INLAND STRANDED OIL HABITAT FACT SHEET FOR RESPONSE:

Rooted-Floating Aquatics

Indicator Species

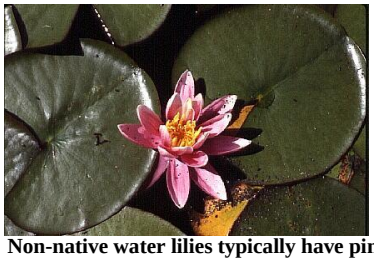
Spatterdock
Nuphar spp.

Water Lily
Nymphaea spp.

American Lotus
Nelumbo spp.

I. Habitat Description

Rooted-Floating Aquatics (RFA) represent portions of lakes, ponds, marshes, backwaters, or channel borders that are >10% vegetated with water lilies (*Nymphaea* and *Nuphar*) or American Lotus (*Nelumbo*). This general class is dominated by rooted-floating aquatics, but may have inclusions of submersed, nonrooted-floating aquatics, or emergent vegetation. It is typically found growing between water depths of 0.25 and 2 m. This general class remains permanently flooded all year.



Non-native water lilies typically have pink, purple, and red flowers.
Image: Dept. of Ecology, State of Washington

Colony of American lotus.

II. Sensitivity to Oil Spills

Due to proximity to shorelines and establishment in shallow water, the rooted floating aquatics habitat is highly sensitive to oil spills. Floating vegetation provides cover for several species of amphibians and fish. It is also important habitat for invertebrates. Many fish, invertebrates, and amphibious species deposit eggs on rooted floating vegetation. Light refined oils with high amounts of water-soluble fractions can cause acute mortality to animals and plants in these shallow habitats. Heavier oils tend to coat vegetation and animals, though the vegetation may survive because the roots are not affected. It is more difficult for more viscous oils to penetrate dense vegetation beds. However, these oils can smother water lily beds. Above all, oil reduces plant and animal tolerance to other environmental stress factors.

References/Additional Information:

General Classification Handbook for Floodplain Vegetation in Large River Systems (http://pubs.usgs.gov/tm/2005/tm2A1/)
Inland Oil Spills: Options for Minimizing Environmental Impacts for Freshwater Spill Response (http://www.michigan.gov/documents/deq/deq-wb-wws-FreshwaterResponse_NOAA102706_265069_7.pdf)
NatureServe (natureserve.org)
Natural Wetland Inventory (http://www.fws.gov/wetlands/)
The U.S. National Vegetation Classification (http://usnvc.org/)
Wetland Plants and Plant Communities of MN & WI, 3rd Edition (http://www.bwsr.state.mn.us/wetlands/delineation/WPPC_MN_WI/index.html)

Information compiled by UMRBA staff from NOAA, USFWS, and U.S. EPA sources, March 2016.

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III. Sensitivity to Response Methods

Relevant response tactics are ordered below by least-to-most adverse habitat impact. Bullet points list quick-reference information regarding the tactic; any potential adverse impacts of its use; and suggestions for mitigation of these impacts if available. This is not intended to preclude the use of any particular tactic, but rather to aid responders in choosing the tactic(s) best suited to a specific habitat. For more information on a tactic, click on it or go to the corresponding section in the Inland Response Tactics Manual.

Least Adverse Habitat Impacts

Containment Booming

- Use containment boom to keep oil from spreading and to concentrate slicks for recovery.
- Effectiveness is increased by positioning boom at appropriate angles for the current speed and where water slows down and debris naturally collects, such as the outside of a meander or below a point bar.
- Recovery by skimmers or vacuum systems needs to accompany booming.

Sorbents/Sorbent Booming

- Deploy sorbent boom to recover sheens in low-current areas and along the shoreline.
- Overuse results in excess waste generation.
- Pom-pom type sorbents are best for heavy viscous oils that coat the strands; sorbent boom is best for light, low-viscosity oils that can penetrate into the sorbents.
- Absorbent boom must be changed frequently to prevent it from becoming a source of sheen.

Debris/Vegetation Removal

- Collect oiled free-floating vegetation. Minimize the cutting of rooted vegetation when possible.

Natural Attenuation

- Least impact for small spills and lighter oils; avoids damage often associated with cleanup activities.
- Consider impact to aquatic life in the area. Consultation with a Trustee is recommended.

Some Adverse Habitat Impact

In-Situ Burning

- Burn only in calm water with no current where containment and maintenance of minimum slick thickness (1-3 millimeters) is possible.
- "Heavy ends" of petroleum product remain unburned. This residue will begin to sink as it cools and should therefore be recovered as quickly as possible after the burn is complete.
- Authorization of in-situ burning is subject to RRT approval, consultation and concurrence from the state and the Department of the Interior.

Herding Agents/Physical Herding and Visco-Elastic Agents/Solidifiers

- Should be coupled with recovery.
- Most effective on lighter oils, which allow the product to mix into the oil.
- Care should be taken not to drive oil into the water column or sediment, or damage rooted vegetation.
- Visco-elastic agents improve overall oil recovery from water surfaces, reducing the potential for secondary shoreline oiling.
- Best used in calm water without debris/vegetation.
- Prior approval must be obtained from the RRT before use of these agents and solidifiers.

Most Adverse Habitat Impact

Sediment Removal

- Vacuum/dredge heavily oiled sediments and dewater using geotube/settling tank. Or, where feasible, dewater area and excavate the sediment.
- Significant sediment removal may result in a change in the area's hydrology as well as make it difficult to fully restore the plant community that existed prior to the spill incident.
- Permits may be required for sediment removal and for water discharge.