Biological Evaluation

Response Activities Contained in the Region 5 Regional/Inland Zone Contingency Plans for the Response to Spills of Oil in Fresh Water

Presented by:

EnviroScience
Excellence In Any Environment

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October 13, 2022
Regional Response Team 5
Fall 2022 Meeting
Chicago, Illinois

Presentation Agenda

- Project Overview/Statement of Work
- ESA Workgroup Participants
- Timeline
- Document Overview
  - TOC
  - Regulatory Framework
  - Action Area
  - Response Actions Evaluated
  - Species and Designated Critical Habitats Considered
  - Effects Analysis
- Lessons Learned
- Next Steps

RRT 5 States

Acknowledgments

- ESA Workgroup Participants
- EnviroScience Subject Matter Experts

Jerry Popiel	USCG
Phil Delphey	USFWS
Lisa Williams	USFWS
Dan Sparks	USFWS
Amber Bellamy	USFWS
Aleshia Kenney	USFWS
John Nelson	DOI
Lee Barbi	USEPA
Rachel Pryor	NOAA
Becca Winterringer	EnviroScience
Greg Zimmerman	EnviroScience
Anna Piazza	EnviroScience
Emily Grossman	EnviroScience
Matt Gilkay	EnviroScience
Christine Voorhees	EnviroScience

Thank You!

Project Overview/Statement of Work

- Programmatic action evaluating over 90 listed/proposed species and several designated/proposed critical habitats in the Action Area

  "BE will assess the likely effects on listed and proposed species and designated and proposed critical habitats protected under the ESA from response activities used in the implementation of the Region 5 Regional Contingency Plan/Area Contingency Plans (R5 RCP/ACP). The U. S. Coast Guard (Coast Guard) and the U. S. Environmental Protection Agency (EPA) are the two federal agencies responsible for implementation of response strategies in the R5 RCP/ACP as the Federal On-Scene Coordinator agencies and are the two federal agencies who are parties to the consultations this BE will support. ***The BE is intended to be used to fulfill pre-spill consultation requirements under Section 7 of the ESA****."*

- Focuses on the R5 RCP/ACP for the federal waters of the Great Lakes and the States of Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin, which serves as the combined Federal and State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (i.e. the R5 RCP/ACP).

ESA Workgroup Participants

- The Endangered Species Act Compliance Workgroup
  - Aided in development of this BE to support compliance with the ESA's pre-spill consultation requirements.
  - ESA Workgroup membership includes:
    - US Coast Guard (Jerry Popiel)
    - EPA (Barbi Lee)
    - Department of the Interior (DOI) (John Nelson)
    - U.S. Fish and Wildlife Service (USFWS) (Phil Delphey)
    - National Oceanic and Atmospheric Administration (NOAA) (Rachel Pryor)

BE Document Timeline

Item	Timeline Cumulative Calendar Days after Award - *Proposed*	Actual
Kick-off Meeting	14	October 2020
Framework Document	59	November 2020
Government review and comment period on Framework Document	74	December 2020
Data Gathering	-	*through June 2022*
Draft BE	254	June 2021
Government review and comment period on Draft BE	284	September 2021
Final BE	344	October 2022
TOTAL	364	

- Contract was initiated September 22, 2020.
- Additional Workgroup meetings (3) were conducted between September 2021 and May 2022 to review and resolve Workgroup comments.
- Final is in press with printer and expect delivery of BE hard copies by end of October.
- A clickable PDF will also be available to distribution.

Document Overview

- Guidelines and sources used for Framework and Outline:
  - Pre-spill Outline for BE's (USFWS) Pre-spill Regional Programmatic Endangered Species Act (ESA) Section 7 Consultation on Oil Spill Response Actions (2018) **Access via the National Response Team Website, Resources page** https://www.nrt.org/Main/Resources.aspx?ResourceType=Endangered%20Species%20Act%20(ESA)%20Section%207&ResourceSection=2
  - Pacific Northwest Area Contingency Plan's BE was used as a baseline of information to provide data/information consistency throughout Region 5

Document Overview (TOC)

- ~800 pages with Tables, Figures, and Appendices

Document Overview (Figures)

LIST OF FIGURES

Document Overview (Tables and Appendices)

LIST OF TABLES

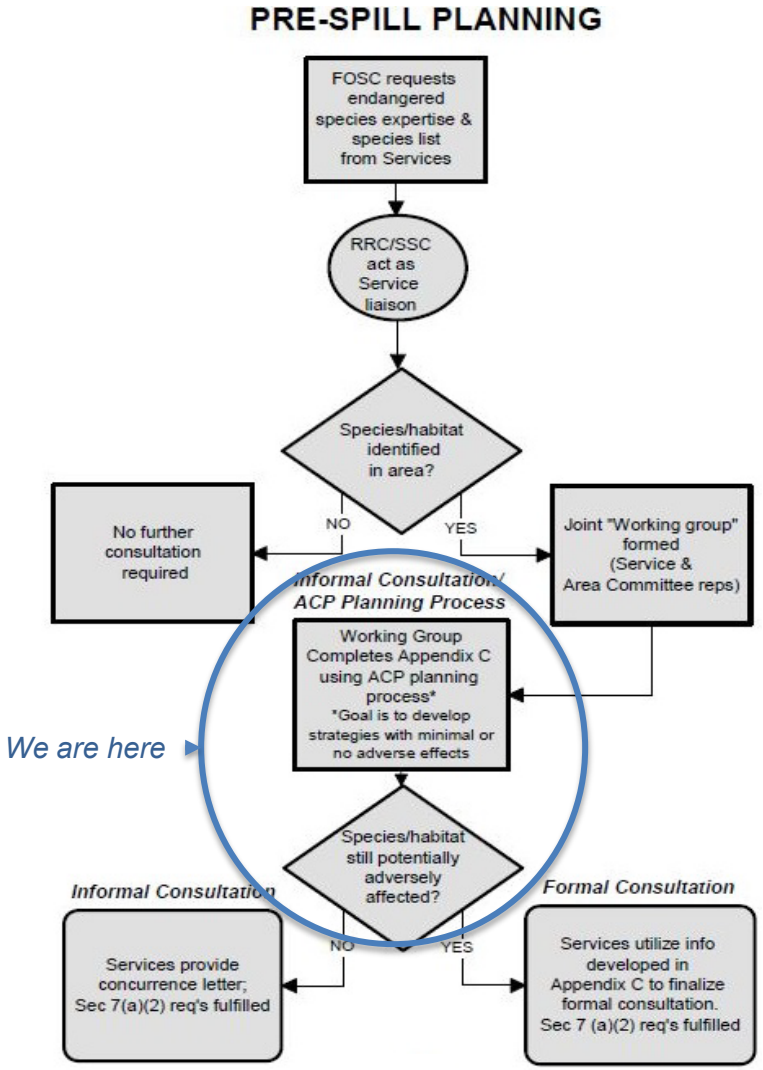
LIST OF APPENDICES

Document Overview (Regulatory Framework)

- **Section 7(a)(1) of the ESA** requires all federal agencies to use their authorities to conserve endangered and threatened species in consultation with USFWS. Other ESA sections relevant:
    - **Section 7(a)(2)** stipulates that each federal agency shall ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species that is determined by the Secretary of the Interior, after consultation as appropriate with affected states, to be critical.
    - **Section 7(a)(4)** states that each federal agency shall coordinate with the Secretary of the Interior on any agency action that is likely to jeopardize the continued existence of any species proposed to be listed under ESA Section 4 or result in the destruction or adverse modification of critical habitat proposed to be designated for such species. This paragraph does not require a limitation on the commitment of resources as described in subsection (d).

Document Overview (Regulatory Framework)

- In 2001, USCG, EPA, DOI, USFWS, and NOAA - NMFS developed and signed an inter-agency Memorandum of Agreement (MOA) regarding Oil Spill Planning and Response Activities under the NCP and ESA.
- The purpose of the MOA is to coordinate the requirements of both ESA Section 7(a)(1) and Section 7(a)(2).
  - MOA available from: https://www.nrt.org/sites/2/files/ESAMOA.pdf

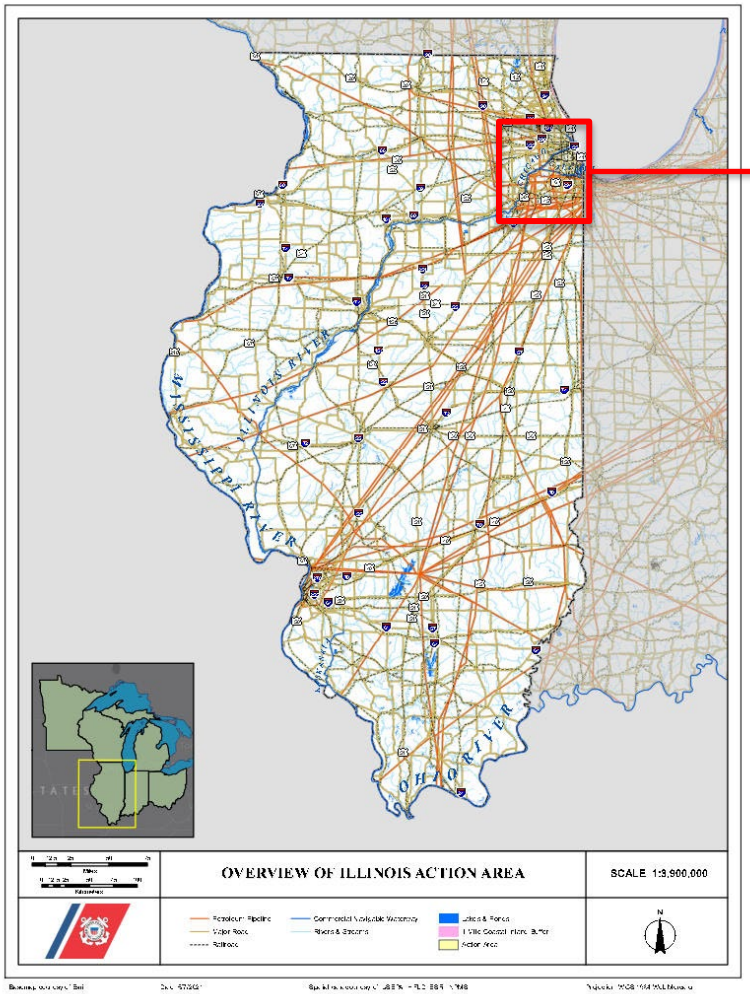


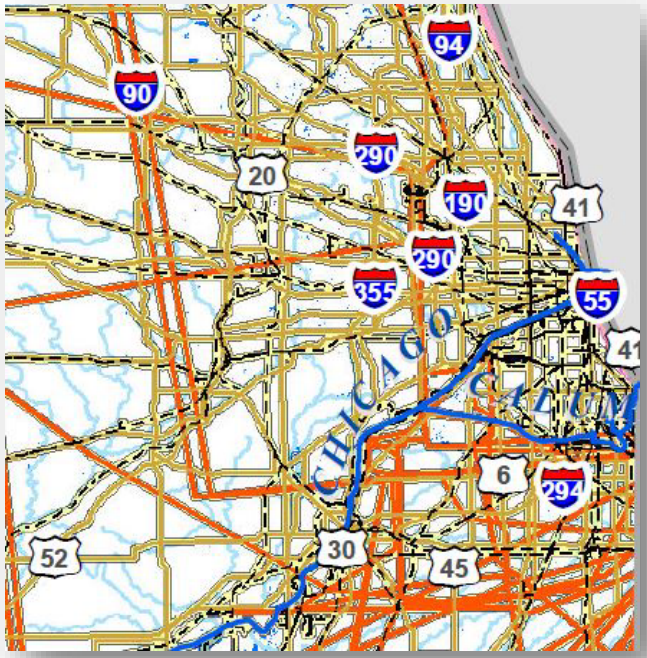
Document Overview (Action Area)

- The Action Area boundaries that were assigned to mapping components and evaluation and overlaid with species and critical habitat data are areas with a higher risk of oil spills >11,000 gallons.
- Within the inland zone, a discharge must be reported to the EPA when there is a discharge of more than 1,000 gallons of oil in a single discharge to navigable waters or adjoining shorelines or more than 42 gallons of oil in each of two discharges to navigable waters or adjoining shorelines occurring within any 12-month period.
  - Per the NCP, oil spills in Region 5 are classified as:
    - Minor: < 1,000 gallons
    - Medium: 1,000–10,000 gallons
    - Major: > 10,000 gallons

Photo Credit: EPA, Oil Spills Research

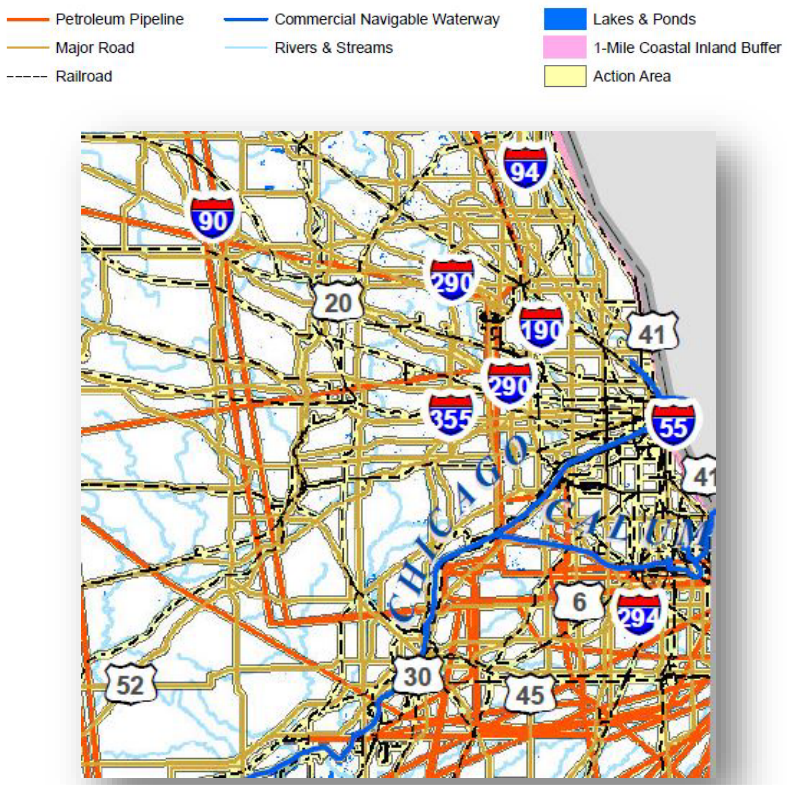
Document Overview (Action Area)





Document Overview (Action Area)

- Maps display petroleum pipelines (red line), major roads (brown line), railroads (dashed black line), commercial navigable waterways (blue line) and rivers and streams (light blue line), as well as lakes and ponds (blue area) within each state.
- While the R5 RCP/ACP covers the states in their entirety, in order to provide a reasonable focus for this BE, the Action Area is defined as areas within Region 5 that have a higher risk of oil spills greater than 11,000 gallons (the approximate amount carried by one large tanker truck). **The Action Area is demarcated by yellow (inland corridor) and pink (coastal) boundaries.**



Document Overview (Action Area)

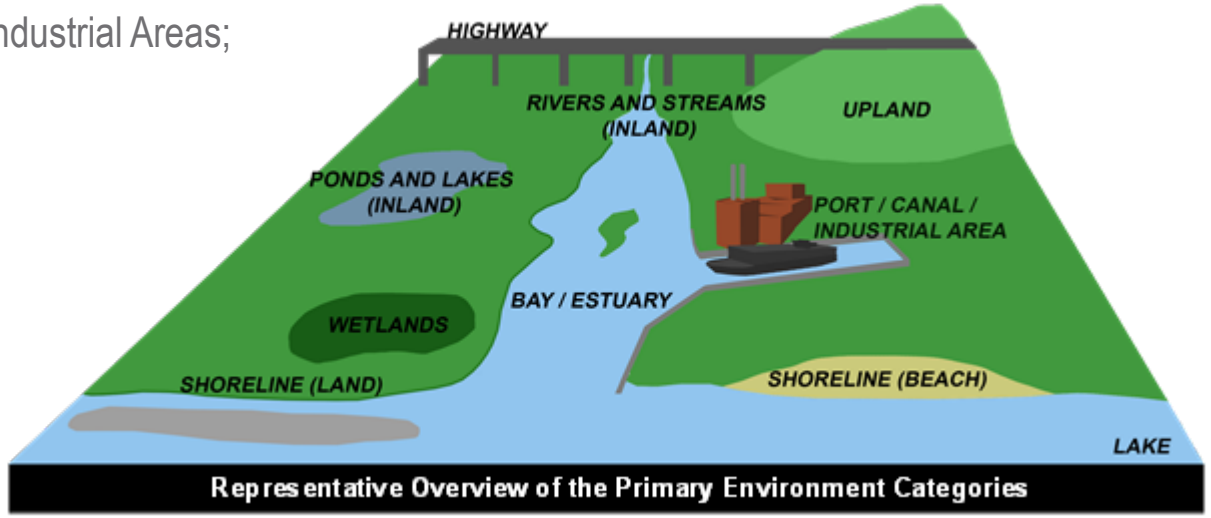
- Resources used were EPA's Inland Sensitivity Atlas, US Energy Information Administration's GIS data portal, US Department of Transportation's National Pipeline Mapping System, Department of Homeland Security's Homeland Infrastructure Foundation-Level Open Data platform, and Esri. Specifically, corridors included in mapping and for application of the BE are:
  - Major Roads
  - Crude Oil Pipelines
  - Crude Oil Rail Terminals
  - Navigable Waterways
  - Petroleum Pipelines
  - Petroleum Refineries
  - Petroleum Product Terminals
  - Port Facilities
  - Railroads - 1-mi buffer has been extended on both sides of the high-volume transportation corridors (e.g., pipelines, major roads), and railways carrying unit trains
  - Waters downstream of intersections with high-risk areas are included in the Action Area because a spill response will not cease at the extent of a 1-mi buffer; rather, the spill response actions will continue downstream as necessary to contain a spill.

Photo Credit: Business Insider, Rueters

Document Overview (Actions Evaluated)

- BE addresses effects analysis for spill responses that occur within pre-defined habitat types.
- The environments (or general habitat types) described below are based on the Response Action Matrix and habitat categories suggested by the National Response Team.
- There are seven primary environments defined for the Species Response Matrix (SRM):

  - Shorelines;
  - Ports, Canals, and Industrial Areas;
  - Rivers and Streams;
  - Bays and Estuaries;
  - Ponds and Lakes;
  - Wetlands; and
  - Uplands.



Representative Overview of the Primary Environment Categories

Document Overview (Actions Evaluated)

- This BE is restricted to species and proposed or designated critical habitats; however. vulnerable and sensitive habitats that are known to occur within Region 5 were also considered relative to spill response actions.
- These vulnerable and sensitive habitats are unique in that they provide unique ecosystem services, are considered rare, and several are correlated with habitats occupied by listed and rare species.
- Vulnerable habitats were identified from the RRT5 Habitat Fact Sheets.
  - https://rrt5.org/Tools/HabitatFactSheets.aspx
  - Somewhat similar to the primary environments provided in the RAM; however, specific aspects of response activities are noted for vulnerable habitats and should fall within the scope of this consultation.

INLAND STRANDED OIL HABITAT FACT SHEET FOR RESPONSE:
Floodplain Forest

Indicator Species

Cottonwood
Populus spp.

Silver Maple

I. Habitat Description

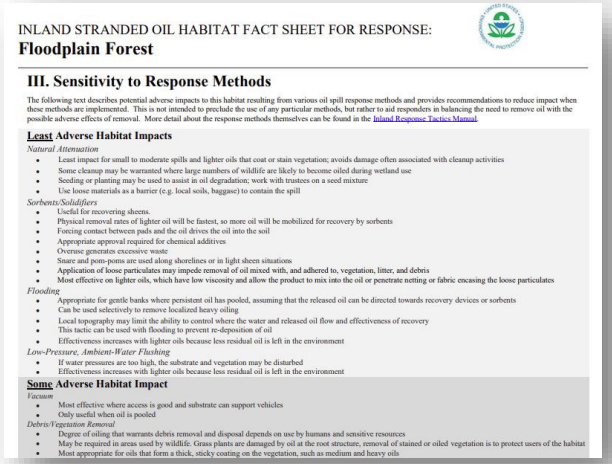
Floodplain Forest (FF) represents areas on islands, near the shoreline, or around lakes, ponds, and backwaters that are >10% vegetated with seasonally flooded forests. These forests are predominantly silver maple (*Acer*), but also include elm (*Ulmus*), cottonwood (*Populus*), black willow (*Salix*), and river birch (*Betula*). Sedges (Carex), grasses (*Cinna, Elymus,* Leersia), and *Lianas* such as Virginia creeper, wild grape, and poison ivy are common understory plants. This general class is typically found growing at or near the water table where it becomes inundated from spring flooding and high-water events.

Inundated floodplain forest in Wisconsin. Image: Gary Shackleford

High water mark on a silver maple. Image: Larry W

II. Sensitivity to Oil Spills

Floodplain forest habitats are highly sensitive to oil spills. During spring and high water events oil could be deposited in areas that are typically dry



INLAND STRANDED OIL HABITAT FACT SHEET FOR RESPONSE:
Floodplain Forest

III. Sensitivity to Response Methods

The following text describes potential adverse impacts to this 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. More detail about the response methods themselves can be found in the Inland Response Tactics Manual.

Least Adverse Habitat Impacts

Natural Attenuation
- Least impact for small to moderate spills and lighter oils that coat or stain vegetation; avoids damage often associated with cleanup activities
- Some cleanup may be warranted where large numbers of wildlife are likely to become oiled during wetland use
- Seeding or planting may be used to assist in oil degradation; work with trustees on a seed mixture
- Use loose materials as a barrier (e.g. local soils, baggase) to contain the spill

Sorbents/Solidifiers
- Useful for recovering sheens.
- Physical removal rates of lighter oil will be fastest, so more oil will be mobilized for recovery by sorbents
- Forcing contact between pads and the oil drives the oil into the soil
- Appropriate approval required for chemical additives
- Overuse generates excessive waste
- Snare and pom-poms are used along shorelines or in light sheen situations
- Application of loose particulates may impede removal of oil mixed with, and adhered to, vegetation, litter, and debris
- Most effective on lighter oils, which have low viscosity and allow the product to mix into the oil or penetrate netting or fabric encasing the loose particulates

Flooding
- Appropriate for gentle banks where persistent oil has pooled, assuming that the released oil can be directed towards recovery devices or sorbents
- Can be used selectively to remove localized heavy oiling
- Local topography may limit the ability to control where the water and released oil flow and effectiveness of recovery
- This tactic can be used with flooding to prevent re-deposition of oil
- Effectiveness increases with lighter oils because less residual oil is left in the environment

Low-Pressure, Ambient-Water Flushing
- If water pressures are too high, the substrate and vegetation may be disturbed
- Effectiveness increases with lighter oils because less residual oil is left in the environment

Some Adverse Habitat Impact

Vacuum
- Most effective where access is good and substrate can support vehicles
- Only useful when oil is pooled

Debris/Vegetation Removal
- Degree of oiling that warrants debris removal and disposal depends on use by humans and sensitive resources
- May be required in areas used by wildlife. Grass plants are damaged by oil at the root structure, removal of stained or oiled vegetation is to protect users of the habitat
- Most appropriate for oils that form a thick, sticky coating on the vegetation, such as medium and heavy oils

Document Overview (Actions Evaluated)

- The vulnerable habitats included in the BE are:
  - Beach and Sand Bar
  - Bog
  - Calcareous Fen
  - Deep Marsh and Shallow Marsh Annuals, Perennials, Shrubs
  - Floodplain Forest
  - Mudflats
  - Open Water
  - Rooted Floating Aquatics
  - Sedge Meadow
  - Submersed Vegetation
  - Wet Meadow

- Description Example: Floodplain Forest – Refer to RAM

Least Impact	Some Impact	Most Impact
Natural Attenuation Sorbents/Solidifiers Flooding Low-Pressure, Ambient-Water Flushing	Vacuum Debris/Vegetation Removal Hand Tool Oil Removal/Cleaning	Light Equipment Oil Removal

Document Overview (Actions Evaluated)

- The inter-relatedness between the habitats were described:
- Example:

Wetlands

Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the land's surface. The term wetland refers to several types of habitats, all of which are seasonally or permanently inundated. Wetlands are also often definable by their unique vegetation communities adapted to living in fully submerged soils for at least a portion of the year. Plants associated with wetlands are adapted to permanently or seasonally saturated conditions.

Vulnerable and Sensitive Habitats: Bog, Calcareous Fen, Deep Marsh Vegetation (Annuals, Perennials, Shrubs), Floodplain Forest, Mudflats, Rooted Floating Aquatics, Sedge Meadow, Shallow Marsh Vegetation (Annuals, Perennials, Shrub), Submersed Vegetation, and Wet Meadow.

Document Overview (Actions Evaluated)

- The Response Action Matrix (RAM) summarizes potential impacts on listed, proposed, and other species of concern and any associated designated and proposed critical habitat potentially incurred by response actions (Appendix C of BE).
- The RAM is specifically designed to be used during Step 2 (Action Agency modifies/reviews Response Action Matrix) of the ESA Pre-spill Planning Consultation Process.
- The Inland Response Tactics Manual and RAM were used to describe the primary response and associated supporting actions.
- The responses detailed in this BE are presented in Table 2.
- Additional resources that may help describe and define response actions:
- EPA website for Emergency Response
- For comprehensive descriptions and deployment considerations and limitations of primary response actions, refer to the Inland Response Tactics Manual, available on the R5 RRT website .

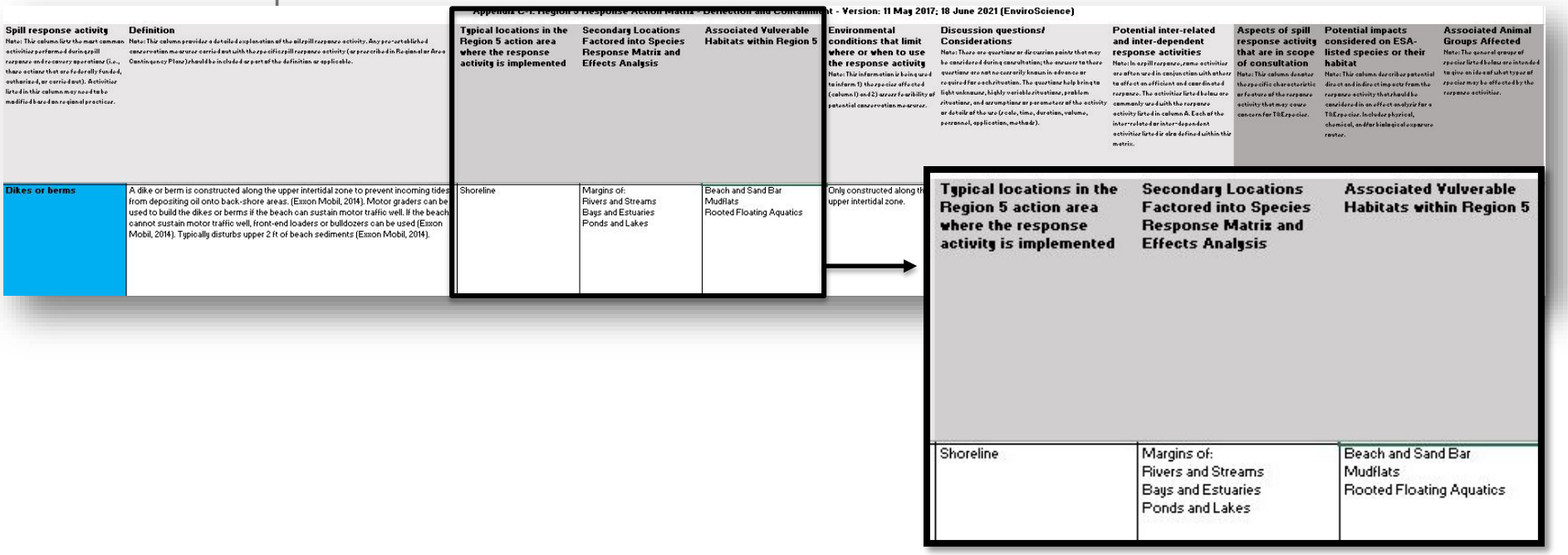
Document Overview (Actions Evaluated)

- The Response Action Matrix (RAM) summarizes potential impacts (Appendix C of BE).
- The Inland Response Tactics Manual and RAM were used to describe the primary response and associated supporting actions.

Primary Response Activities	
Deflection and Containment Activities	Booming Dikes or Berms Construction barriers, dams, pits, and trenches Culvert blocking
Recovery Activities	Skimming Vacuuming Sorbents
Removal/cleanup Activities	Flooding Flushing Steam Cleaning Sandblasting Mechanical (non-chemical) sand cleaning (surface, <1 inch) Mechanical (non-chemical) sand cleaning and excavation (>1 inch) Manual removal /Cleaning of oil, oiled sediment, debris, or vegetation
Submerged Oil Activities	Detection of non-floating or submerged oil Recovery of non-floating or submerged oil Containment of non-floating or submerged oil
Wildlife Protection Activities	Deterrence and Hazing Capture and care of contaminated species or recovery of contaminated carcasses
Locating, Tracking, and Support Activities	Use of Aircraft Use of Vessels Use of Vehicles Use of machinery/supporting equipment Creation/Use of New Access Points Creation/use of Staging Areas (on land) Natural attenuation - allow habitat to recover naturally while monitoring Deployment of buoys Locating, Sampling and monitoring: Air, land, water (includes SCAT) Access of personnel by foot traffic
Secondary Response Activities	
Waste Management Activities	Waste Handling Temporary Storage (on water) Temporary Storage (on land) Decontamination
Not included in RAM	
	Disinfection Phytoremedation Air Sparging

Document Overview (Actions Evaluated)

- The RAM: For each Response Action, a description, overview of interrelated and interdependent activities, questions for consultation in a spill response, organisms likely affected, and general and vulnerable habitats where activity is most likely to be deployed.
- Example:



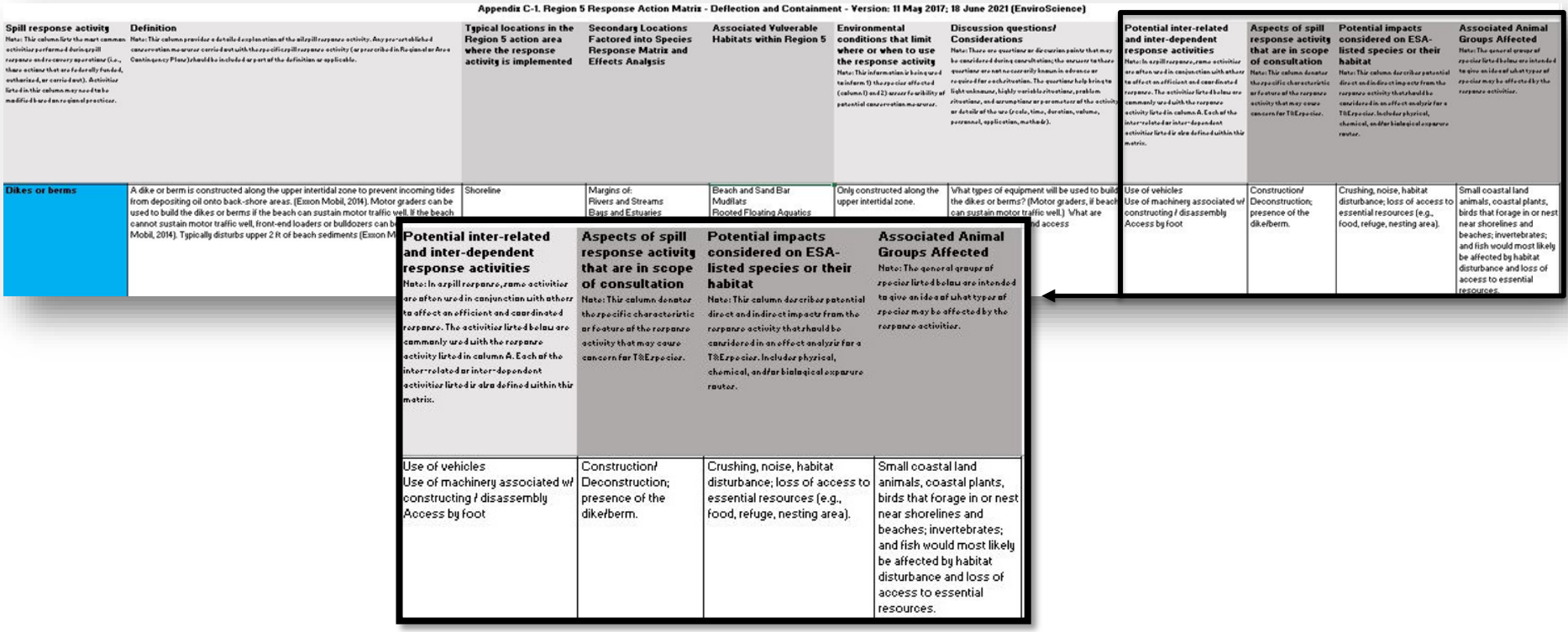
- Version: 11 May 2017; 18 June 2021 (EnviroScience)

Spill response activity	Definition	Typical locations in the Region 5 action area where the response activity is implemented	Secondary Locations Factored into Species Response Matrix and Effects Analysis	Associated Vulnerable Habitats within Region 5	Environmental conditions that limit where or when to use the response activity	Discussion questions/ Considerations	Potential inter-related and inter-dependent response activities	Aspects of spill response activity that are in scope of consultation	Potential impacts considered on ESA-listed species or their habitat	Associated Animal Groups Affected
Dikes or berms	A dike or berm is constructed along the upper intertidal zone to prevent incoming tides from depositing oil onto back-shore areas. (Exxon Mobil, 2014). Motor graders can be used to build the dikes or berms if the beach can sustain motor traffic well. If the beach cannot sustain motor traffic well, front-end loaders or bulldozers can be used (Exxon Mobil, 2014). Typically disturbs upper 2 ft of beach sediments (Exxon Mobil, 2014).	Shoreline	Margins of: Rivers and Streams Bays and Estuaries Ponds and Lakes	Beach and Sand Bar Mudflats Rooted Floating Aquatics	Only constructed along the upper intertidal zone.					

Typical locations in the Region 5 action area where the response activity is implemented	Secondary Locations Factored into Species Response Matrix and Effects Analysis	Associated Vulnerable Habitats within Region 5
Shoreline	Margins of: Rivers and Streams Bays and Estuaries Ponds and Lakes	Beach and Sand Bar Mudflats Rooted Floating Aquatics

Document Overview (Actions Evaluated)

- Example continued:



Appendix C-1. Region 5 Response Action Matrix - Deflection and Containment - Version: 11 May 2017; 18 June 2021 (EnviroScience)

Spill response activity	Definition	Typical locations in the Region 5 action area where the response activity is implemented	Secondary Locations Factored into Species Response Matrix and Effects Analysis	Associated Vulnerable Habitats within Region 5	Environmental conditions that limit where or when to use the response activity	Discussion questions/ Considerations	Potential inter-related and inter-dependent response activities	Aspects of spill response activity that are in scope of consultation	Potential impacts considered on ESA-listed species or their habitat	Associated Animal Groups Affected
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Potential inter-related and inter-dependent response activities	Aspects of spill response activity that are in scope of consultation	Potential impacts considered on ESA-listed species or their habitat	Associated Animal Groups Affected
Use of vehicles Use of machinery associated w/ constructing / disassembly Access by foot	Construction/ Deconstruction; presence of the dike/berm.	Crushing, noise, habitat disturbance; loss of access to essential resources (e.g., food, refuge, nesting area).	Small coastal land animals, coastal plants, birds that forage in or nest near shorelines and beaches; invertebrates; and fish would most likely be affected by habitat disturbance and loss of access to essential resources.

Document Overview (Species and CH)

- 89 species addressed in the BE.
  - Species identified as occurring within the Action Area were determined from the USFWS IPaC tool and the USFWS 5-Year National Listing Workplan (January 2021) for petitioned and proposed species.
- IPaC will also be used to produce a current species list for incident response.
- Species with ranges within the Region 5 states but whose habitat requirements do not intersect with the Action Area parameters were not included in this BE.
- There is designated critical habitat for:
  - Short's Bladderpod (Endangered) – Indiana
  - Rabbitsfoot (Threatened) – Illinois, Indiana, Ohio
  - Round Hickorynut (Proposed Threatened) – Indiana, Michigan, Ohio
  - Dakota Skipper (Threatened) – Minnesota
  - Hine's Emerald Dragonfly (Endangered) – Illinois, Michigan, Wisconsin
  - Poweshiek Skipperling (Endangered) – Michigan, Minnesota, Wisconsin
  - Topeka Shiner (Endangered) – Minnesota
  - Canada Lynx (Threatened) – Minnesota
  - Indiana Bat (Endangered) – Indiana, Illinois, Michigan, Ohio
  - Piping Plover, Great Lakes Population and Northern Great Plains Breeding Population (Endangered) – Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

Photo: U.S. Fish & Wildlife Service

Document Overview (Species and CH)

- 22 Birds, 1 Snail, 21 Freshwater Mussels, 1 Crustacean, 14 Insects, 7 Fishes, 8 Herptiles, 10 Mammals, and 5 Birds

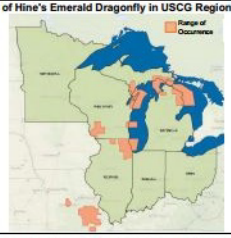
Hine's Emerald Dragonfly	Status	Endangered (1995)	60 FR 5267
Scientific Name: *Somatochlora hineana*	Critical Habitat	72 FR 51102, 75 FR 21394	

Photo: U.S. Fish & Wildlife Service

Appearance: Hine's Emerald Dragonfly has brilliant green eyes like many other members of its family. However, it is distinguished from all other species of *Somatachlora* by its dark metallic green thorax with two distinct creamy-yellow lateral lines and distinctively shaped male terminal appendages and female ovipositor. Adults have a body length of 60 to 65 mm (2.3 to 2.5 in.) and a wingspan of 90 to 95 mm (3.5 to 3.7 in.). The wings are clear and may have an amber hue towards the base of the hind wings. The larva (nymph, naiad) is approximately 25 mm in length and is light to dark brown when mature. The body is densely clothed with coarse setae (hair).

Life History: A Hine's Emerald Dragonfly female will most likely lay more than 500 eggs during her life. After an egg is hatched, the larvae may spend 2 to 4 years in small streamlets, foraging and molting as they grow. Upon completion of larval development, the larvae begin to emerge as adults. The Hine's Emerald Dragonfly's known flight season lasts until early October in Illinois and late August in Wisconsin. Fully adult Hine's Emerald Dragonflies can live at least 14 days and may live 4 to 6 weeks. As with most dragonflies, adult Hine's Emerald Dragonflies feed, establish territories, mate, and oviposit (lay eggs). Most dragonfly adults are general predators through their entire life cycle, feeding primarily on insects they can capture while flying.

Range of Hine's Emerald Dragonfly in USCG Region 5



Current Threats:

- Habitat destruction/alteration
- Contaminants
- Environmental extremes
- Transpiration
- Demographic and genetic stochasticity
- Disease or predation
- Overcollection

Distribution/Habitat: Hine's Emerald Dragonfly lives in wetlands dominated by grass (graminoid) or grass-like plants and fed primarily by water from a mineral source or fens. Historically, the Hine's Emerald Dragonfly was found in Alabama, Indiana, and Ohio and probably has been extirpated in those states. Today the dragonfly can only be found in Illinois, Michigan, Missouri, and Wisconsin, which includes 12 sites in Illinois, 29 sites in Wisconsin, and 10 sites in Minnesota.

Primary Habitat in Action Area/RAM: Wetlands

Associated Vulnerable Habitats: Bog, Calcareous Fen, Deep Marsh Vegetation (Annuals, Perennials, Shrubs), Floodplain Forest, Mudflats, Rooted Floating Aquatics, Sedge Meadow, Shallow Marsh Vegetation (Annuals, Perennials, Shrub), Submersed Vegetation, and Wet Meadow

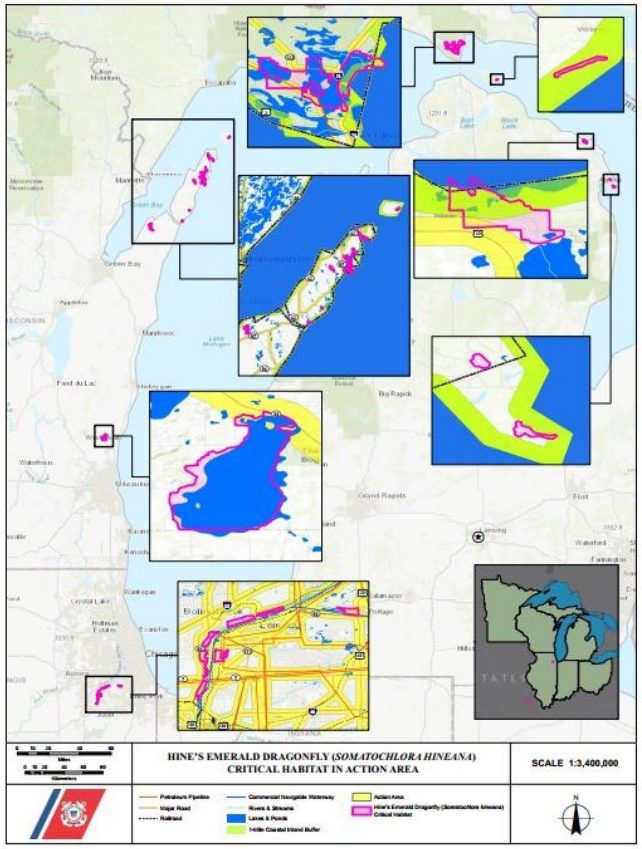
Potential Range by State

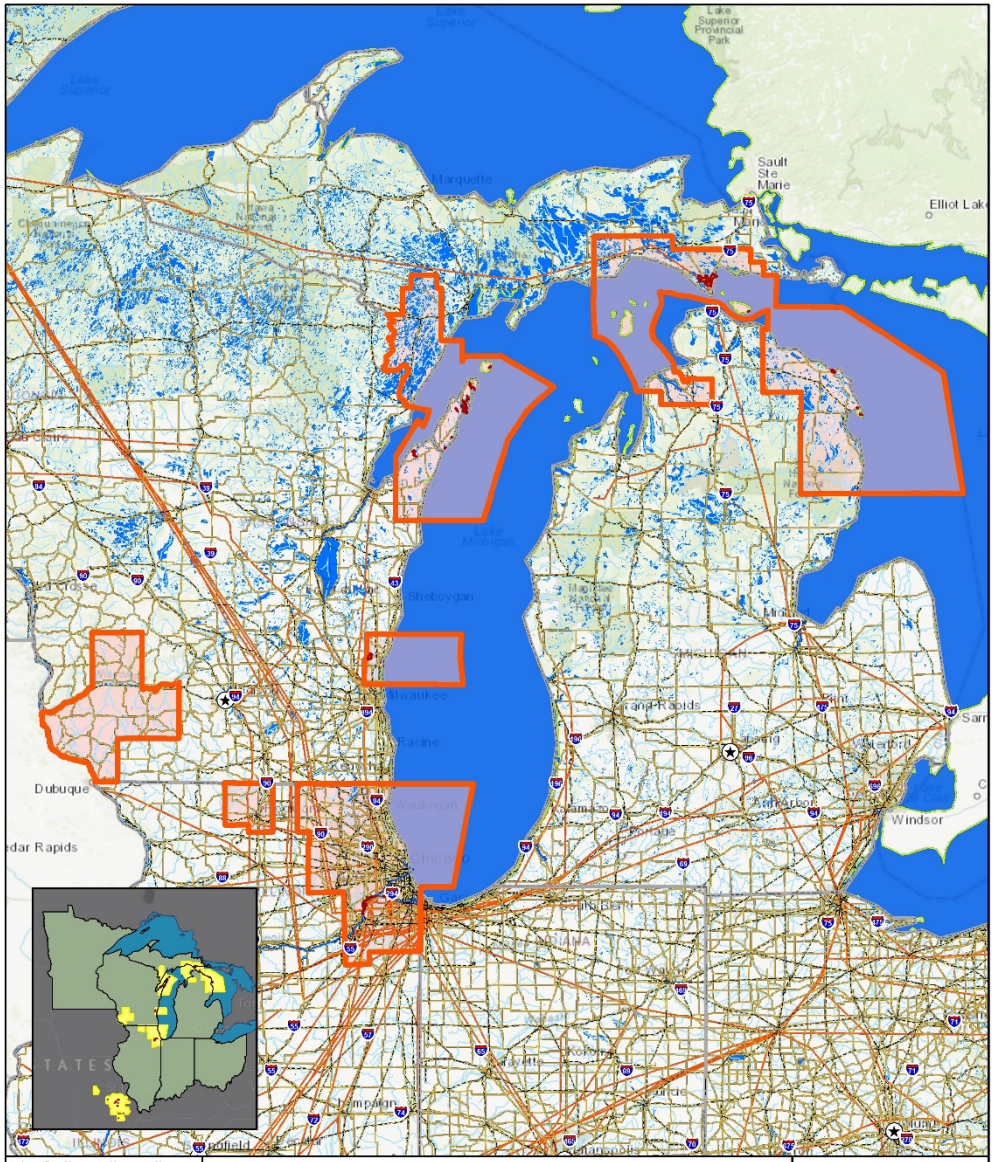
IL	IN	MI	MN	OH	WI
X		X			X

Additional References:

Illinois State Museum (2012) *Hine's Emerald Dragonfly*
USFWS (2001) *Hine's Emerald Dragonfly (Somatochlora hineana) recovery plan*
USFWS (2006) *Hine's Emerald Dragonfly (Somatochlora hineana) fact sheet*
USFWS (2013) *Hine's Emerald Dragonfly (Somatochlora hineana) 5-year review*
USFWS (2019) *5-year review: Hine's Emerald Dragonfly (Somatochlora hineana)*

Example: Hines Emerald Dragonfly





0 15 30 60 90 Miles
0 15 30 60 90 120 Kilometers

HINE'S EMERALD DRAGONFLY (*HESPERIA DACOTAE*)
ACTION AREA OVERVIEW MAP

SCALE 1:5,500,000

- Petroleum Pipeline
- Major Road
- Railroad
- Commercial Navigable Waterway
- Rivers & Streams
- Lakes & Ponds
- 1-Mile Coastal Inland Buffer
- Action
- Hine's Emerald Dragonfly (*Somatochlora hineana*) Critical Habitat
- Hine's Emerald Dragonfly (*Somatochlora hineana*) Counties of Occurrence

N

Basemap courtesy of Esri. Date: 5/24/2021 Spatial data courtesy of: USEPA, FWS, USGS, ESRI, NPMS Projection: WGS 1984 Web Mercator

Document Overview (Effects Analysis)

- Effects analysis in Section 5.0 focuses on the effects of the response actions, not the effects of the oil or spilled materials.
- The Secies Response Matrix (SRM) presents the effects pathways for which the effects analysis was derived.
- For each species within each habitat type, the exposure to direct interactions and stressors, individual response to the action, and risk of injury or death to the individual were considered.
- Information on each species' known range and characteristics was used to determine which of the defined environments (habitat type) may be occupied by each species.
- The potential for each species to occur in each habitat type was weighed heavily in the SRM and in determining the level of effect a particular response action might have on a species in a particular environment.

Document Overview (Effects Analysis)

- Effect determinations in the SRM were based on those used for ESA section 7 consultation (USFWS and NMFS, 1998). Responses of species to actions within the defined habitat types were assigned to the following categories:

COLOR CODING KEY for potential effects to species and habitats due to actions listed	
	No effect due to no overlap between species and action or no impacts on species from action.
	This applied to individuals whose habitat did not overlap with the action area habitats defined in Section 3.1 and 3.2 and was not identified for the response action. Example: Freshwater mussels do not occur nor are individuals found along shorelines (per the definition in Section 3.1); therefore, all response actions and interrelated actions occurring on Shoreline Habitat would not affect mussels due to no overlap.
	May affect, not likely to adversely affect due to insignificant or discountable effects
	May affect, not likely to adversely affect due to implementation of BMPs to minimize impact; For example, birds whose habitat for feeding, nesting, or otherwise includes Shoreline Habitat, may be affected by the response action occurring in Shoreline Habitats, but impacts are reduced by utilizing BMP's (color coded as orange on Species Action Matrix).
	May affect, likely to adversely affect - discuss possible BMPs with Services
!	Special considerations needed, high level of concern. This consideration and concern is due to the variability of the action and habitat and/or species response.

Document Overview (Effects Analysis)

- Effects determinations for each species were established by considering the level of impact of BMPs and conservation measures on each response action in collaboration with USFWS.
- Strict adherence to BMPs and conservation measures reduces the impact of response actions on listed species and/or their habitat from “may affect, likely to adversely affect” to “may affect, not likely to adversely affect” by eliminating or minimizing exposure of the species to the response itself.
- Development and discussion of BMPs and conservation measures are a part of emergency consultation (under the MOA) and should be reviewed by OSCs and FOSCs during pre-spill planning efforts as well as during active spill response planning.
- The list of species that were determined to be “affected, but not likely to be adversely affect,” or “may affect, not likely to adversely affect due to insignificant or discountable effects” is extensive for R5.

Document Overview (Effects Analysis)

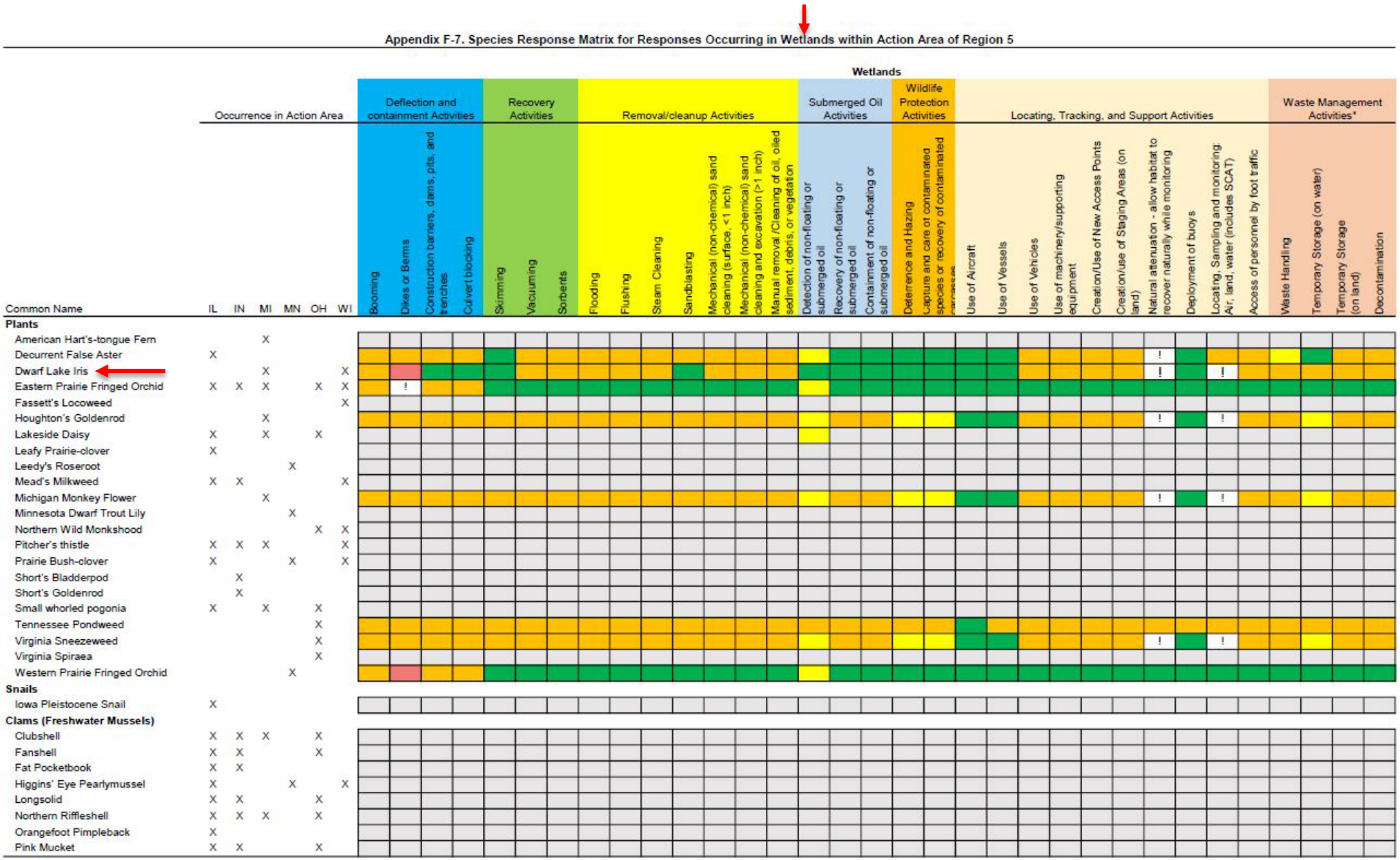
- For many combinations of environment, response action, and possible species vulnerability in which a "may affect" determination was made, analyses of exposure, response, and risk were used to distinguish between "may affect, not likely to adversely affect" and "may affect, likely to adversely affect."

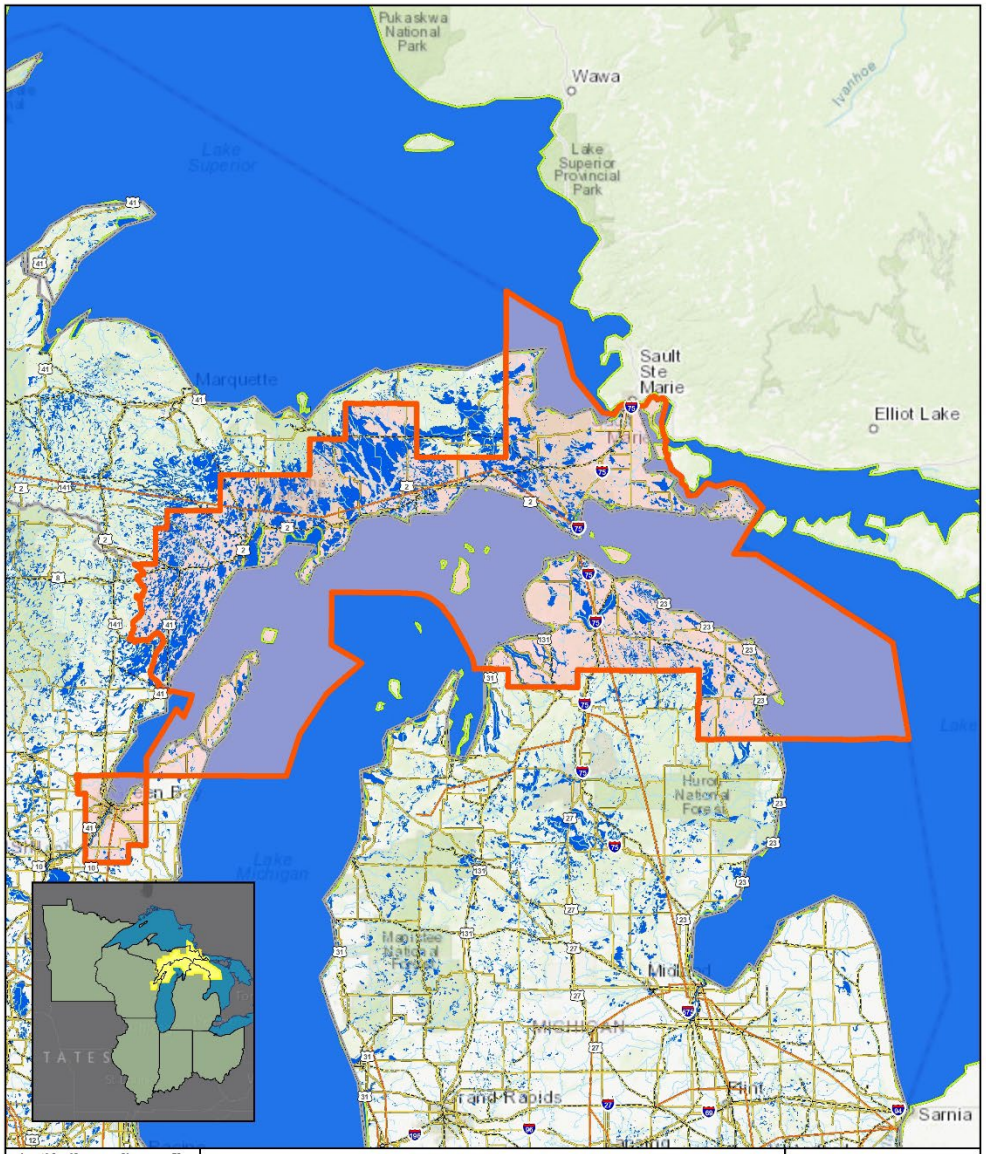
  - **Exposure**: Will the species be exposed to the direct and/or indirect effects of the response action? If no, then the action is considered “no effect.”

  - **Response**: If “yes, the species will be exposed to the direct and/or indirect effects of the response action”, will the species react to the action? If no, then the action is considered “not likely to adversely affect.”

  - **Risk**: If “yes, the species will react to the action”, will the response cause adverse effects to any individual members of the species? If yes, but BMPs and/or conservation measures will avoid or minimize impacts to discountable or insignificant level, then the action is “may affect, not likely to adversely affect.” If yes, and effects cause significant impact despite the BMPs and/or conservation measures in place, the action is “likely to adversely affect.”

Document Overview (Effects Analysis)





Basemap courtesy of Esri. Date: 5/25/2021 Spatial data courtesy of: USEPA, HIFLD, ESRI, NPMS Projection: WGS 1984 Web Mercator

Document Overview (Effects Analysis)

- Example: Response Activities in Wetlands and species for which may affect, likely to adversely affect" determinations were made.
    - Dwarf Lake Iris
    - Linda's Roadside Skipper
    - Mitchell's Satyr Butterfly
    - Monarch Butterfly
    - Poweshiek Skipperling (Critical Habitat)
    - Regal Fritillary
    - Rusty Patched Bumble Bee
- Activities for which a "may affect, likely to adversely affect" determination was made for the species listed above were:
    - Deflection and Containment: Dikes and Berms for Dwarf Lake Iris only
    - Removal/Cleanup Activities: Mechanical sand cleaning (<1 inch and >1 inch) for all listed species above except Dwarf Lake Iris

Document Overview (Effects Analysis)

- Example: Response Activities in Designated Critical Habitat for which may affect, likely to adversely affect" determinations were made.
    - Activities in Uplands for Designated Critical Habitat for Short's Bladderpod in Indiana
    - Activities in Rivers and Streams for Designated Critical Habitat for Rabbitsfoot in Illinois, Indiana, Ohio
    - Activities in Rivers and Streams for Proposed Designated Critical Habitat for Round Hickorynut in Indiana, Michigan, Ohio
    - Activities in Wetlands for Designated Critical Habitat for Poweshiek Skipperling in Michigan, Minnesota, Wisconsin
    - Activities in Rivers and Streams and Ponds and Lakes for Designated Critical Habitat for Topeka Shiner in Minnesota
- Some response actions identified as potentially affecting individuals of a species may not affect their habitat.
    - "Use of Aircraft" is identified as affecting piping plover, but those effects would likely affect the birds themselves (e.g., noise/presence of aircraft disturbing nesting birds) and not necessarily the habitat.

Document Overview (Effects Analysis)

High-Risk Response Actions and Activities in *WETLANDS*

Associated Vulnerable Habitats:
Bog, Calcareous Fen, Deep Marsh Vegetation (Annuals, Perennials, Shrubs), Floodplain Forest, Mudflats, Rooted Floating Aquatics, Sedge Meadow, Shallow Marsh Vegetation (Annuals, Perennials, Shrubs), Submersed Vegetation, and Wet Meadow

Deflection and Containment Activities

Species	Specific Activity	States of Occurrence	BMPs[1]
May affect, likely to adversely affect - discuss possible BMPs with Services			
Dwarf Lake Iris	Dikes or berms	MI, WI	
May affect, not likely to adversely affect due to implementation of BMPs to minimize impact			
Decurrent False Aster	Booming Dikes or berms Construction barriers, dams, pits, and trenches Culvert blocking	IL	
Dwarf Lake Iris	Booming	MI, WI	
Eastern Prairie Fringed Orchid	Booming Construction barriers, dams, pits, and trenches Culvert blocking	IL, IN, MI, OH, WI	
Hall's Bulrush	Booming Dikes or berms Construction barriers, dams, pits, and trenches Culvert blocking	IL, IN, MI, OH, WI	
Houghton's Goldenrod	Booming Dikes or berms Construction barriers, dams, pits, and trenches Culvert blocking	MI	
Michigan Monkey Flower	Booming Dikes or berms Construction barriers, dams, pits, and trenches Culvert blocking	MI	
Tennessee Pondweed	Booming Dikes or berms Construction barriers, dams, pits, and trenches Culvert blocking	OH	
Virginia Sneezeweed	Booming Dikes or berms Construction barriers, dams, pits, and trenches Culvert blocking	OH	
Western Prairie Fringed Orchid	Booming Construction barriers, dams, pits, and trenches Culvert blocking	MN	
American Burying Beetle	Booming	MI, OH	
Bog Buckmoth	Booming Dikes or berms Construction barriers, dams, pits, and trenches Culvert blocking	WI	
Hine's Emerald Dragonfly *Critical Habitat*	Booming Dikes or berms Construction barriers, dams, pits, and trenches Culvert blocking	IL, MI, WI	
Linda's Roadside Skipper	Booming Dikes or berms Construction barriers, dams, pits, and trenches	IL	

Dwarf Lake Iris | **Status** | **Threatened (1988)** | 53 FR 37972

Scientific Name	*Iris lacustris*	Critical Habitat	N/A

Habitat[1]

Shoreline (beach/land)	Ports, Canals, Industrial Areas	Rivers and Streams	Bays and Estuaries	Ponds and Lakes	Wetlands	Upland Areas
Yes	No	No	No	No	Yes	Yes

States Relevant

IL	IN	MI	MN	OH	WI
		X			X

High-Risk Response Actions and Activities

May affect, not likely to adversely affect due to implementation of BMPs to minimize impact

All Habitats of Occurrence

- Booming
- Vacuuming
- Sorbents
- Flooding
- Flushing
- Steam Cleaning
- Mechanical (non-chemical) sand cleaning (surface, <1 inch)
- Mechanical (non-chemical) sand cleaning and excavation (>1 inch)
- Manual removal / Cleaning of oil sediment, debris, or vegetation
- Use of Vehicles
- Use of machinery/supporting equipment
- Creation/Use of New Access Points
- Creation/Use of Staging Area (on land)
- Access of personnel by foot traffic
- Waste Handling
- Temporary Storage (on water)
- Temporary Storage (on land)
- Decontamination

May affect, likely to adversely affect – discuss possible BMP's with Services

All Habitats of Occurrence

Dikes or Berms

Special considerations needed, high level of concern

All Habitats of Occurrence

Natural attenuation: allow habitat to recover naturally while monitoring
Locating, sampling, and monitoring: air, land, water (includes SCAT)

BMPs

1. A wildlife monitoring plan.
2. Buffer zones with the concurrence of USFWS.
3. Spill Response Plan that has pre-identified staging areas for personnel and equipment that minimize disturbance.
4. When installing or placing temporary structures or material (i.e., booms, berms, dikes, culvert blocks, or other oil collection equipment/material/structures), ensure that construction/deconstruction/removal plans are in place and are scheduled/implemented in a way to eliminate or minimize impacts to threatened and endangered species and their habitats.
5. See BMPs for specific Actions and Activities relating to the content outlined above.

USFWS Lead Office Contact:

Document Overview (Effects Analysis)

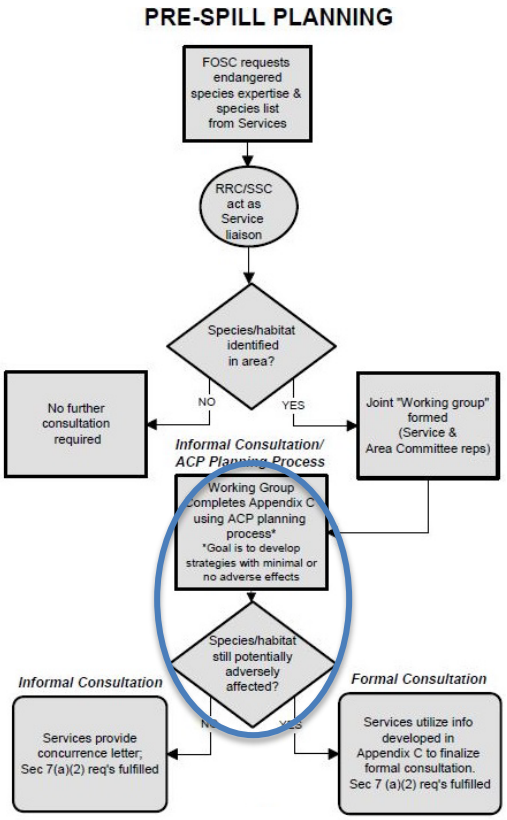
- "No Effect" determinations for response activities used in the RAM Environments was result of coordination between the USCG, EPA, USFWS, NOAA, DOI, and other subject matter experts with the best available information at the time.
- These determinations do not supersede any formal consultation or NRDA processes necessitated by a spill.
- "No Effect" determinations should be confirmed at the onset in the spill response planning process at the onset of a specific spill response.

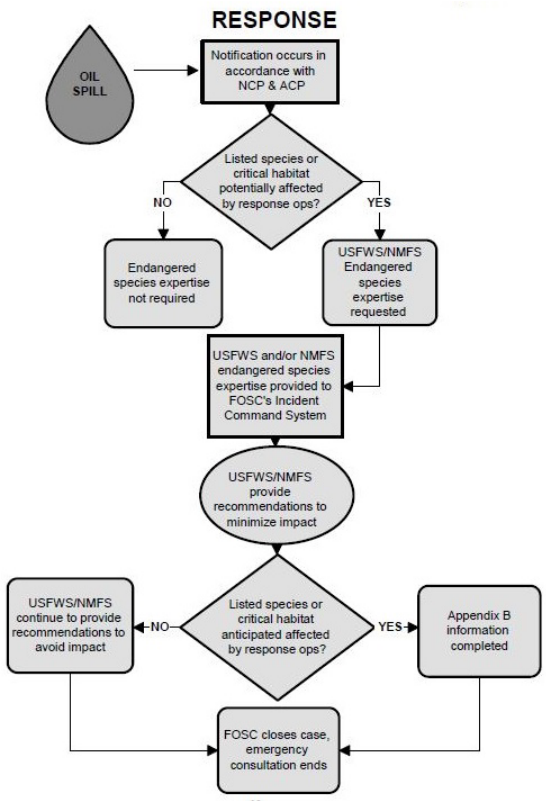
The "No Effect" determination was applied to species whose habitat did not overlap with the Action Area habitats or where the activity was not expected to occur in occupied habitat of the species for the environment where the spill occurs.

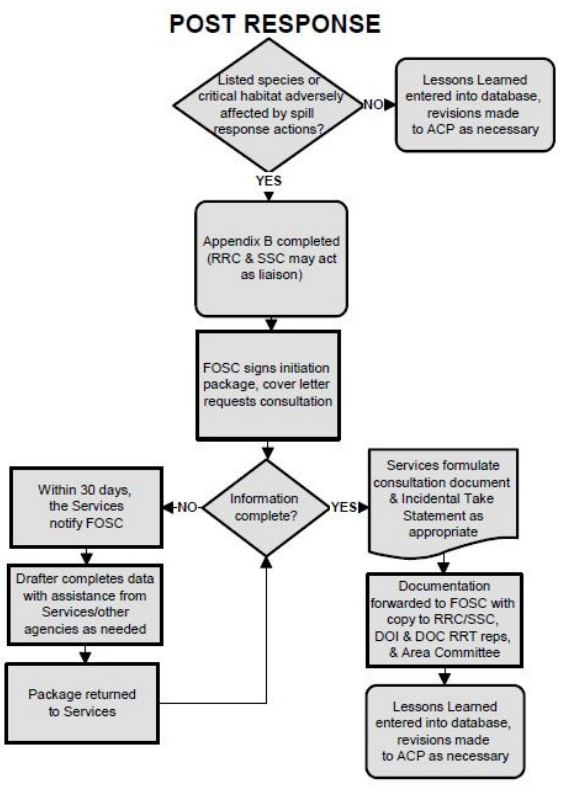
Lessons Learned

- Mapping Layers
  - Species maps contain several layers of complex data sets
  - Does not contain land-use or sensitive habitats due to scale
  - Timelines and incorporation of new and revised information
- Usability
  - Deliverable contains over 100 individual maps, tables of complex matrices, and content heavy
  - Clickable PDF is in process
- Challenges
  - Data accuracy (e.g.: updates to distribution)
  - Context for user, e.g.: OSC/FOSC access and use
  - Updating existing datasets
  - Incorporation into existing tools

Data Use and Need Related to Process







We are here.

Data/spatial context can facilitate this process at several levels.

Data can aid in having complete packages.

Future Opportunities

- BE document and mapping files could support advancing readily accessible information on the advent of a spill.
- Future mapping or spatial projects might incorporate response activities expected to occur by environment type of spill occurrence.
  - Expedite coordination?
- Technologies to facilitate response and Agency engagement.
  - Advanced Web app, cloud-based data for OSC's

MAP: Rabbitsfoot (Mussel)

Map shows species distribution relative to the Action Area.

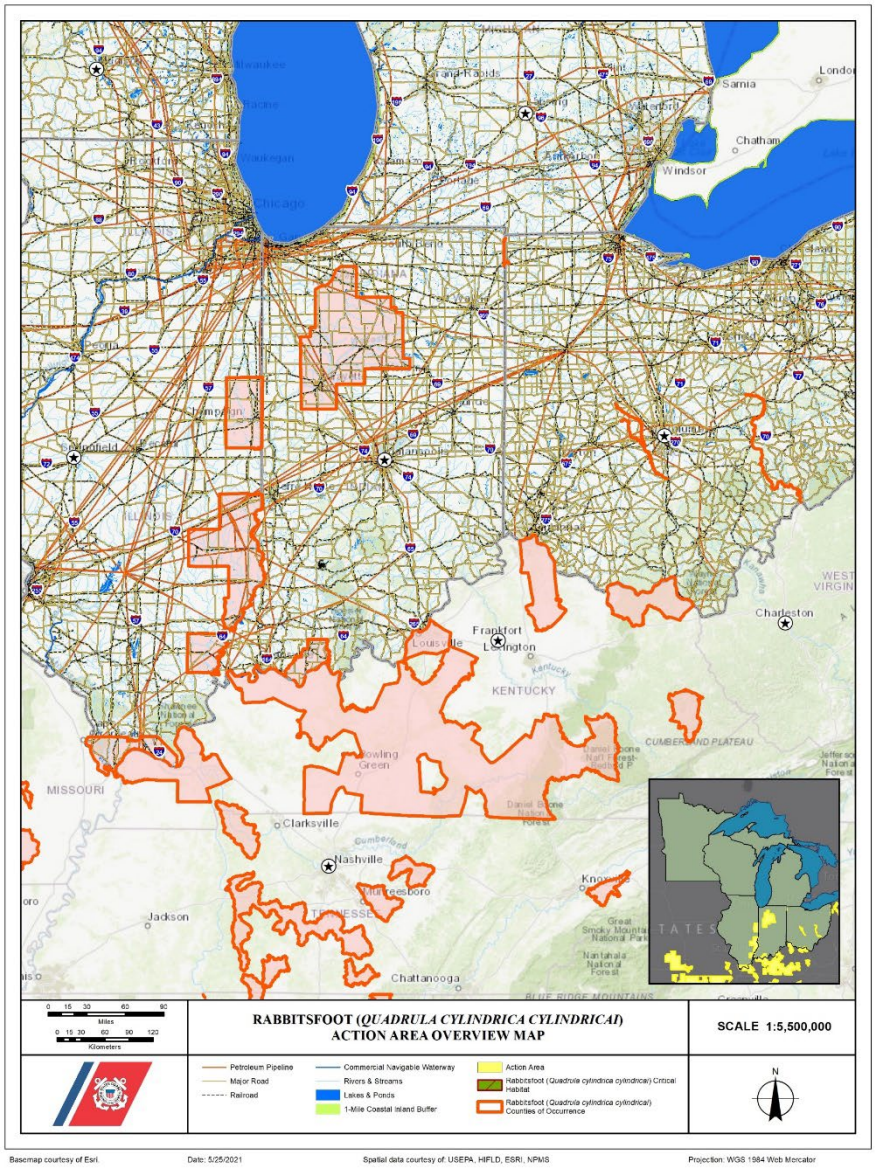
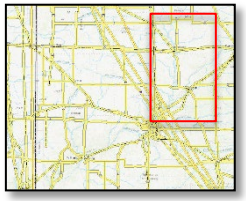
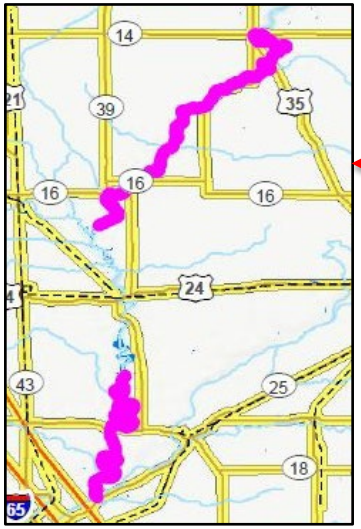


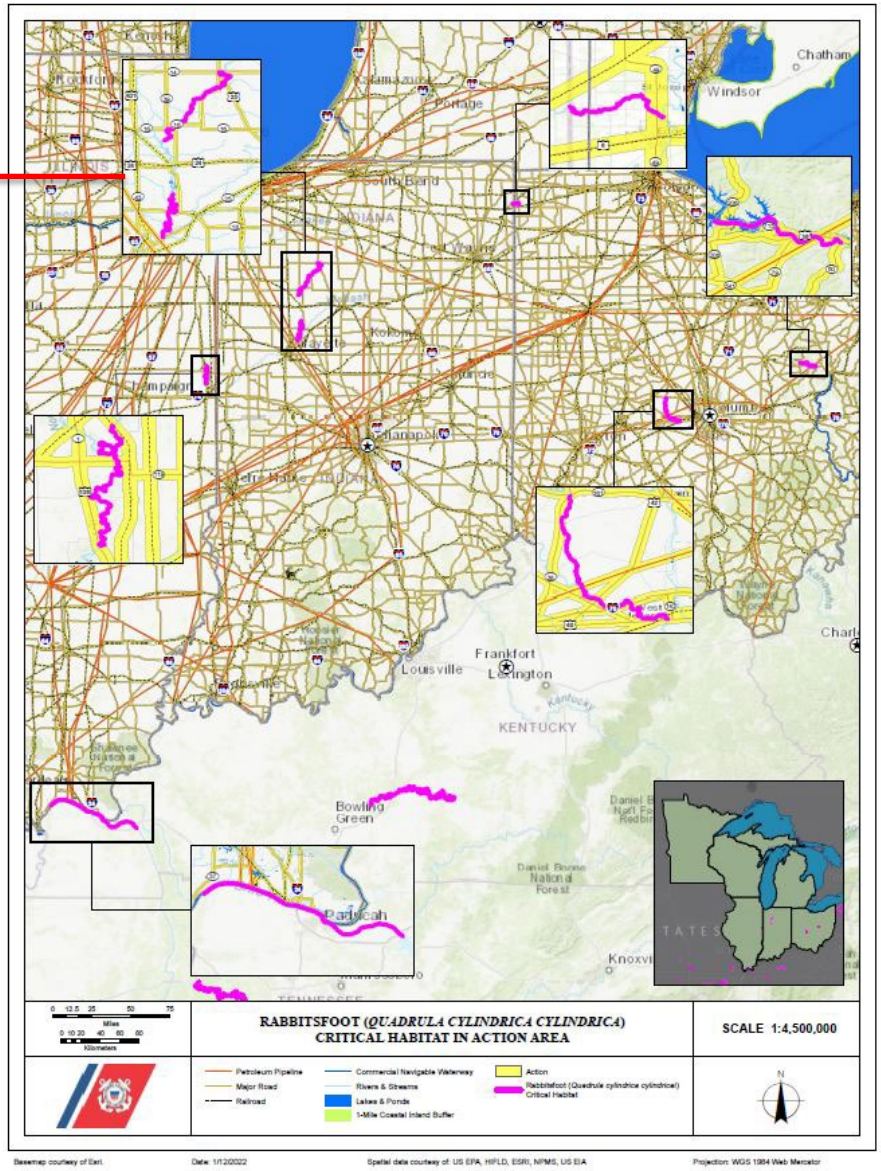
Photo Credit: INHS

MAP: Rabbitsfoot (Mussel)



Lafayette, Indiana





Map shows species designated critical habitat relative to the Action Area.

Could incorporate cover types, highlight responses "flagged" by effects analysis

Thank you

Questions and comments:

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Background Photo: Blanding's Turtle © Greg Straight