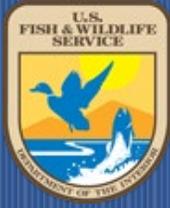


Montana Fish and Wildlife Conservation Office

BILLINGS–BOZEMAN–LEWISTOWN, MT

Spring/Summer 2019



Supporting Tribes in Montana

For over five decades, the Montana FWCO has been providing fish and wildlife support on tribal lands within Montana. Our work includes surveying habitats, developing stocking requests, monitoring stocked and native populations, and providing recommendation to tribal authorities to assist with meeting management goals. This spring we conducted surveys to Support the Blackfeet, Crow, Northern Cheyenne, and Chippewa Cree tribes.

[Blackfeet Tribal Sport Fishery](#)

[Management:](#)

Biologists Andrew Gilham and Michael (Josh) Melton, along with seasonal technicians Geoff Popken and Jason Marsh, conducted stock assessments in Duck, Four-Horn, and Kipp lakes on the Blackfeet Reservation to assist the tribe with improved sport/rec fishing opportunities on these famed Blackfeet lakes. Data collected from these surveys allow us to develop stocking requests that are submitted to the appropriate National Fish Hatchery (NFH) who then fulfills these requests.

DUCK LAKE — This lake is probably the most well known Blackfeet lake, but has also

suffered size and condition declines in the recreational fish species. There are several competing hypotheses for the decline; 1.) Poor survival of Eagle Lake strain RBT, and 2.) Interspecific competition with White Suckers.



Technician Geoff Popken holding a 9 lb. Brown Trout netted in Duck Lake, Blackfeet Reservation, Montana. Photo: USFWS

This was the third year of split stocking between M012 Westslope Cutthroat and Eagle Lake Rainbow Trout. M012 is the designation for Montana's conservation Westslope Cutthroat Trout, which were stocked to evaluate their growth and survival compared to Eagle Lake Rainbow. Unfortunately, no M012 have been captured throughout the 3-year trial period, indicating Eagle Lake survival/growth is probably not driving the declines in RBT size and condition. Thus, stocking will revert to exclusively using Eagle Lake RBT in 2020.

To address interspecific competition with White Suckers, 110,000 Burbot fingerlings (raised at Garrison Dam NFH) were stocked this spring. Burbot are benthic predators whose diets in other systems are often heavily comprised of Catostomid species. Additionally, in other systems, they do not prey heavily on salmonid species.

Unfortunately, there are high densities of large adult White Suckers that will not be vulnerable to predation by Burbot, but hopefully the Burbot will reduce Sucker recruitment.

Additional efforts to mechanically remove adult suckers through trapping have been discussed with the Tribe, although no final plans have been made yet.



Burbot fingerlings produced at Garrison Dam NFH, North Dakota for stocking in Duck Lake. Photo: USFWS – Garrison Dam NFH

LOWER TWO-MEDICINE LAKE—We collected water chemistry data to determine whether Westslope Cutthroat Trout would be viable for establishing an additional sport/fishery. After making the site visit and coordinating with Creston NFH and Glacier National Park (about 1/3 of the lake is in the Park), we stocked 20,000 M012 Westslope Cutthroat Trout. Current plans are to stock an additional 20,000 next year and 50,000 annually beginning in 2021. Future surveys will be implemented to determine the status and quality of the introduced Westslope population.

FOUR-HORNS RESERVOIR— This lake has been relatively stable over the last few years so we survey every-other year. The lake continues to support a self-sustaining trophy Walleye fishery and is annually stocked with Rainbow Trout (RBT). This year we did not capture any RBT. This is probably due to the absence of stocking in 2017 and the stocking of 1.5 - 3 inch RBT last year (normally 6-inch RBT are stocked). A power failure at Creston NFH in 2017 resulted in a massive die-off of RBT inventory, which also altered the timetable for raising the usual 6-inch RBT for 2018.



Trophy class Walleye in Four-Horns Reservoir, Blackfeet Reservation, Montana.

Photo: USFWS

Moreover, because of the high densities of large Walleye, the stocked RBT are probably preyed heavily on until they grow larger than the walleye gape size. Future surveys should identify this size to determine whether it is feasible to stock RBT that are not likely to be eaten by walleye. Fortunately, the stocking schedule and RBT size is back on track this year and the RBT fishery should begin to improve.

KIPP LAKE —Kipp was netted for the fourth consecutive year. The Rainbow Trout (RBT) population in the lake had shown drastic declines in length and condition. We identified two hypotheses for the decline; 1.) Lake depths <10 ft. reducing over winter survival and

2.) Competition with introduced White Suckers. Because the lake is an important source of revenue for the tribe, the two hypotheses were addressed simultaneously. The tribe has been maintaining depths greater than 10 ft. and we suppressed suckers in 2018.

We attempted to suppress suckers this spring, but the effort was disrupted by unseasonably cool temperatures. Nevertheless, white sucker catch per unit effort was maintained at ~35 fish/net, down from ~135 fish/net in 2016. The RBT population appears to be on the mend after suppressing suckers and maintaining adequate depth. However, trends in size structure and condition have not yet been calculated for this year.



Above: Weir deployed in Kipp Lake feeder canal, 2018, for removing spawning White Suckers.

Below: White Suckers migrate up the feeder canal to Kipp Lake to spawn. The weir on Kipp Lake feeder canal stopped much of the 2018 sucker migration and effectively reduced spawning. Photos: USFWS – Andrew Gilham



[Crow and Northern
Cheyenne Tribal
Sport Fishery
Management:](#)

MTFWCO crews completed annual population surveys on Lodge Grass (Willow Creek) Storage Reservoir and Crazy Head Springs, Crow and Northern Cheyenne Reservations; respectively. Additionally, DC Booth NFH fulfilled our annual stocking requests by providing approximately 18,000 McConaughy strain Rainbow Trout.



Technicians Jason Marsh and Geoff Popken setting a floating gill net on Willow Creek Reservoir (Lodge Grass Storage Reservoir, Crow Reservation, MT).

[Chippewa Cree
Tribal Sport Fishery
Management:](#)

MTFWCO crews completed annual population surveys and water quality monitoring on Bonneau and Browns reservoirs on Rocky Boys Reservation.

Additionally, in collaboration with the tribes, we have begun developing updated management plans for most reservation waters.



Technician Geoff Popken (L) and Biologist Andrew Gilham (R) holding Brown Trout captured in Willow Creek Reservoir, Crow Reservation, MT. The larger Brown Trout weighed in at 7.5 lbs.

National Wildlife Refuge Management Assistance:

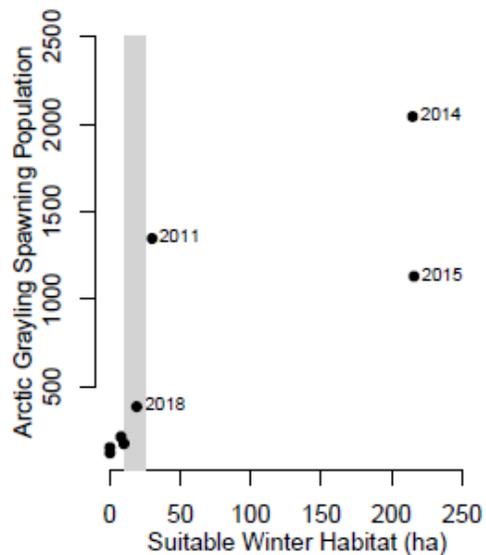
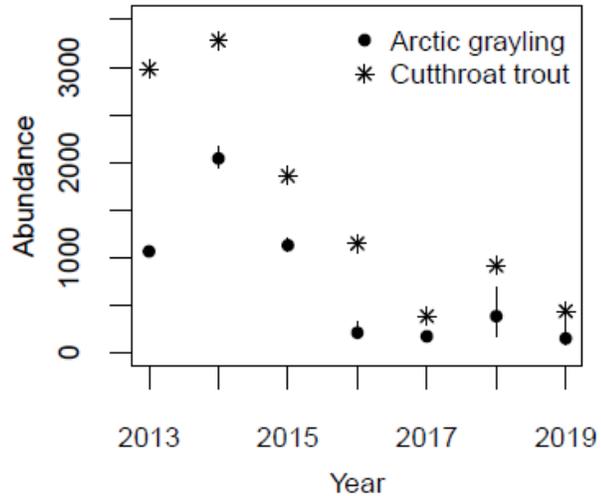
RED ROCK LAKES NWR—

We conducted annual electrofishing surveys on Red Rock Creek to estimate non-native Yellowstone Cutthroat (YCT) abundance. Population estimates of YCT abundance are used in the Arctic Grayling (AG) Adaptive Management Plan (AMP) to parametrize a predation/competition model. We suppressed YCT from 2013-2016 as part of the AMP to help elucidate potential competition or predation with AG. Although suppression ceased in 2016, it remains important to continue tracking YCT abundance through time to develop a more robust understanding of YCT and AG population abundance.

The 2019 YCT spawning abundance declined by 48% from 2018 (n= 440 (394-504) compared to 916 (838-1014) in 2018).

AG spawning abundance also decreased from 2018-2019 (214 to 84), although the decline was not statistically significant. The AG population crashed in 2016 and remains critically low due to subsequent poor overwinter

habitat. Overwinter habitat is also thought to be the primary driver of AG population abundance.



The figures above show AG and YCT spawning population estimates (2013-2019; top) and AG population estimates versus winter habitat in Upper Red Rock Lake (bottom). YCT and AG estimates are tightly correlated (even during suppression), indicating that AG are probably not negatively impacted by YCT. AG estimates versus winter habitat indicate that below 25 ha of suitable winter habitat the population crashes (or remains low). Figures developed by Jeff Warren as part of the 2019 AMP plan report.

Because the YCT decline happened in the absence of suppression, it is likely a natural decline, probably due to a lack of overwinter habitat in Upper Red Rock Lake. The relationship between winter habitat and YCT was previously confounded with the suppression. Despite the concern about continued declines in AG abundance, we have gained incredible insight into population drivers over the last year and this year's population estimate reaffirms that the amount of suitable winter habitat in upper lake probably drives both AG and YCT abundance and competition or predation is likely not a strong factor.

LOST TRAIL NWR— Montana FWCO staff met with Lost Trail NWR staff to discuss options for developing a fishery in the recently restored Dahl Lake. The lake is relative large but has limited deep water habitats that may affect over-winter survival for fish. FWCO staff plan to return in the fall to establish over-winter dissolved oxygen monitoring to help determine the potential for a fishery.



Dahl Lake, Lost Trail National Wildlife Refuge, Montana. Photo: USFWS-George Jordan



Technician Jason Marsh with a cutthroat trout collected from Red Rock Lakes National Wildlife Refuge, Montana. Photo: USFWS

Sikes Act work, Malmstrom Air Force Base, MT.

Powwow Pond

Management— Staff coordinated fish stockings by Montana Fish Wildlife and Parks and Ennis National Fish Hatchery who stocked approximately 200 and 300 Rainbow Trout, respectively, in preparation for Kid’s fishing day.

Game Camera Surveys—

Montana FWCO staff continue to ensure batteries and memory cards are replaced at 25 sites within the missile complex. Each camera is triggered when something passes in front of it. This results in hundreds of hours of footage to review. Of note, a single wolf was observed at one site.

Burrowing Owl Surveys—

Burrowing Owls are a state species of special concern that will nest in abandoned cavities, i.e., fox, badger, or coyote dens. This year the Base was planning prescribed burns, but wanted to ensure any activities would not be detrimental to the owls. Staff initiated owl surveys in the spring, which will continue through the end of July. A pair of owls and

their burrow were located in June.



Game camera screen shot of wolf near one of Malmstrom Air Force Base’s missile launch facilities, central Montana. Photo: USFWS



Male Burrowing Owl, Malmstrom Air Force Base, Montana. Photo: USFWS—George Jordan

Other happenings:

- Geoff Popken returned for a third season and Jason Marsh returned for his sixth season. Welcome back Jason and Geoff!
- Two manuscripts were submitted for publication. One has been accepted and we are awaiting word on the other:

Gilham, A. T., M. L. Brown, and G. R. Jordan. (Submitted). Proposed Modification of the Standard Weight (Ws) Equation and Standard Length Categories for Arctic Grayling (*Thymallus arcticus*). North American Journal of Fisheries Management.

[Jordan, G. R., E. J. Heist, B. R. Kuhajda, G. R. Moyer, P. Hartfield, and M. S. Piteo. 2019. Morphological Identification Over-Estimates The Number Of Pallid Sturgeon \(*Scaphirhynchus albus*\) In The Lower Mississippi River Due To Extensive Introgressive Hybridization. Transactions of the American Fisheries Society. doi: 10.1002/tafs.10194](#)

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