

# Tiger Muskellunge (*Esox masquinongy x lucius*)

## Predicted Suitable Habitat Modeling

**Distribution Status:** Resident Year Round

**State Rank:** [SNA](#)

**Global Rank:** [GNA](#)



### **Modeling Overview**

**Data Source Last Updated:** June 3, 2022

**Model Produced On:** August 18, 2022

### **Deductive Modeling**

#### **Modeling Process, Outputs, and Suggested Uses**

This is a simple rule-based model using stream reaches and standing waterbodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. See Montana fish distribution, survey, stocking, and genetic testing information from the Montana Department of Fish, Wildlife, and Parks at: <http://gis-mtftp.opendata.arcgis.com/> For compatibility with other predictive distribution models the Montana Natural Heritage Program produces, we have intersected this fish presence information with a uniform grid of hexagons that have been used for planning efforts across the western United States (e.g. Western Association of Fish and Wildlife Agencies - [Crucial Habitat Assessment Tool](#)). Each hexagon is one square mile in area and approximately one kilometer in length on each side. Any hexagon that intersected a waterbody evaluated as having a species present was classified as suitable habitat; native or introduced. Model outputs are not evaluated and we suggest they be used to generate potential lists of species that may occupy water bodies present within each hexagon for the purposes of landscape-level planning. Model outputs should not be used in place of on-the-ground surveys for species, and wildlife and land management agency biologists should be consulted about the value of using model output to guide habitat management decisions for regional planning efforts or local projects. See [Suggested Contacts for Natural Resource Agencies](#) attached to this document.

#### **Deductive Model Output:**

[http://mtnhp.org/models/files/Tiger\\_Muskellunge\\_AFCHD01050\\_20220818\\_modelHex.lpk](http://mtnhp.org/models/files/Tiger_Muskellunge_AFCHD01050_20220818_modelHex.lpk)

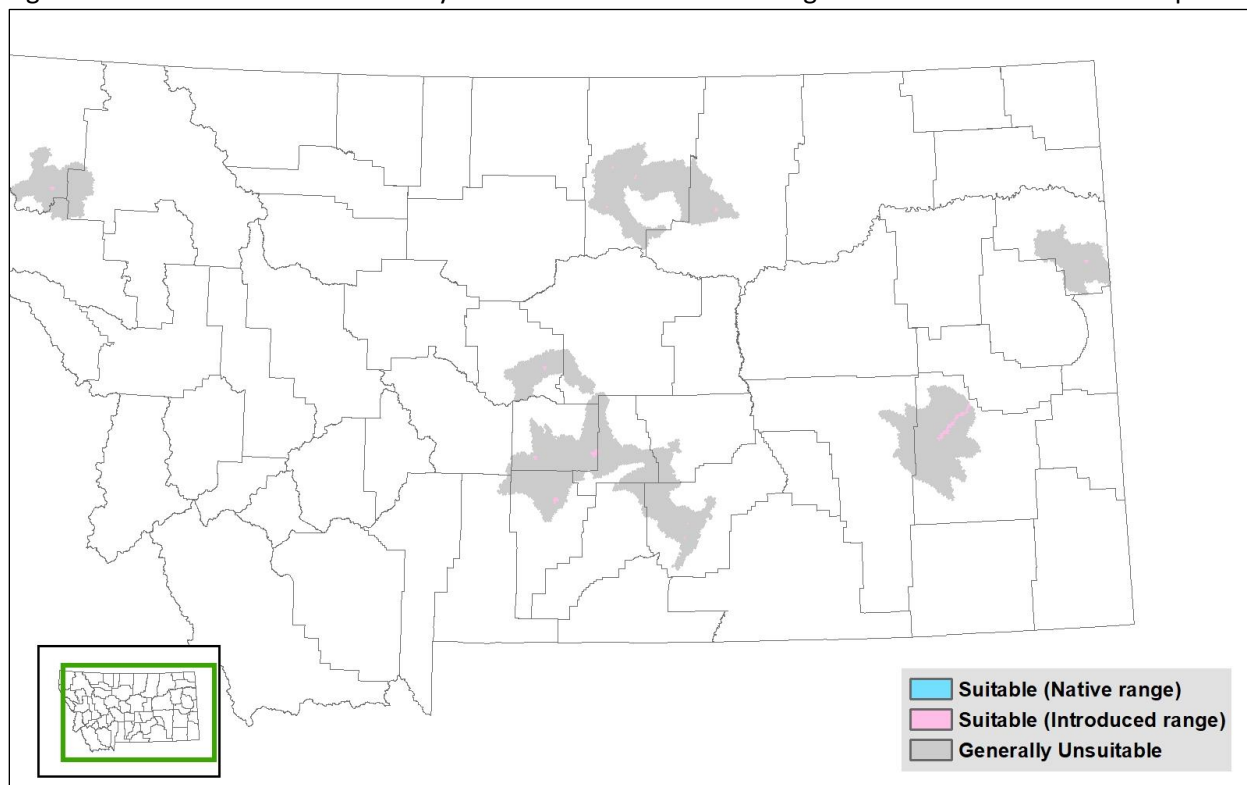
**Suggested Citation:** Montana Natural Heritage Program. 2022. Tiger Muskellunge (*Esox masquinongy x lucius*) predicted suitable habitat models developed on August 18, 2022. Montana Natural Heritage Program, Helena, MT. 5 pp.

**Montana Field Guide Species Account:** <http://fieldguide.mt.gov/speciesDetail.aspx?elcode=AFCHD01050>

**Species Model Page:** <http://mtnhp.org/models/?elcode=AFCHD01050>

## Deductive Model Map Output

Figure 1. Deductive habitat suitability model summarized into hexagons at a scale of 259 hectares per hexagon.




## Suggested Contacts for Natural Resource Management Agencies


As required by Montana statute ([MCA 90-15](#)), the Montana Natural Heritage Program works with state, federal, tribal, nongovernmental organizations, and private partners to ensure that the latest animal and plant distribution and status information is incorporated into our databases so that it can be used to inform a variety of permitting and planning processes and management decisions. We encourage you to contact state, federal, and tribal resource management agencies in the area where your project is located and review the permitting overviews by the [Montana Department of Environmental Quality](#), the [Montana Department of Natural Resources and Conservation](#) and the [Index of Environmental Permits for Montana](#) for guidelines relevant to your efforts. In particular, we encourage you to contact the Montana Department of Fish, Wildlife, and Parks for the latest data and management information regarding hunted and high-profile management species and to use the U.S. Fish and Wildlife Service's [Information Planning and Consultation \(IPAC\) website](#) regarding U.S. Endangered Species Act listed Threatened, Endangered, or Candidate species.

For your convenience, we have compiled a list of relevant agency contacts and links below; check [our website](#) for updates.

### Montana Fish, Wildlife, and Parks

Fish Species	Zachary Shattuck <a href="mailto:zshattuck@mt.gov">zshattuck@mt.gov</a> (406) 444-1231 or Eric Roberts <a href="mailto:eroberts@mt.gov">eroberts@mt.gov</a> (406) 444-5334		
American Bison Black-footed Ferret Black-tailed Prairie Dog Bald Eagle Golden Eagle Common Loon Least Tern Piping Plover Whooping Crane	Kristina Smucker <a href="mailto:ksmucker@mt.gov">ksmucker@mt.gov</a> (406) 444-5209		
Grizzly Bear Greater Sage Grouse Trumpeter Swan Big Game Upland Game Birds Furbearers	Brian Wakeling <a href="mailto:Brian.Wakeling@mt.gov">Brian.Wakeling@mt.gov</a> (406) 444-3940		
Managed Terrestrial Game and Nongame Animal Data	Smith Wells – MFWP Data Analyst <a href="mailto:smith.wells@mt.gov">smith.wells@mt.gov</a> (406) 444-3759		
Fisheries Data	Ryan Alger – MFWP Data Analyst <a href="mailto:ryan.alger@mt.gov">ryan.alger@mt.gov</a> (406) 444-5365		
Wildlife and Fisheries Scientific Collector's Permits	<a href="https://fwp.mt.gov/buyandapply/commercialwildlifeandscientificpermits/scientific">https://fwp.mt.gov/buyandapply/commercialwildlifeandscientificpermits/scientific</a> Kammi McClain for Wildlife <a href="mailto:Kammi.McClain@mt.gov">Kammi.McClain@mt.gov</a> (406) 444-2612 Kim Wedde for Fisheries <a href="mailto:kim.wedde@mt.gov">kim.wedde@mt.gov</a> (406) 444-5594		
Fish and Wildlife Recommendations for Subdivision Development	Charlie Sperry <a href="mailto:CSperry@mt.gov">CSperry@mt.gov</a> (406) 444-3888 See also: <a href="https://fwp.mt.gov/conservation/living-with-wildlife/subdivision-recommendations">https://fwp.mt.gov/conservation/living-with-wildlife/subdivision-recommendations</a>		
Regional Contacts 	<a href="#">Region 1</a> - Kalispell (406) 752-5501 <a href="mailto:fwprg12@mt.gov">fwprg12@mt.gov</a> <a href="#">Region 2</a> - Missoula (406) 542-5500 <a href="mailto:fwprg22@mt.gov">fwprg22@mt.gov</a> <a href="#">Region 3</a> - Bozeman (406) 577-7900 <a href="mailto:fwprg3@mt.gov">fwprg3@mt.gov</a> <a href="#">Region 4</a> - Great Falls (406) 454-5840 <a href="mailto:fwprg42@mt.gov">fwprg42@mt.gov</a> <a href="#">Region 5</a> - Billings (406) 247-2940 <a href="mailto:fwprg52@mt.gov">fwprg52@mt.gov</a> <a href="#">Region 6</a> - Glasgow (406) 228-3700 <a href="mailto:fwprg62@mt.gov">fwprg62@mt.gov</a> <a href="#">Region 7</a> - Miles City (406) 234-0900 <a href="mailto:fwprg72@mt.gov">fwprg72@mt.gov</a>		

**Montana Department of Agriculture**General Contact Information: <https://agr.mt.gov/About/Office-Locations/Office-Locations-and-Field-Offices>Noxious Weeds: <https://agr.mt.gov/Noxious-Weeds>**Montana Department of Environmental Quality**Permitting and Operator Assistance for all Environmental Permits: <https://deq.mt.gov/Permitting>**Montana Department of Natural Resources and Conservation**Overview of, and contacts for, licenses and permits for state lands, water, and forested lands: <http://dnrc.mt.gov/licenses-and-permits>Stream Permitting (310 permits) and an overview of various water and stream related permits (e.g., Stream Protection Act 124, Federal Clean Water Act 404, Federal Rivers and Harbors Act Section 10, Short-term Water Quality Standard for Turbidity 318 Authorization, etc.). <http://dnrc.mt.gov/divisions/cardd/conservation-districts/the-310-law>Flood and Fire Resources: <http://dnrc.mt.gov/flood-and-fire>**Bureau of Land Management**

Montana Field Office Contacts:	
	
Billings	(406) 896-5013
Butte	(406) 533-7600
Dillon	(406) 683-8000
Glasgow	(406) 228-3750
Havre	(406) 262-2820
Lewistown	(406) 538-1900
Malta	(406) 654-5100
Miles City	(406) 233-2800
Missoula	(406) 329-3914

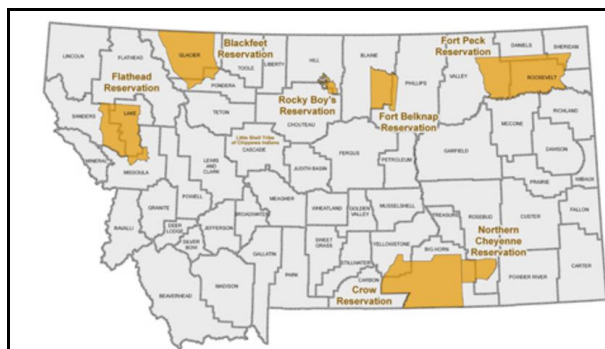
**United States Army Corps of Engineers**

Montana Regulatory Office for federal permits related to construction in water and wetlands

(406) 441-1375 <https://www.nwo.usace.army.mil/Missions/Regulatory-Program/Montana/>**United States Environmental Protection Agency**Environmental information, notices, permitting, and contacts <https://www.epa.gov/mt>Gateway to state resource locators <https://www.envcap.org/srl/index.php>**United States Fish and Wildlife Service**Information Planning and Conservation (IPAC) website: <https://ecos.fws.gov/ipac/>Montana Ecological Services Field Office (406) 449-5225 <https://www.fws.gov/montanafieldoffice/>**United States Forest Service**

<b>Regional Office Contacts – Missoula</b>			
Wildlife Program Leader	Tammy Fletcher	<a href="mailto:tammy.fletcher2@usda.gov">tammy.fletcher2@usda.gov</a>	(406) 329-3086
Wildlife Ecologist	Cara Staab	<a href="mailto:cara.staab@usda.gov">cara.staab@usda.gov</a>	(406) 329-3677
Fish Program Leader	Scott Spaulding	<a href="mailto:scott.spaulding@usda.gov">scott.spaulding@usda.gov</a>	(406) 329-3287
Fish Ecologist	Cameron Thomas	<a href="mailto:cameron.thomas@usda.gov">cameron.thomas@usda.gov</a>	(406) 329-3087
TES Program	Lydia Allen	<a href="mailto:lydia.allen@usda.gov">lydia.allen@usda.gov</a>	(406) 329-3558
Interagency Grizzly Bear Coordinator	Scott Jackson	<a href="mailto:scott.jackson@usda.gov">scott.jackson@usda.gov</a>	(406) 329-3664
Acting Regional Botanist	Amanda Hendrix	<a href="mailto:amanda.hendrix@usda.gov">amanda.hendrix@usda.gov</a>	(651) 447-3016
Regional Vegetation Ecologist	Mary Manning	<a href="mailto:marry.manning@usda.gov">marry.manning@usda.gov</a>	(406) 329-3304
Invasive Species Program Manager	Michelle Cox	<a href="mailto:michelle.cox2@usda.gov">michelle.cox2@usda.gov</a>	(406) 329-3669

## Tribal Nations



[Assiniboine & Gros Ventre Tribes – Fort Belknap Reservation](#)

[Assiniboine & Sioux Tribes – Fort Peck Reservation](#)

[Blackfeet Tribe - Blackfeet Reservation](#)

[Chippewa Creek Tribe - Rocky Boy's Reservation](#)

[Crow Tribe – Crow Reservation](#)

[Little Shell Chippewa Tribe](#)

[Northern Cheyenne Tribe – Northern Cheyenne Reservation](#)

[Salish & Kootenai Tribes - Flathead Reservation](#)

## Natural Heritage Programs and Conservation Data Centres in Surrounding States and Provinces

[Alberta Conservation Information Management System](#)

[British Columbia Conservation Data Centre](#)

[Idaho Natural Heritage Program](#)

[North Dakota Natural Heritage Program](#)

[Saskatchewan Conservation Data Centre](#)

[South Dakota Natural Heritage Program](#)

[Wyoming Natural Diversity Database](#)

## Invasive Species Management Contacts and Information

### Aquatic Invasive Species

[Montana Fish, Wildlife, and Parks Aquatic Invasive Species staff](#)

[Montana Department of Natural Resources and Conservation's Aquatic Invasive Species Grant Program](#)

[Montana Invasive Species Council \(MISC\)](#)

[Upper Columbia Conservation Commission \(UC3\)](#)

### Noxious Weeds

[Montana Weed Control Association Contacts Webpage](#)

[Montana Biological Weed Control Coordination Project](#)

[Montana Department of Agriculture - Noxious Weeds](#)

[Montana Weed Control Association](#)

[Montana Fish, Wildlife, and Parks - Noxious Weeds](#)

[Montana State University Integrated Pest Management Extension](#)

[Integrated Noxious Weed Management after Wildfires](#)

[Fire Management and Invasive Plants](#)