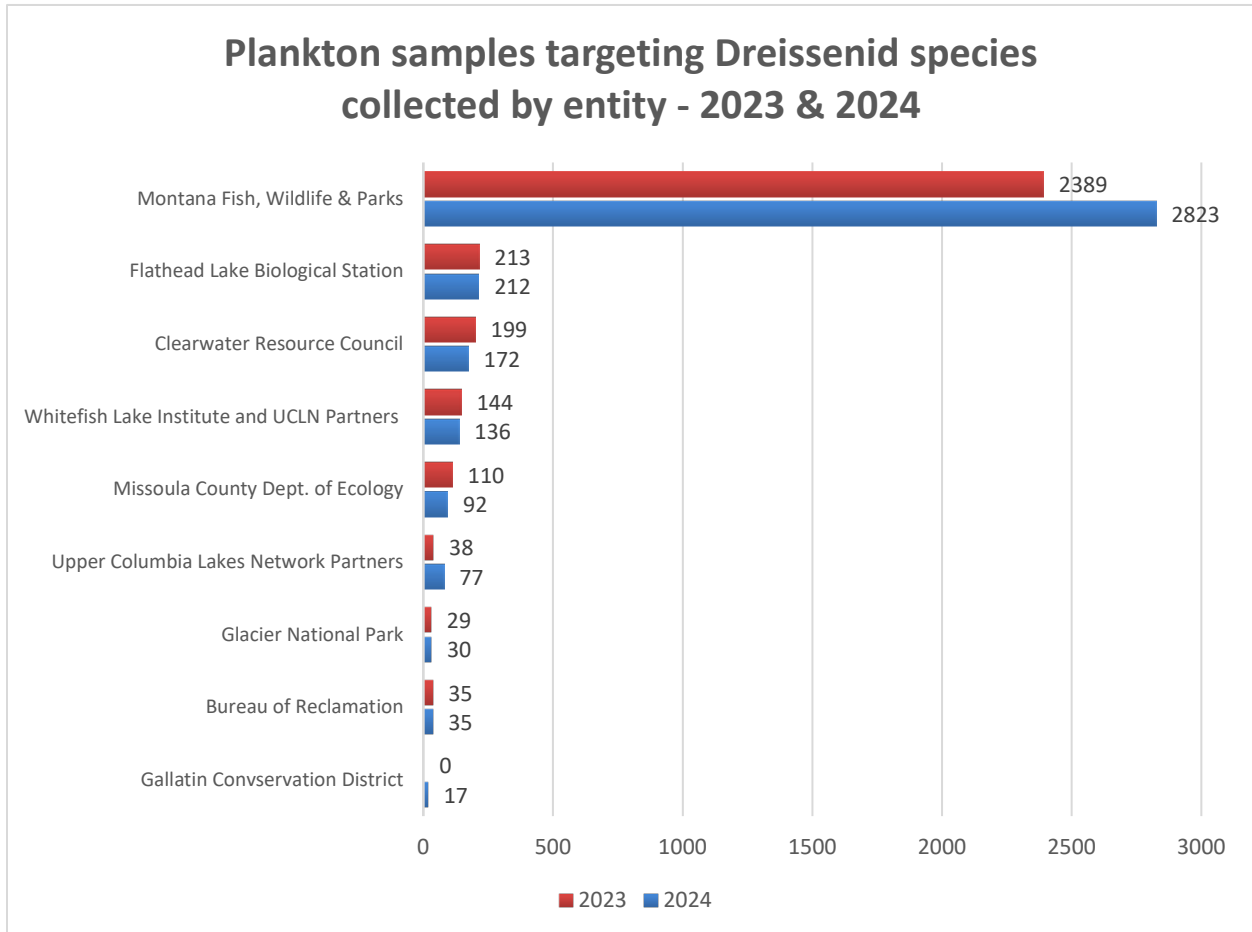


Figure 4. 2023 and 2024 aquatic invasive species plankton sampling effort by all reported entities.

Environmental DNA (eDNA) Sampling

In 2023, FWP elevated the use of eDNA to a programmatic level. Employing molecular technology, eDNA sampling detects species DNA within the water column of a waterbody. While a positive eDNA result alone doesn't confirm the presence of invasive species, such as mussels, it prompts more intensive sampling in that water. This additional tool enhances the state’s capacity to detect, respond to, contain, and control new populations. FWP intends to continue and broaden its use as appropriate. FWP gathered 238 eDNA samples across 32 highest-risk waters (Figure 5). The collective effort between partners and FWP yielded 490 eDNA samples targeting dreissenid species in 45 waters, with additional samples targeting other AIS species such as Corbicula clams. All samples came back negative for dreissenid species and other AIS.

2024 eDNA Survey Locations by Non-Federal Partners

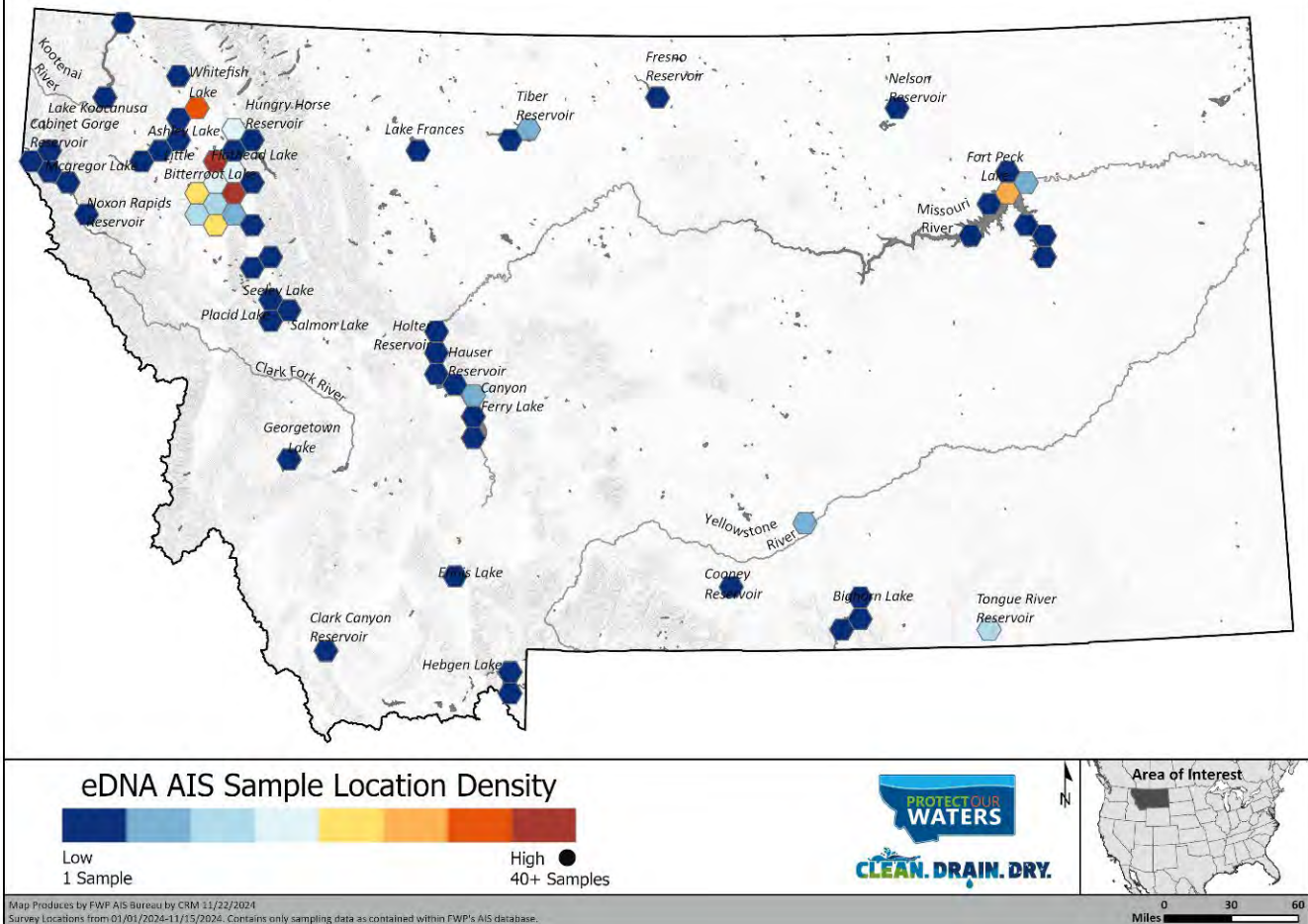


Figure 5. Environmental DNA (eDNA) sampling in Montana for 2024.

Sampling Locations and Intensity

In 2024, FWP and partners surveyed over 450 waterbodies, with the majority undergoing comprehensive AIS surveys for all taxa. Figure 6 displays the statewide locations and intensity of AIS sampling across the state by FWP and partners. Figure 7 displays the same information but only for non-federal partners highlighting the need for additional statewide sampling partners especially east of the continental divide. Specific details regarding individual waters or areas can be downloaded through FWP’s GIS data page at <https://gis-mtfwp.hub.arcgis.com>.

2024 Plankton Net Survey Locations by FWP and Partners

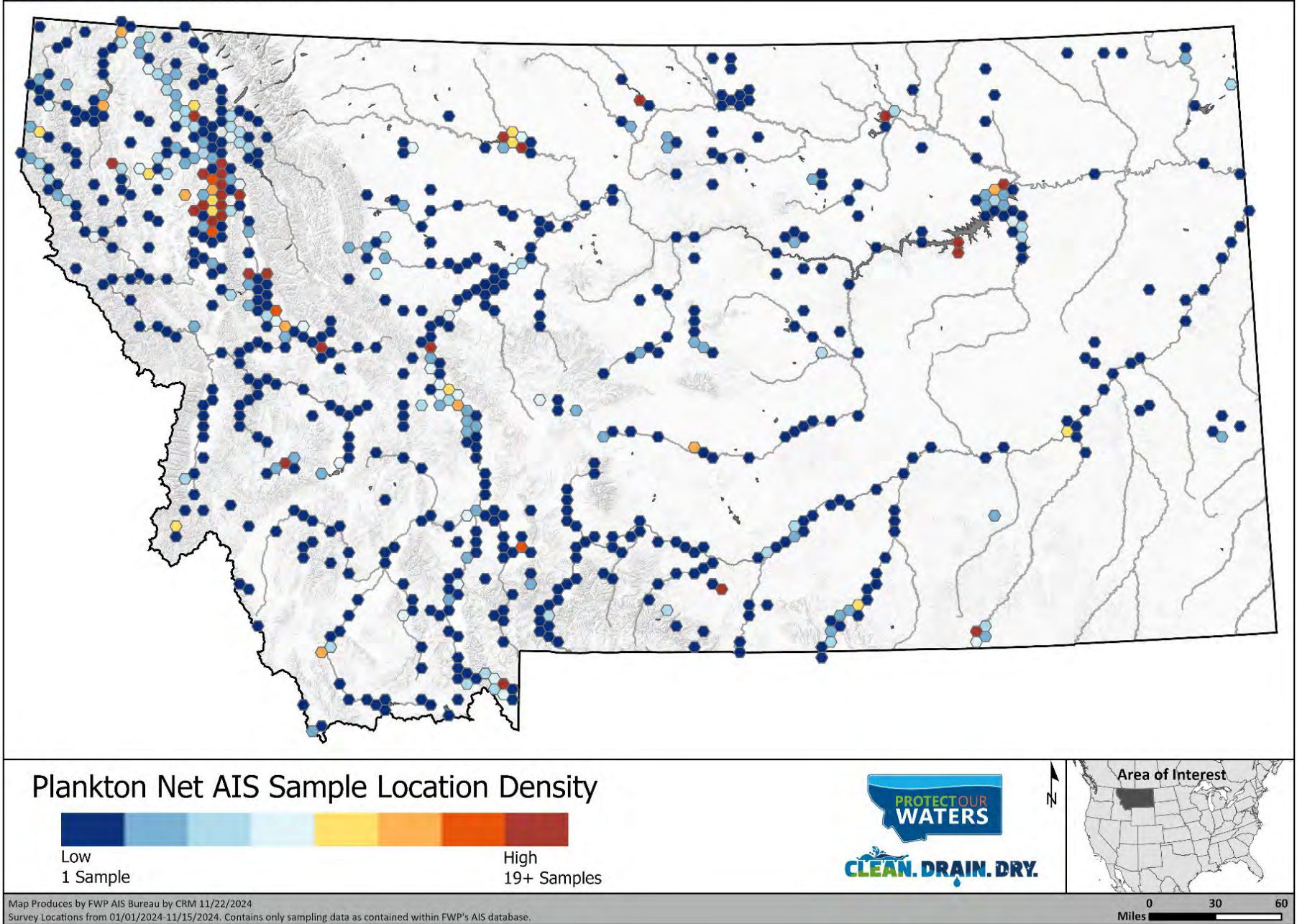


Figure 6. Map of FWP AIS plankton sampling intensity, 2024.

2024 Plankton Net Survey Locations by Non-Federal Partners

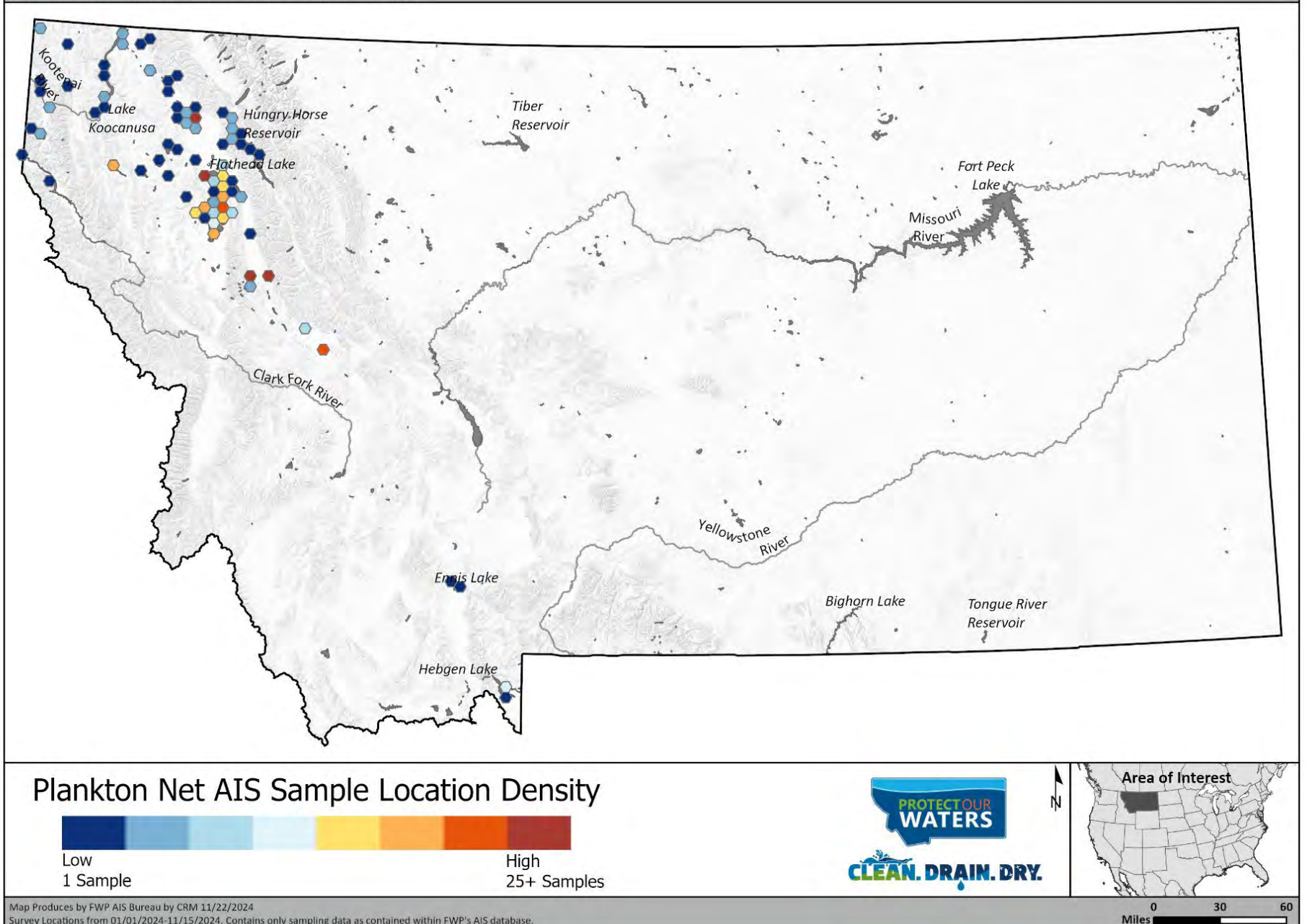


Figure 7. Mussel veliger sampling effort by partners, 2024.

AIS Distributions in Montana

The lists below document the locations of known AIS. Those waters with an asterisk and red-highlighted are new detections in 2024. Maps of current AIS locations in Montana, please refer to Appendix A & B.

Animal AIS Distribution in Montana

Big-eared radix (*Radix auricularia*)

- Clark Fork River*
- Bitterroot River
- Ennis Lake
- Elk Grove Community Pond*
- Flathead Lake
- Harpers Lake
- Lee Metcalf NWR
- Lowell Pond
- Moose Lake
- Ninepipe Reservoir*
- Pablo Reservoir
- Pond 1 (Canyon Ferry WMA)

Chinese mystery snail (*Cipangopaludina chinensis*)

- Flathead Lake

Corbicula clam (*Corbicula fluminea*)

- Lake Elmo

Mud Bithynia/faucet snail (*Bithynia tentaculata*)

- Blanchard Lake (Near Whitefish)
- Browns Lake
- Flathead Lake
- Georgetown Lake
- Lake Frances
- Lost Loon (Coon) Lake
- McWenegar Slough
- Smith Lake
- Upsata Lake
- Whitefish Lake (unverified by FWP AIS Bureau)

Magnificent bryozoan (*Pectinatella magnifica*)

- Smith Lake*
- Bull Lake

New Zealand mudsnails (*Potamopyrgus antipodarum*)

- Beaverhead River
- Beavertail Pond
- Big Sheep Creek
- Bighorn River
- Bitterroot Fish Hatchery Ponds
- Bluewater Creek
- Bluewater Fish Hatchery
- Bozeman Creek
- Clark Canyon Reservoir
- Darlington Ditch 1
- Ennis Lake
- Gardner River
- Hauser Reservoir
- Irrigation Canal in Billings
- Jefferson River
- Madison River
- Marias River (below Tiber Dam)
- Missouri River (below Holter Dam)
- Mill Willow Bypass
- Mitchell Slough
- Nicholia Creek
- Nelson Spring Creek
- Odell Creek
- Pioneer Park – Billings*
- Poindexter Slough
- Quake Lake
- Rainbow Dam Reservoir
- Red Rock River
- Roe River
- Ruby River
- Silver Bow Creek*
- Spring Meadow Lake
- Upper Holter Lake
- Wayne Edsall Pond
- Yellowstone River
- Yellowtail Afterbay Reservoir

Red-rim melania snail (*Melanoides tuberculatus*)

- Beaverhead River
- Gardner River
- Powder River
- Warm Spring Ditch near Beaverhead River

Southern plains crayfish (*Procambarus simulans*)

- Miles City Fish Hatchery

*New Detection Location in 2024

Plant AIS Distribution in Montana

Curlyleaf pondweed (*Potamogeton crispus*)

- Beaverhead River
- Big Elk Creek
- Bitterroot River
- Bozeman Creek
- Cabinet Gorge Reservoir
- Canyon Ferry Reservoir
- Clark Canyon Reservoir
- Clark Fork River
- Darlington Ditch
- Deadman's Basin
- East Gallatin River
- Ennis Lake
- Ester Lake
- Fifth Street Pond (Libby)
- Flathead Lake
- Flathead River
- Fort Peck Lake
- Frog Pond
- Gallatin River
- Haskill Creek
- Hauser Reservoir
- Hebgen Lake
- Helena Valley Regulating Reservoir
- Holter Reservoir
- Horte Reservoir
- Jefferson River
- Judith River
- Kicking Horse Reservoir
- Kootenai River
- Lake Helena
- Lower Crow Reservoir
- Lower Glaston Lake
- Madison River
- Marias River
- Mission Reservoir
- Missoula Kids Pond
- Missouri River
- Mitchell Slough – East Canal
- Musselshell River
- Newlan Creek
- Newlan Reservoir
- Ninepipe Reservoir
- Noxon Rapids Reservoir
- Pablo Reservoir
- Pond 1 – Canyon Ferry
- Pond 2 – Canyon Ferry
- Pond 3 – Canyon Ferry
- Pond 4 - Canyon Ferry
- Post Creek
- Quake Lake
- Rainbow Dam Reservoir
- Ross Creek*
- Sheep Creek
- Shields River
- Slip and Slide Creek (Ponds)
- Smith River
- The Lakes Subdivision Pond
- Thompson Falls Reservoir
- Tiber Reservoir
- Triangle Pond
- Tongue River Reservoir*
- Upper Holter Lake
- Wayne Edsall Pond

Eurasian watermilfoil (*Myriophyllum spicatum*)

- Beaver Lake
- Cabinet Gorge Reservoir
- Clark Fork River (below Thompson Falls Reservoir)
- Fort Peck Dredge Cuts
- Fort Peck Lake
- Fort Peck Powerhouse Tailrace
- Fort Peck Trout Pond
- Jefferson River
- Jefferson Slough
- Madison River (below I-90)
- Missouri River (above Canyon Ferry Reservoir)
- Missouri River (below Fort Peck Dam)
- Nelson Dredge
- Nilan Reservoir
- Noxon Rapids Reservoir
- Pablo Reservoir
- Pond 4 - Canyon Ferry
- Thompson Park Pond
- Toston Reservoir

Flowering rush (*Butomus umbellatus*)

- Cabinet Gorge Reservoir
- Church Slough
- Clark Fork River
- Fennon Slough
- Flathead Lake
- Flathead River
- Noxon Rapids Reservoir
- Thompson Falls Reservoir

*New Detection Location in 2024

Fragrant waterlily (*Nymphaea odorata*)

- Blanchard Lake (near Whitefish)
- Blanchard Lake (Clearwater River)
- Browns Lake
- Clearwater River
- Duck Lake (NW MT)
- Elbow Lake
- Fennon Slough*
- Harpers Lake
- Hidden Lake
- Holland Creek
- Holland Lake
- Lake Alva
- Lake Inez
- Lake Mary Ronan
- Lindbergh Lake
- Loon Lake
- McCaffery Lake*
- Placid Lake
- Salmon Lake
- Savage Lake
- Seeley Lake
- Swan Lake
- Upsata Lake

Spiny water nymph (*Najas marina*)

- Frenchtown Pond

Yellow Floating Heart (*Nymphoides peltata*)

- Private pond - Belgrade*
- Private pond - Paradise Valley*

*New Detection Location in 2024

Aquatic Invasive Species Laboratory

FWP operates the AIS early detection laboratory in Helena, MT, with a satellite lab in Kalispell, MT, processing plankton samples for FWP crews and partners in Montana and the Missouri River Basin (MRB) states, and confirmatory services for samples received from outside the basin. Staff focus on identifying Dreissenid mussel veligers (larvae) in plankton samples. Figure 8 illustrates the annual sample volume handled by the labs since 2005. The labs undergo regular internal and external quality control testing to ensure result reliability. While the lab is still completing 2024 samples, the labs has processed 3,154 of 3,999 samples. To date, turnaround times for in-state samples average 14 days for high-priority samples (priority 1) and 24 days overall (Table 1). Sample processing is expected to be completed by mid-January. Average turnaround time for plankton samples is a key focus for FWP. Rapid detection of invasive species enables the state to promptly respond and implement necessary measures.

Table 1. Current 2024 average turnaround times for MT waters based on risk categories. Some results still pending.

Risk Priority (1- high; 10- low)	Turnaround Time to date (Average Days)	Total # Samples to date
1	14	1082
2	27	717
3	41	326
4	31	196
5	28	212
6	32	296
7	30	139
8	44	24
9	37	25
In-State Totals	24	3154
Out-of-state	32	121

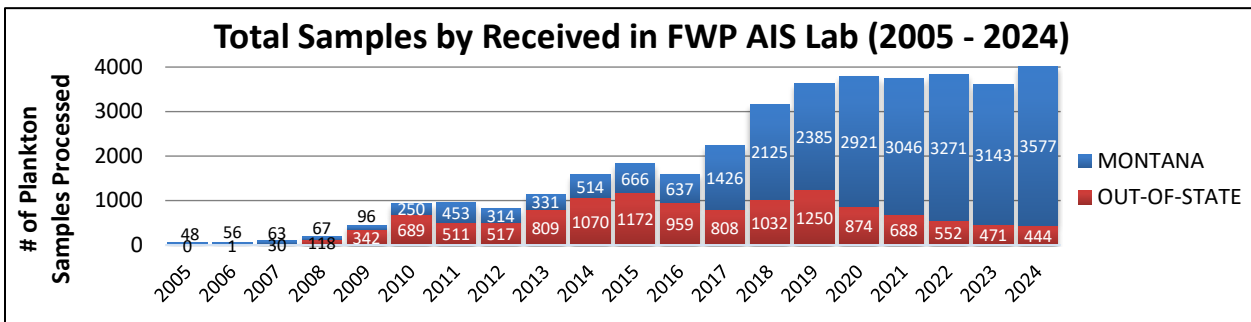


Figure 8. Details of plankton samples processed by FWP (in-state and out-of-state sampling) during the life of the MT AIS program (2004-Present)

AIS Early Detection Trainings/Workshops

FWP makes a conscious effort to increase the opportunities for partners and the public to be trained formally or informally in the detection methods for AIS. FWP hosted, co-hosted, or participated in workshops across the state including the following trainings:

Date	Event Details	Location
March 4-6	Provided technical expertise for Missoula County's AIS Short Course	Missoula
April 25	AIS training for Whitefish Lake Institute's volunteers	Kalispell
May 13-16	AIS Bureau sampling training	Helena
May 20-23	AIS early detection staff training/blitz	Fort Peck
June 13	Madison Stream Team meeting	Ennis
June 10-12	Early detection training (Co-hosted with Flathead Lake Biological Station)	Flathead Lake
June 26	Macrophyte training for WY AIS Staff	Cody, WY
June 18	Eastern Montana early detection workshop (Hosted by Central and Eastern Montana Invasive Species Team (CEMIST))	Glasgow
Aug 29	AIS field day with Blackfeet tribal employees	Blackfeet Nation
Sep 17	Citizen science event for elementary/middle School (Hosted by CEMIST)	Lake Elmo



Figure 9 (left). FWP AIS early detection technician, Ron Koontz, teaches students to identify crayfish as AIS citizen science event in September 2024.

Figure 10 (below). Craig McLane, FWP AIS Early Detection Coordinator, helps students identify species during an AIS citizen science event in September 2024.



AIS Control Efforts



Figure 11. FWP Divers searching for Eurasian watermilfoil in shallower water near Beaver Lake's public boat ramp.

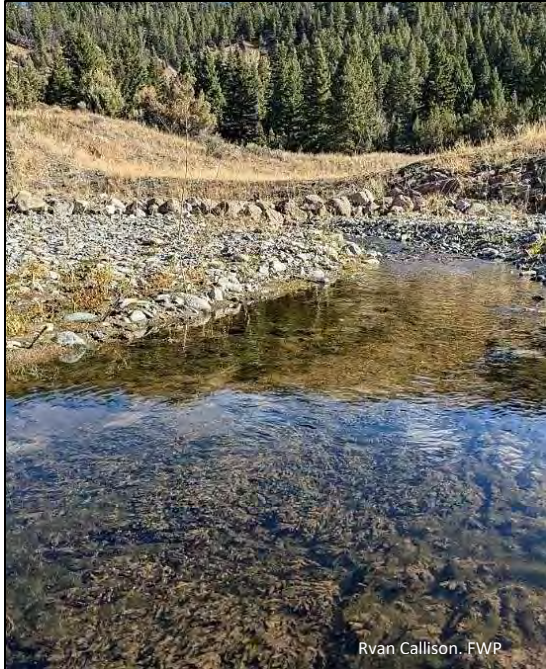


Beaver Lake Eurasian Watermilfoil Eradication

In 2024, FWP continued its efforts to eradicate Eurasian watermilfoil at Beaver Lake in northwest Montana. Since its detection in 2011, FWP, along with the City of Whitefish and the Whitefish Lake Institute, has diligently worked to eliminate this invasive plant and prevent its further spread within the lake and nearby waters. The FWP dive team conducted thorough surveys on four occasions during the summer, covering the entire shoreline in 2024. Last year FWP did not find any plants. Unfortunately, in 2024 staff found two plants and five plants on the second and third trips, respectively. All the plants were growing in areas where the invasive plant was found previously. They were likely just plants where the root crown was not properly removed on a previous year's removal effort or missing during survey work.



Figure 12. The FWP dive team prepare for a dive near the boat ramp at Beaver Lake in efforts to locate invasive Eurasian watermilfoil plants.



Ryan Callison, FWP

Figure 13. Curlyleaf pondweed persists in the creek within the historical pond footprint.



Slip and Slide Creek Ponds Curlyleaf Pondweed Eradication

The USFS acquired property featuring three small reservoirs situated in the Slip and Slide Creek drainage, a tributary of the Yellowstone River near Gardiner, MT. Concerned about potential invasive species, USFS asked FWP to survey the reservoirs in 2019, identifying well-established curlyleaf pondweed populations in all three ponds. Classified as high-risk for dam failure, the USFS drained the ponds in 2020 and 2021 to address the dam risk and eradicate the curlyleaf pondweed. Dams were removed in 2022 and 2023, and herbicide treatment targeted remaining curlyleaf pondweed. FWP staff systematically inspect each pond and Slide-and-Slide Creek down to the confluence with the Yellowstone River to prevent downstream spread. To date, no additional plants have been discovered below the historical ponds. However, curlyleaf pondweed persists along the now creek areas with the historical ponds.



Lake Elmo Corbicula Clam Eradication

FWP staff identified the 1st known Corbicula clam (*Corbicula fluminea*) population in Montana at Lake Elmo during an AIS monitoring workshop in June 2019. In response, FWP dewatered the lake in 2021 to address the issue and carry out site improvements. During the dewatering, FWP undertook fisheries habitat enhancements and upgraded the park with new fishing jetties, an outlet control structure, and walking paths. The irrigation district diverted water back into the lake refilling it in April 2022. In the falls of 2023 and 2024, FWP staff conducted intensive sampling for clams using ponar dredges, benthic sleds, and eDNA. No live clams have been found since the dewatering. If, after an additional three years, no live Corbicula clams are discovered in the lake, it can be declared eradicated. Further survey efforts are planned for 2025 and beyond.



Holland Lake Fragrant Waterlily Control

Montana Fish, Wildlife & Parks remains actively engaged in collaboration with the U.S. Forest Service and Missoula County to control fragrant waterlily in Holland Lake. Isolated patches are systematically removed to curtail further expansion within the lake and are showing signs of reduced area and/or abundance. Nevertheless, several sizable patches persist, necessitating a different control strategy, likely involving herbicide application for eradication. Given the extensive growth across the lake, this project is ongoing, focused on containment until comprehensive eradication or management plans are developed in conjunction with partners.



Nilan Reservoir Eurasian Watermilfoil Eradication

In October 2021, FWP identified a small population of Eurasian watermilfoil (EWM) in Nilan Reservoir, situated approximately 15 miles west of Augusta, MT, along the Rocky Mountain Front. FWP promptly initiated a rapid response eradication treatment in coordination with the Montana Department of Natural Resources (DNRC) (dam owner) and the Nilan Water Users Association (landowners and irrigators). In November 2021, FWP curtained off the bay from

the rest of the reservoir to minimize water exchange and herbicide dilution and applied fluridone to the entirety of the bay. A retreatment of the bay and adjacent area took place in August 2022. Crews conducted surveys along the entire shoreline in 2022 and removed isolated plants along the east and north outlets.

In 2023, the FWP dive team revisited each isolated plant location and surveyed both areas where treatments were conducted. No Eurasian watermilfoil plants were found in the lake in 2023. Diver surveys in 2024 found and removed a single plant adjacent to the treated area. Additional surveys and dives are planned for 2025 and beyond.



Flathead Lake Chinese Mysterysnail Control

In April of 2024, FWP staff found live Chinese mysterysnails at Finley Point on Flathead Lake. These specimens come after shells were found by a FWP early detection technician and a public reporting on iNaturalist in the two years preceding.

Approximately a dozen live snails of different age classes were gathered along the sandy shore as lake waters began to rise. Additional scuba and snorkel surveys throughout the summer only turned up additional shells, but no live snails. It is unknown at this time how widespread this population in the area, but it appears to be less abundant. FWP plans to continue its annual survey and gathering with the hopes to suppress this population. FWP also plans to continue to search for other populations within the lake.

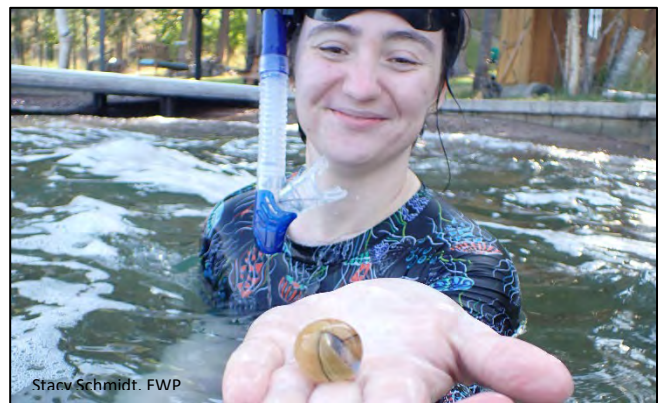


Figure 14. Sophiane Nacer, FWP's AmericCorps volunteer holds a Chinese mysterysnail shell found during a snorkel survey in August.

Looking Ahead

Fish, Wildlife & Parks consistently assesses the AIS early detection and monitoring program to identify opportunities for enhancing both efficacy and efficiency. These ongoing improvements contribute to more dependable sampling efforts, strengthened partnerships, enhanced data collection, improved sampling handling, and more effective AIS eradication and control initiatives. The FWP AIS early detection staff aims to:

- ▶ Continue to lead state and regional AIS monitoring coordination with state and regional partners.
- ▶ Evaluate current data collection methods to determine the most effective way to collect, house, and maintain early detection sampling data.
- ▶ Explore the potential programmatic use of LAMP eDNA technology.
- ▶ Evaluate ways to expand partner all-taxa AIS monitoring efforts.
- ▶ Increase public reporting of potential AIS through avenues such as iNaturalist, Montana Natural Heritage Program, public events, and workshops.
- ▶ Revise FWP's early detection and sampling protocol.
- ▶ Revise FWP's AIS laboratory protocols to be up-to-date and reflect current best practices.
- ▶ Complete sampling effort at highest risk thermal waters

Conclusion

Montana Fish, Wildlife & Parks and collaborative partners are enhancing their effectiveness and expanding capacity with aim to detect new AIS populations, impede the spread of existing ones, and, where feasible, eradicate populations. Crucial to the early detection of invasive species, these endeavors are integral to both the AIS program and the statewide AIS Management Plan. While they do not guarantee the discovery of all introduced AIS species, these efforts significantly heighten the potential to identify new populations before they establish or extend beyond current boundaries. By limiting the establishment or spread of AIS, containment and potential eradication become feasible. The vigilant survey and control efforts for AIS not only save the State of Montana time and money but also safeguard its aquatic resources and infrastructure from the impacts of AIS for current citizens and future generations.

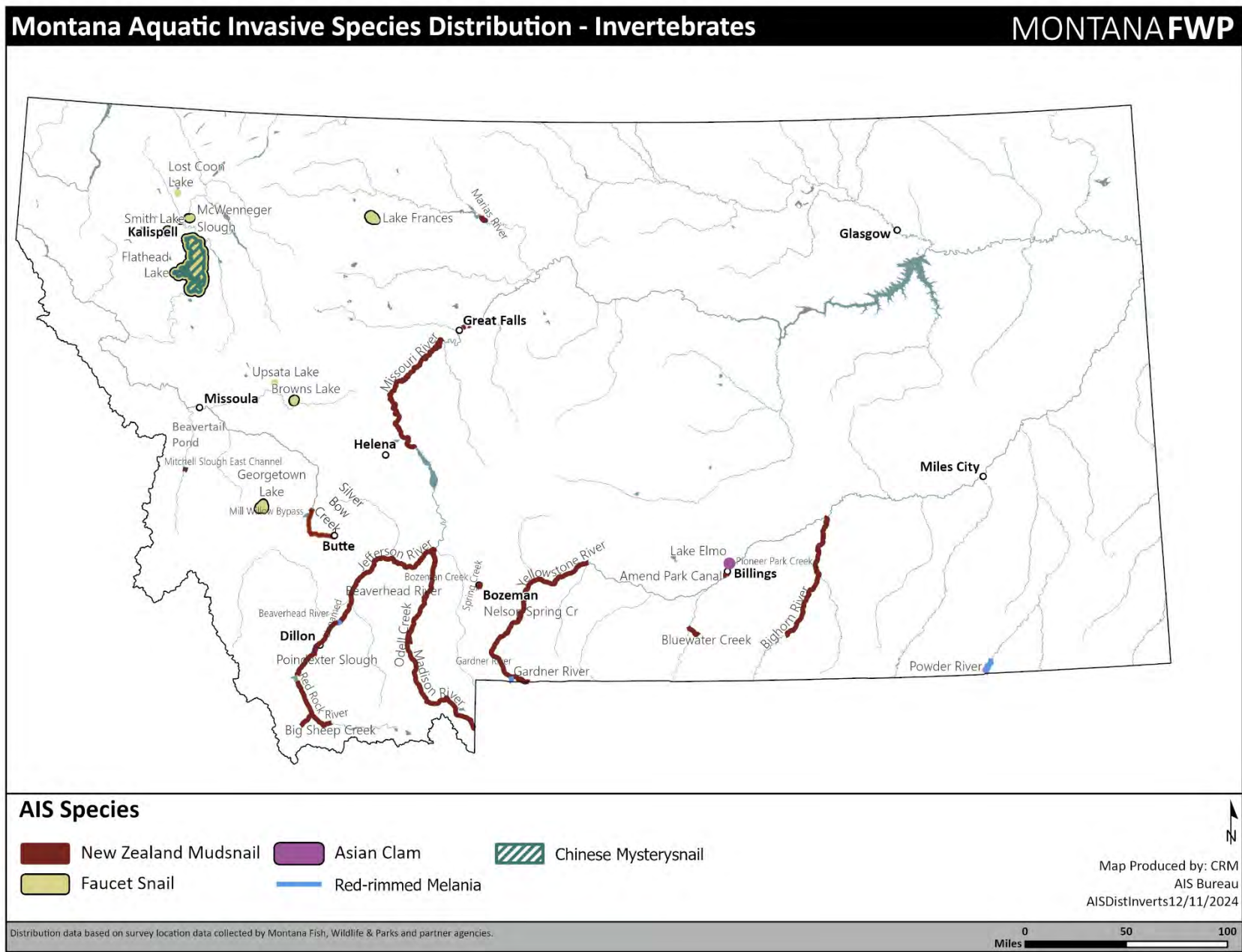


Figure 15. The close of another busy day as an AIS early detection technician settles in for a restful night beneath Montana's beautiful night sky.

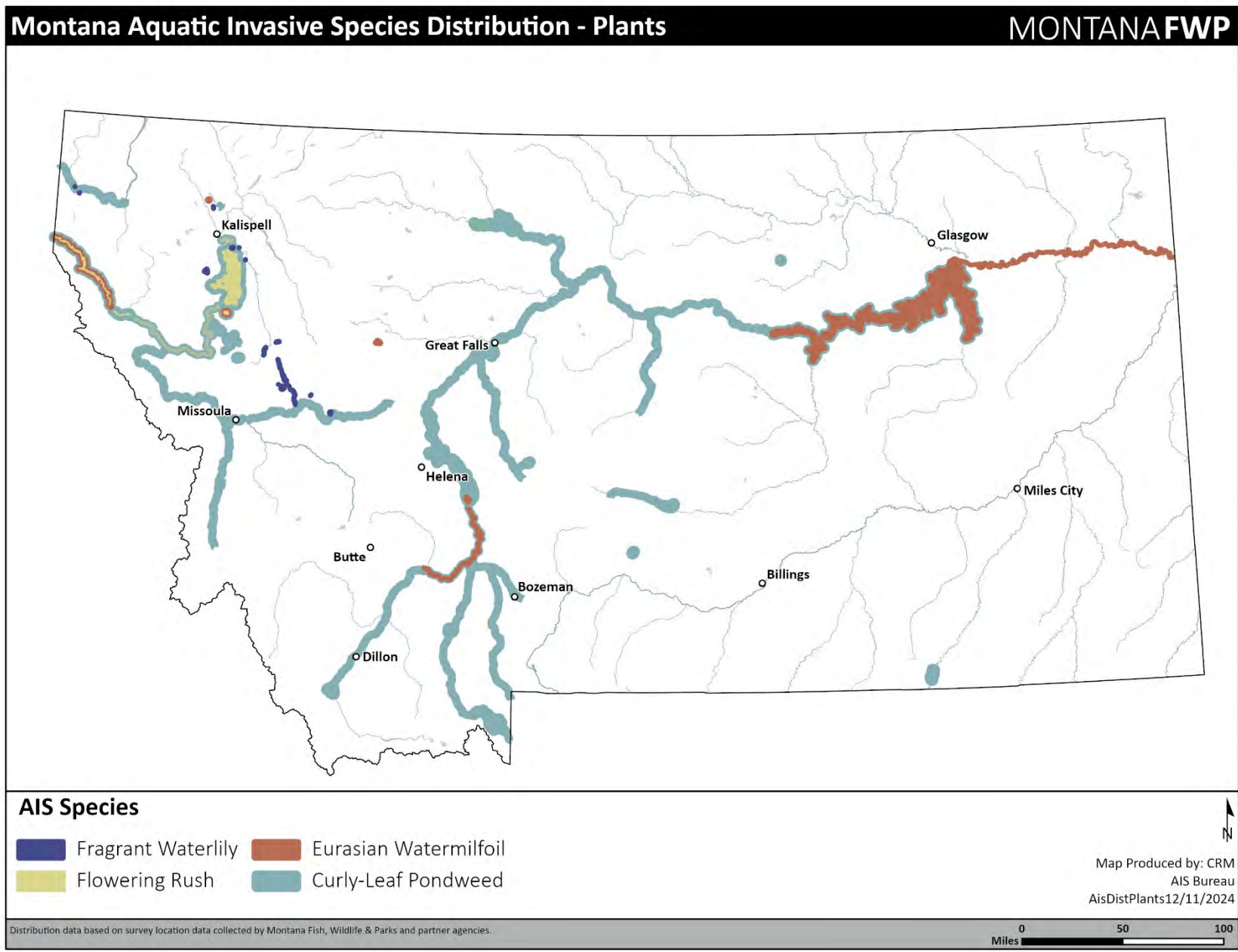
Literature Cited

Montana Fish, Wildlife & Parks. (2019). *Aquatic Invasive Species Management Program Field Sampling and Laboratory Standard Operating Procedures*. Fish, Wildlife, & Parks, Aquatic Invasive Species Bureau, Helena.

Appendix A. Map of Invasive Snails and Clams in Montana



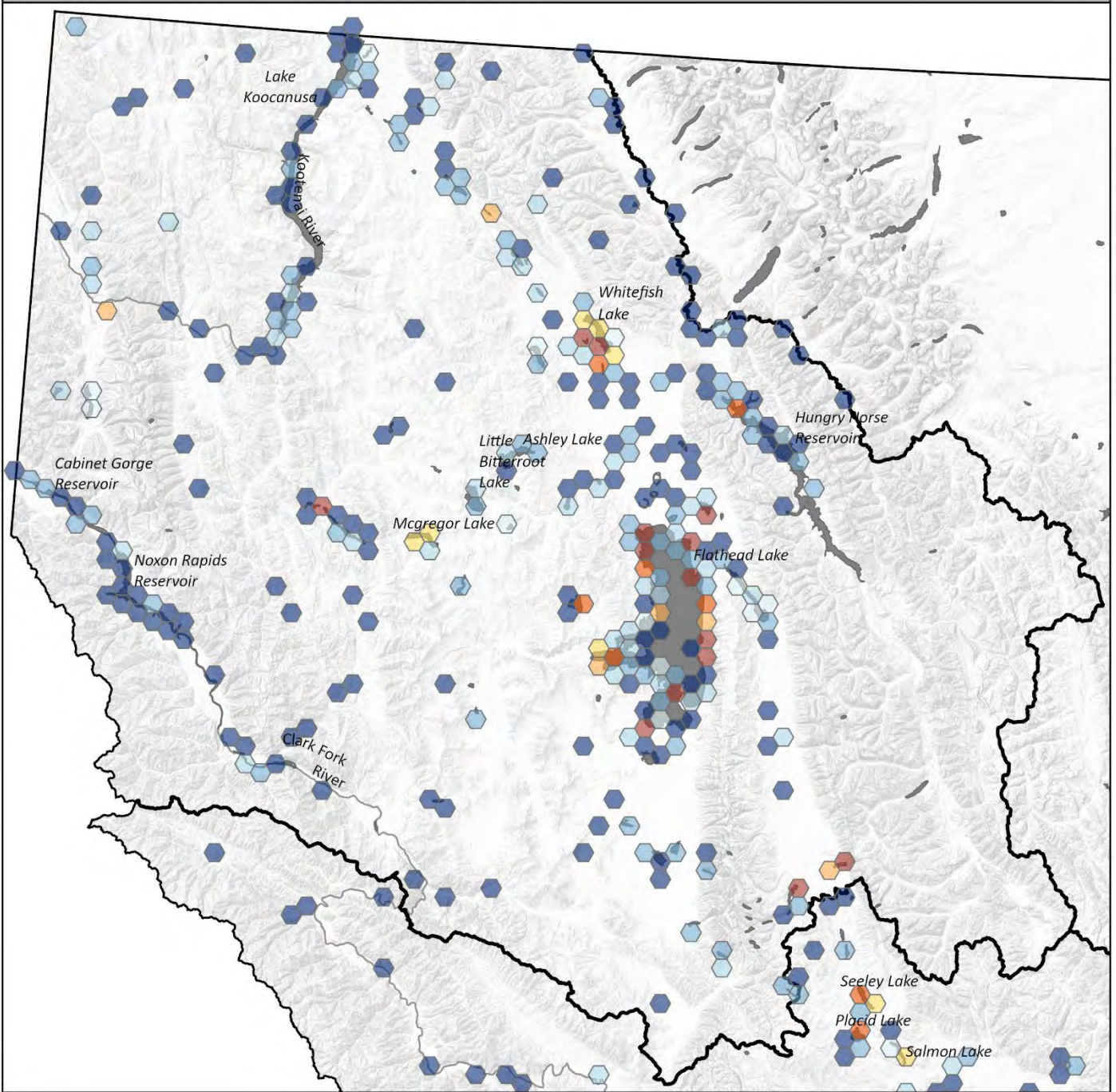
Appendix B. Map of Invasive Aquatic Plants in Montana



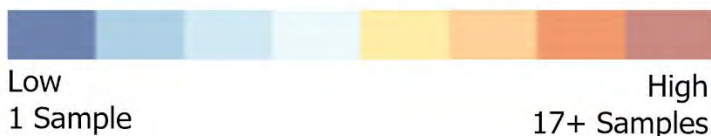
AIS Surveys - 2024 - Region 1

MONTANA FWP

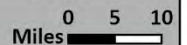
2024 Plankton Net Survey Locations by FWP and Partners



Plankton Net AIS Sample Location Density



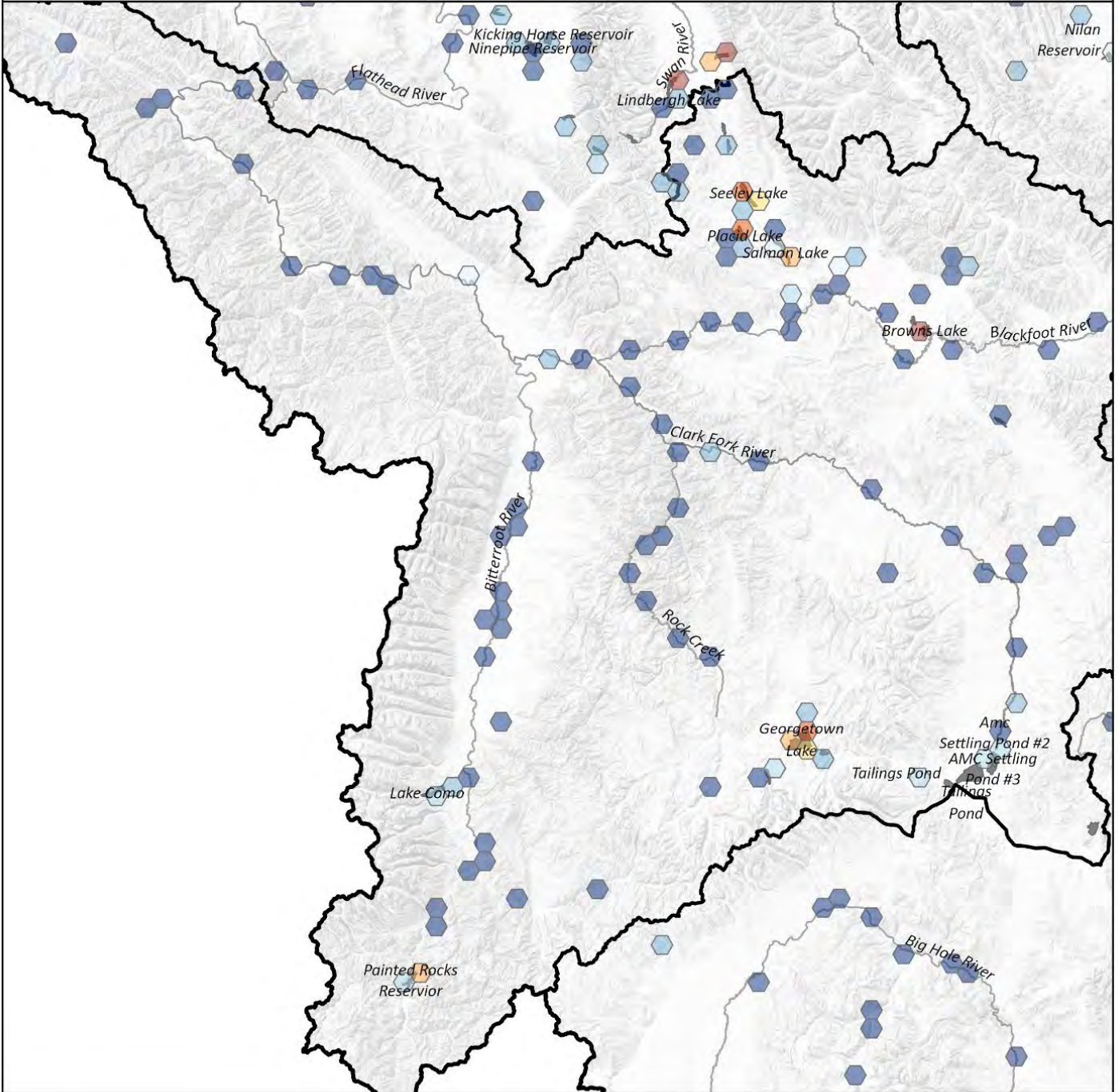
Map Produced by FWP AIS Bureau by CRM 11/22/2024
 Survey Locations from 01/01/2024-11/15/2024. Contains only sampling data as contained within FWP's AIS database.



AIS Surveys - 2024 - Region 2

MONTANA FWP

2024 Plankton Net Survey Locations by FWP and Partners



Plankton Net AIS Sample Location Density

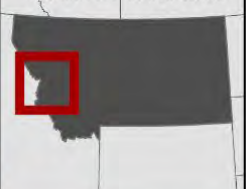


Low
1 Sample

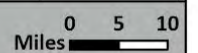
High
17+ Samples



Area of Interest



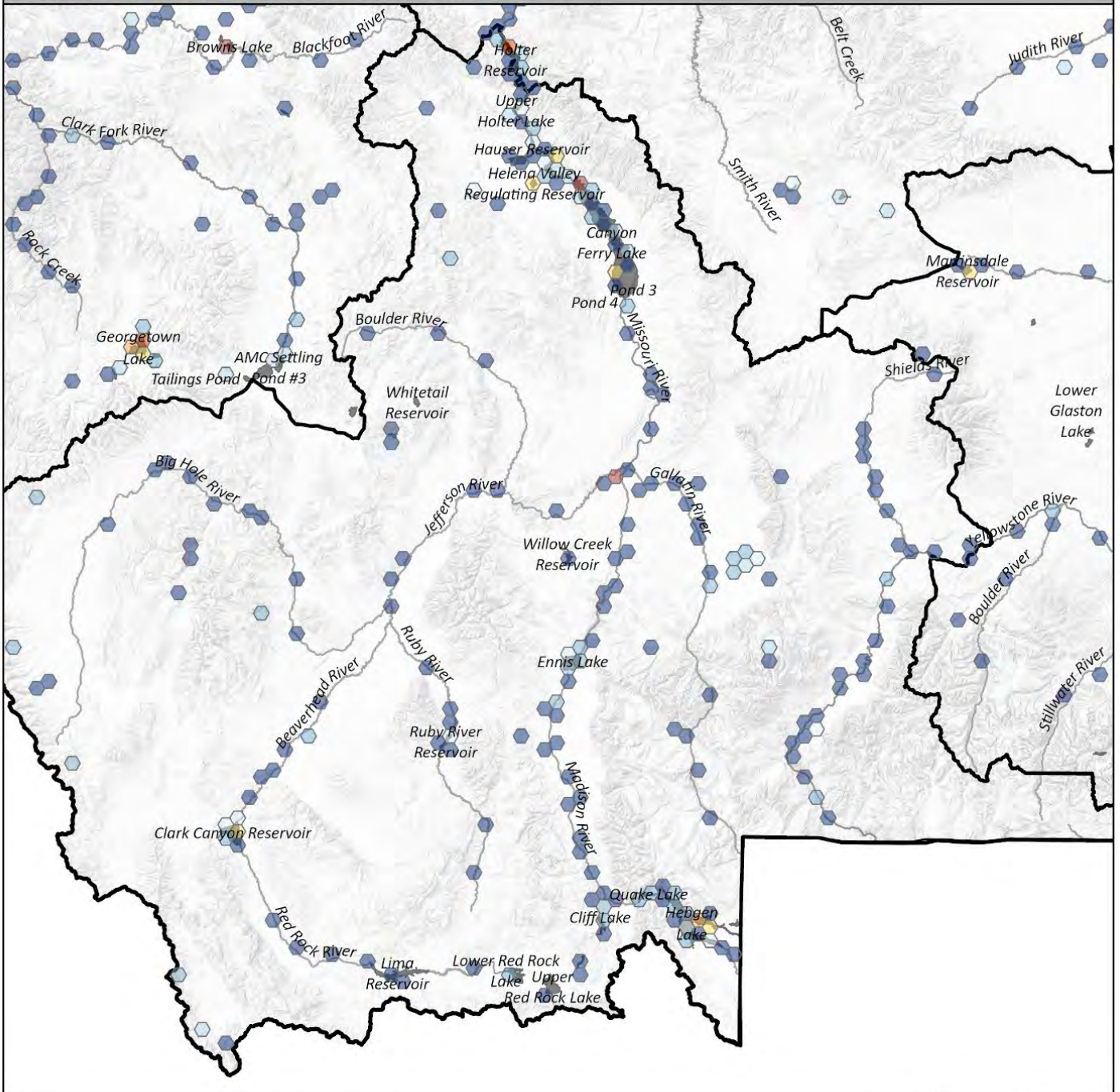
Map Produced by FWP AIS Bureau by CRM 11/22/2024
 Survey Locations from 01/01/2024-11/15/2024. Contains only sampling data as contained within FWP's AIS database.



AIS Surveys - 2024 - Region 3

MONTANA FWP

2024 Plankton Net Survey Locations by FWP and Partners



Plankton Net AIS Sample Location Density



Low
1 Sample

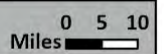
High
17+ Samples



Area of Interest



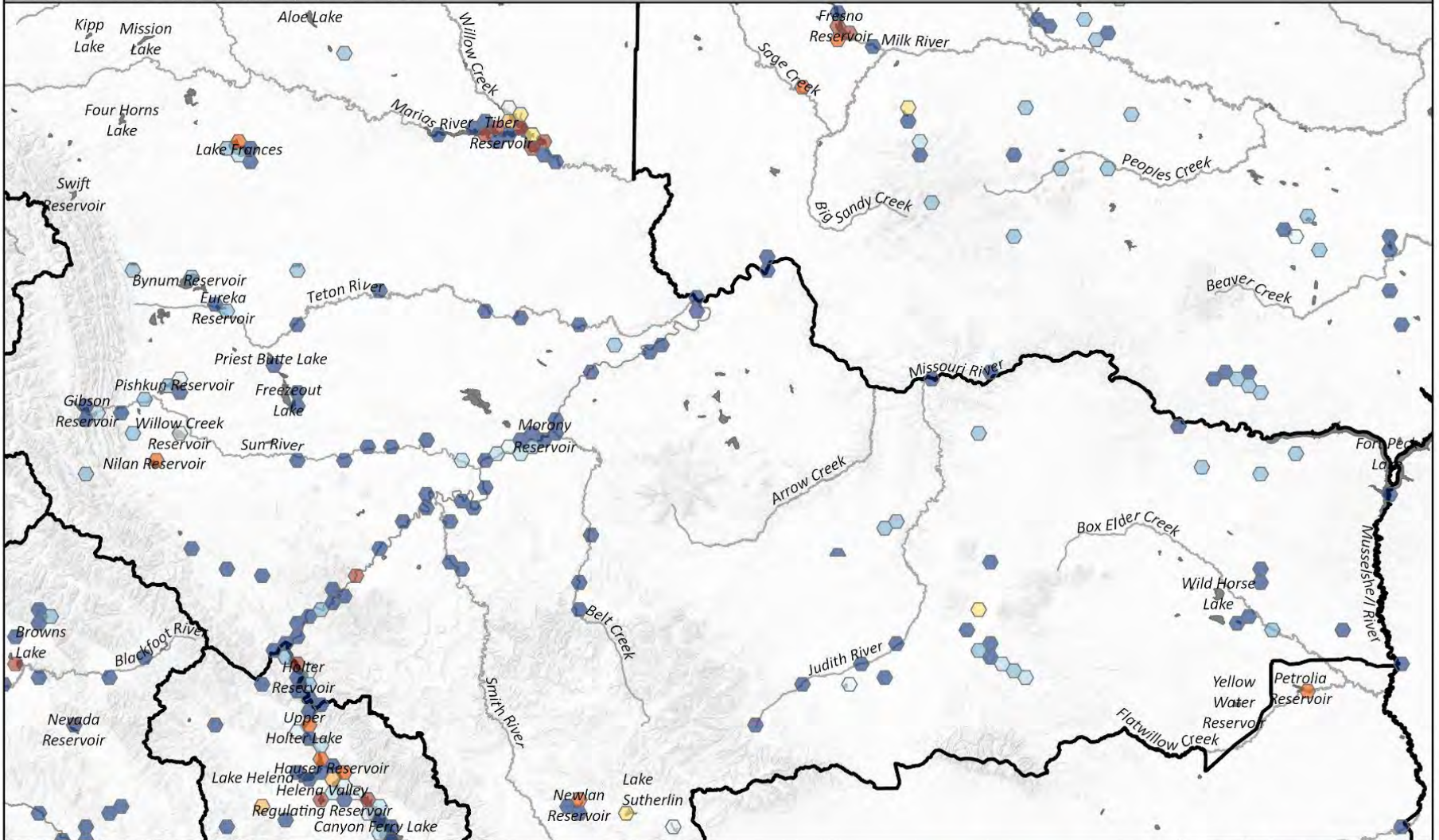
Map Produced by FWP AIS Bureau by CRM 11/22/2024
 Survey Locations from 01/01/2024-11/15/2024. Contains only sampling data as contained within FWP's AIS database.



AIS Surveys - 2024 - Region 4

MONTANA FWP

2024 Plankton Net Survey Locations by FWP and Partners



Plankton Net AIS Sample Location Density

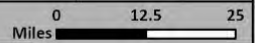


Low
1 Sample

High
13+ Samples



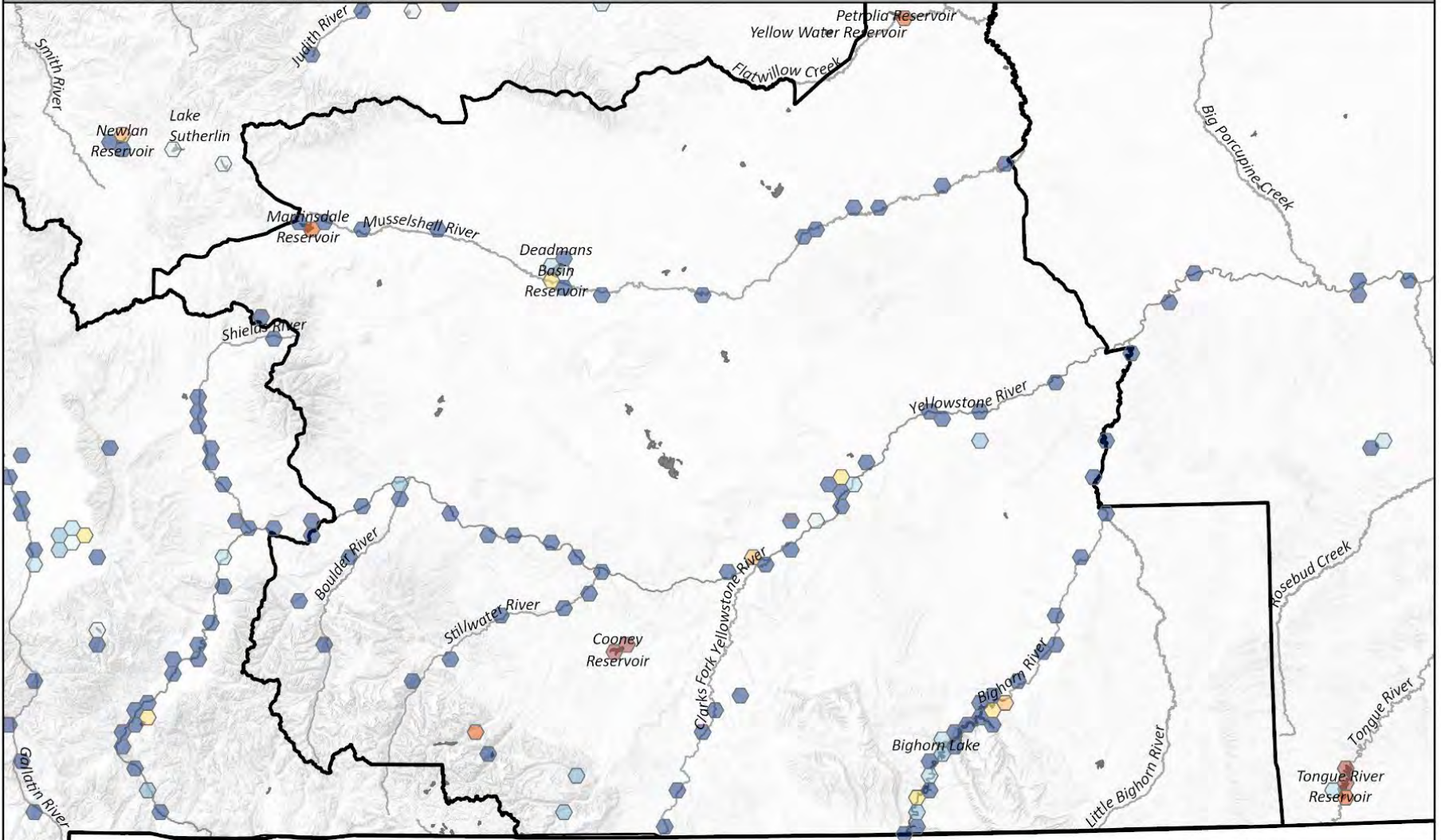
Map Produced by FWP AIS Bureau by CRM 11/22/2024
Survey Locations from 01/01/2024-11/15/2024. Contains only sampling data as contained within FWP's AIS database.



AIS Surveys - 2024 - Region 5

MONTANA FWP

2024 Plankton Net Survey Locations by FWP and Partners



Plankton Net AIS Sample Location Density

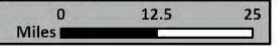


Low
1 Sample

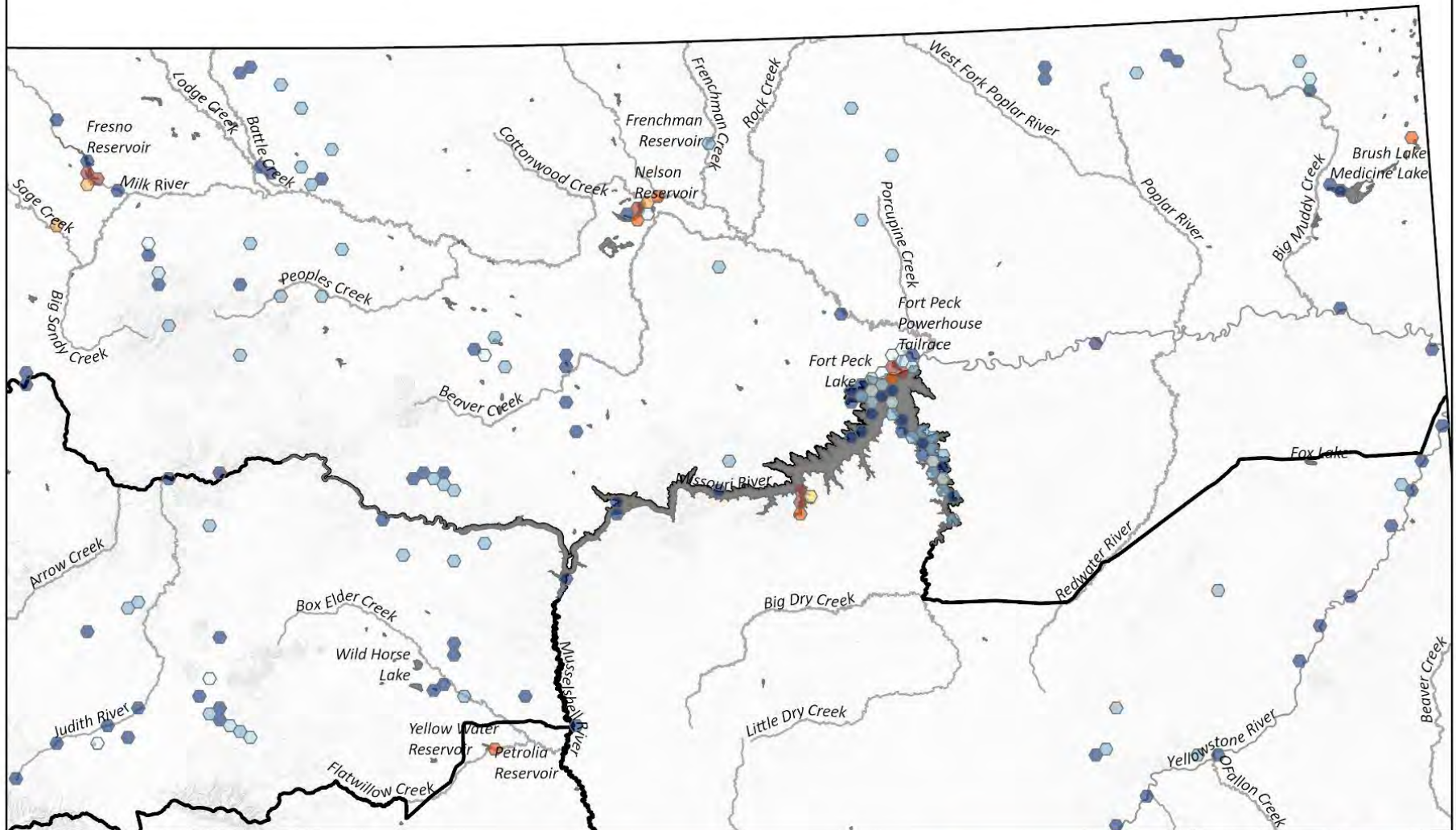
High
11+ Samples



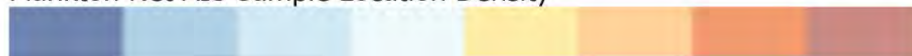
Map Produced by FWP AIS Bureau by CRM 11/22/2024
Survey Locations from 01/01/2024-11/15/2024. Contains only sampling data as contained within FWP's AIS database.



2024 Plankton Net Survey Locations by FWP and Partners



Plankton Net AIS Sample Location Density



Low
1 Sample

High
11+ Samples



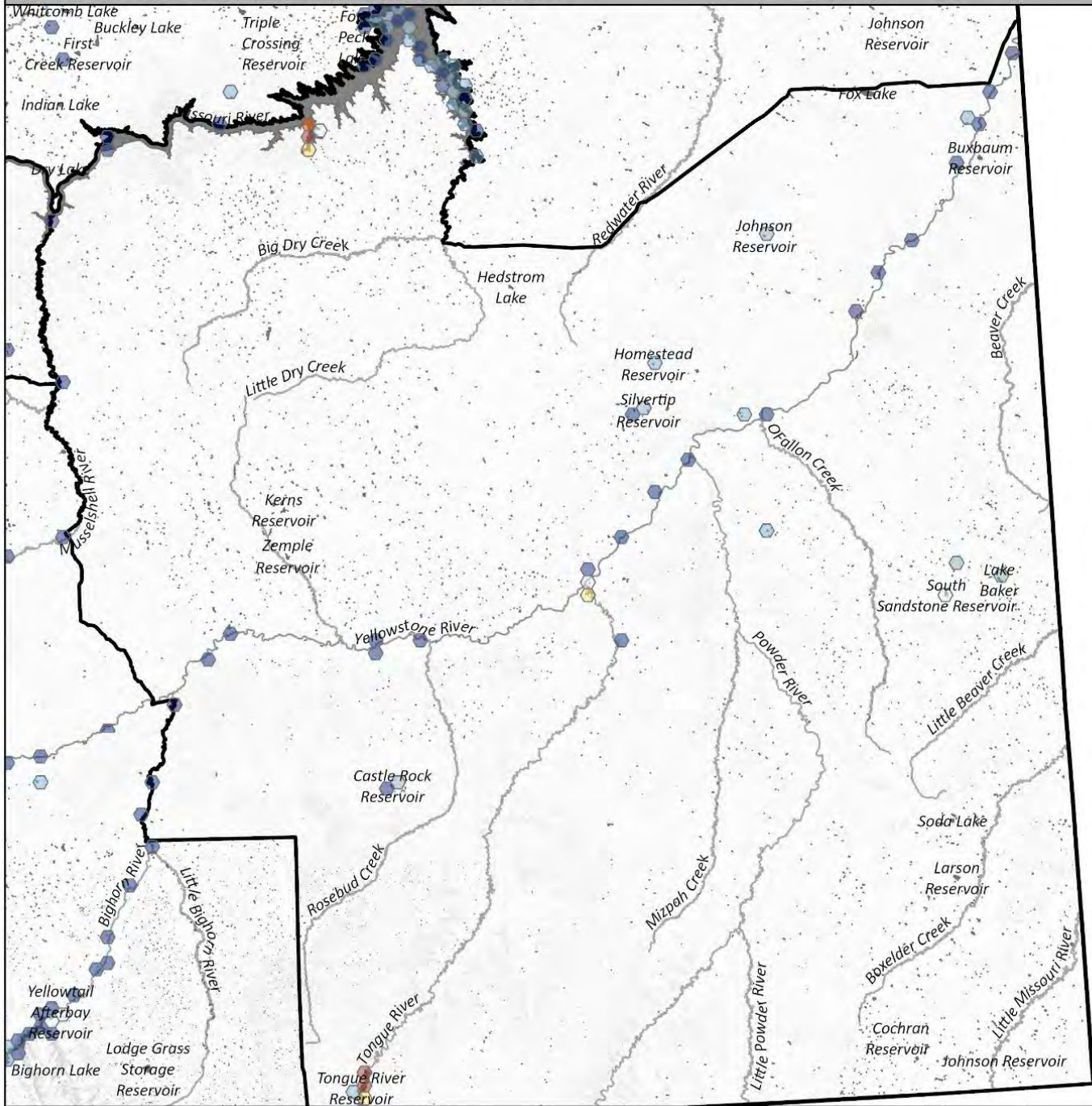
0 15 30
Miles

Map Produced by FWP AIS Bureau by CRM 11/22/2024
Survey Locations from 01/01/2024-11/15/2024. Contains only sampling data as contained within FWP's AIS database.

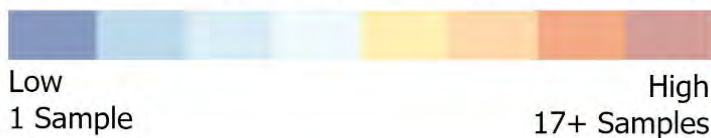
AIS Surveys - 2024 - Region 7

MONTANA FWP

2024 Plankton Net Survey Locations by FWP and Partners



Plankton Net AIS Sample Location Density



Area of Interest



Map Produced by FWP AIS Bureau by CRM 11/22/2024
 Survey Locations from 01/01/2024-11/15/2024. Contains only sampling data as contained within FWP's AIS database.

0 5 10
 Miles