

# INLAND STRANDED OIL SPECIES FACT SHEET FOR RESPONSE:

## Freshwater Turtles

### Key Species



Painted Turtle



Snapping Turtle



Blanding's Turtle



Box Turtle

## I. Description

With over 320 different species, freshwater turtles are some of the most abundant and diverse reptiles in the United States. Turtles can range in size from just a few ounces, like the Painted Turtle (*Chrysemys picta*) which weighs from 2 to 13 ounces and ranges from 3.5 to 9.8 inches in length, to quite large, like the Alligator Snapping Turtle (*Macrochelys temminckii*) which can weigh up to 176 pounds and grow to approximately 40 inches long. Although each species has their own color and size variations to help with defense and camouflage, all turtles have a form of protective bony shell with an upper portion called a “carapace” and a lower portion called the “plastron”.

Freshwater turtles are found all throughout the world where there is shallow fresh water such as wetlands, rivers, lakes, and swamps. Being cold-blooded reptiles, they cannot inhabit extremely cold areas such as arctic or tundra regions. However, in cold climates, they live under the ice during the winter months and can remain active albeit with a low metabolic rate and extract oxygen from the water using a process called cloacal respiration.

Turtles are generally omnivores, but some species have diets that are predominately herbivorous or predominately carnivorous. In general, turtles eat aquatic plants, snails, slugs, insects, crayfish, and small fish. Turtles do not have teeth, so they rely on strong jaw sharp claws and front beak for eating.

Turtle nesting season lasts from spring to fall. Freshwater turtle females move onto dry land and can travel large distances to sites with loose, sandy soils and sun exposure to lay their 5 to 100 eggs. They create holes or depressions for the eggs, bury them and return to their aquatic habitat. Turtles do not provide parental care for eggs or for the hatchlings which usually emerge in late summer or early fall. Soil temperature during egg development will affect what gender the hatchlings are. Higher incubation temperature will result in more females, lower incubation temperatures will result in more males. The hatchlings are a target for predation by larger animals like birds and mammals and very

## II. Sensitivity to Oil

Freshwater Turtles can suffer numerous physical health problems from encountering oil. If oil gets on their shell or body, it can cause lesions on their skin, eyes, and mouths and result in delamination of their shells. They may also become more susceptible to predators. They may also become trapped in thick oil and unable to breathe.

Turtles can ingest oil through drinking or eating contaminated water or food. It can also be absorbed through its skin and enter the body. Many health-related effects are associated with oil ingestion such as respiratory problems, oil regurgitation, sloughing of intestinal lining, and irritation of skin, eyes, and other body parts. Oil can also change a turtle’s blood chemical composition resulting in anemia. Weight loss can result in positive buoyancy that makes it difficult to turtles to remain submerged.

Oil exposure can also have adverse effects on reproduction and development of turtles. Female turtles have been shown to have a decrease in fertility, number of eggs produced, and size of eggs produced if exposed to oil. This is a result of toxins either directly destroying reproductive cells such as oocytes or disruption of reproductive hormones. Ingesting oil has a negative effect on embryo production due to an increase in toxins being sent to the embryos and less nutrients in the form of lipids being supplied to the eggs. This can result in death to embryos and if they survive, they have a higher chance of early mortality or suffering from deformities that impede normal functions.

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### III. Sensitivity to Response Methods

The following text describes potential adverse impacts to this species and its habitat resulting from various oil spill response methods and provides recommendations to reduce impact when these methods are implemented. This is not intended to preclude the use of any particular methods, but rather to aid responders in balancing the need to remove oil with the possible adverse effects of removal with respect to bald eagles. More detail about the response methods themselves can be found in the [Inland Response Tactics Manual](#).

#### **Least Adverse Impacts**

##### ***Boom Deployment***

- Control the movement of floating oil to prevent or reduce contamination of species.

##### ***Skimming***

- Recover floating oil from water surface to prevent or reduce contamination of species.

##### ***Physical Herding***

- Free oil trapped in vegetation or debris and away from sensitive species habitat like feeding, nesting, and staging sites.

##### ***Scare Tactics/Hazing***

- May reduce turtle contact with oil on structures that turtles might use for basking, but otherwise little impact on turtles

#### **Some Adverse Impact**

##### ***Vegetation Removal***

- Some habitat impacts but may be necessary to prevent ingestion of oil.

##### ***Manual Cleaning/Removal***

- Oiled debris should be removed to prevent ingestion of oil.
- Need to minimize trampling of oil into wetland soils

##### ***Dispersants***

- Dispersants/detergent contact with species can irritate skin or other vulnerable body parts.

##### ***Vacuum***

- Can entrain turtles.
- Need to minimize foot and vehicular traffic and removal of substrate.

#### **Most Adverse Impact**

##### ***Dredging and Sediment agitation***

- May kill individuals and impact species habitat.

##### ***In-Situ Burning***

- May kill individuals and impact species habitat.

##### ***Natural Attenuation***

- This method may not be suitable for species nesting, foraging, and staging areas.

Commercial turtle traps are an efficient way to capture turtles. Basking traps like the one shown use slanted walls that allow turtles to climb in but not out.





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### IV. Sensitivity to Hazing and Capture Methods

The following text describes potential adverse impacts resulting from wildlife hazing and capture methods and provides recommendations to reduce impact when these methods are implemented. Wildlife hazing and capture must be done under the direction of the wildlife branch director and a hazing plan that includes safety considerations must be in place. This is not intended to preclude the use of any particular methods, but rather to aid responders with determining suitable techniques.

#### **Least Adverse Capture/Hazing Impacts**

##### ***Capture- Commercial Turtle Traps***

- Safest and most effective trap for capturing turtles.
- May be subject to disturbance from high vessel traffic in waterways.

##### ***Visual Deterrent- lights/lasers***

- Lasers/lights most effective in dim light and areas where pyrotechnics cannot be used.

##### ***Acoustic Deterrent(s)- natural calls, artificial sounds***

- Artificial sounds like air horns, whistles, bells are a short-term hazing technique.

##### ***Physical Deterrent(s)-Oil spill booms/fences***

- Turtles cannot climb and are not very mobile so physical barriers work the best to prevent them from entering an area.

#### **Some Adverse Capture/Hazing Impacts**

##### ***Capture- Other traps/cages***

- Should be placed in areas not susceptible to further oiling and away from spill cleanup zones.
- Traps must be safe enough to not damage turtles' shells.

##### ***Capture- manual capture/nets***

- Trained wildlife handler with proper PPE should capture most heavily oiled individual birds.

#### **Most Adverse Capture/Hazing Impacts**

##### ***Acoustic Deterrent(s)- propane cannon***

- Upon Incident Command approval, can be set up to fire automatically in areas not susceptible to fire.
- Locations should be mapped and made known to all responders.
- May be vulnerable to sabotage by locals/public.

##### ***Capture- cannon nets***

- Technique should only be implemented by a trained wildlife professional.
- Responsible party is not liable for injured/killed wildlife resulting from poorly chosen/implemented capture techniques.
- Technique is not reliable because bait can attract unwanted species.

##### ***Acoustic/Visual Deterrent(s)- pyrotechnics***

- Users must be trained to use pyrotechnics, wear proper protective equipment, follow Class C explosive guidelines, and notify responders in vicinity of use.
- Turtle habitats are around grassy areas that are easily susceptible to wildfire.



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### References/Additional Information:

Animal Diversity Website "Alligator Snapping Turtle" (Online). Accessed July 24, 2021, at [https://animaldiversity.org/accounts/Macrochelys\\_temminckii/](https://animaldiversity.org/accounts/Macrochelys_temminckii/)

Animal Diversity Website "Painted Turtle" (Online). Accessed July 24, 2021, at [https://animaldiversity.org/accounts/Chrysemys\\_picta/](https://animaldiversity.org/accounts/Chrysemys_picta/)

Fish and Wildlife Service "Appendix C: Wildlife Response Report" (Online). Accessed July 18, 2021, at [https://www.fws.gov/midwest/es/ec/nrda/MichiganEnbridge/pdf/EnbridgeNRDADraftDARP\\_EAMay2015AppendixC.pdf](https://www.fws.gov/midwest/es/ec/nrda/MichiganEnbridge/pdf/EnbridgeNRDADraftDARP_EAMay2015AppendixC.pdf)

Fish and Wildlife Service "Michigan Enbridge" (Online). Accessed July 23, 2021, at <https://www.fws.gov/midwest/es/ec/nrda/MichiganEnbridge/#restoration>

Hinderland's Who's Who "Freshwater Turtles" (Online). Accessed July 24, 2021, at <https://www.hww.ca/en/wildlife/fish-amphibians-and-reptiles/freshwater-turtles.html>

National Ocean Services "What causes a sea turtle to be born male or female?" (Online). Accessed August 6, 2021, at <https://oceanservice.noaa.gov/facts/temperature-dependent.html>

V.S. Saba, J.R. Spotila "Survival and behavior of freshwater turtles after rehabilitation from an oil spill" (Online). Accessed July 23, 2021 at [https://www.researchgate.net/publication/10605814\\_Survival\\_and\\_behavior\\_of\\_freshwater\\_turtles\\_after\\_rehabilitation\\_from\\_an\\_oil\\_spill](https://www.researchgate.net/publication/10605814_Survival_and_behavior_of_freshwater_turtles_after_rehabilitation_from_an_oil_spill)