

Document Purpose:

This document may be used for multiple purposes. It has been developed to primarily serve as a planning tool to help initiate and encourage conversations between the USFWS and the Action Agencies (USCG and EPA) on how oil spill response activities may impact listed species within Region 5. The document may also serve as an internal planning document for working together on oil spill response planning. Once fully developed by the regions, the document may be used during all stages of a spill as a reference and guide for the decision making process.

The potential impacts shown on this matrix represent cumulative information across all regions, seasons, and spill types. During coordination/consultation on an actual spill response, USFWS may determine that the impact level (color) is different than shown in the matrix. See below for the matrix color-coding key.

Layout:

1) Information Tab: This tab provides details on purpose and layout of the document.

2) F-1 Tab provides a Species Response Matrix Summary by Habitat within Action Area of Region 5. This table is useful in providing an overview of expectations of what species groups are most likely encountered in the defined environments where a spill may occur.

3) F-2 through F-8 Tabs are the ESA Species versus Response Actions. Tabs 1 through 10 include the different types of environments where spill response activities can occur. Within each of these tabs, the user will find the various types of spill response activities that may occur in that environment. Column A includes USFWS listed species (common names). Regions may also choose to include proposed species and candidate species (as a method to save time in the future; however, please note that the USFWS cannot make a determination on candidate species as part of a biological opinion.

Row 1, displays the environment that the activity is occurring in (i.e., shoreline, coastal nearshore, etc.) The response options beginning in Column M include all the tools available to the USCG, EPA and oil spill responders to clean up oil and effectively conduct a response. The empty white boxes colored boxes (beginning in Row 10 and Colum M) are to be filled in following Regional-level workgroup discussion regarding the level of impact we might expect each particular response option to have on each particular species. There are 3 "impact colors" represented on the spreadsheet. See the color explanations below.

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.

The Species Action Matrix provided in Appendix F2 through F8 presents the outcome for which the effects analysis was derived. For each species within each habitat type, the exposure, individual response to the action, and risk of injury or death to the individual were considered. Habitat pursuant to the known information on the species range was weighed heavily in the Species Action Matrix and the categorization used for effects determination. Exposure was considered as the individuals' behavior and/or distribution within the Action Area and their likelihood of exposure and response to the action. Risk to the individual accounted for their rehabilitation potential post exposure to an action. Responses of species to actions within the defined habitat types were assigned to categories based on the following:

Appendix F-1. Species Response Matrix Summary by Environment within Action Area of Region 5

Common Name	Scientific name	Status	Occurrence in Action Area							Critical Habitat	Habit		Environment within Action Area of Response Action						
			IL	IN	MI	MN	OH	WI	Terrestrial		Aquatic	1) Shoreline (beach/land)	2) Ports, Canals, Industrial Areas	3) Rivers and Streams	4) Bays and Estuaries	5) Ponds and Lakes	6) Wetlands	7) Upland Areas	
Plants																			
American Hart's-tongue Fern	<i>Asplenium scolopendrium var. americanum</i>	T			X						X							X	
Decurrent False Aster	<i>Boltonia decurrens</i>	T	X								X						X	X	
Dwarf Lake Iris	<i>Iris lacustris</i>	T			X				X		X						X	X	
Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	T	X	X	X			X	X		X					X	X	X	
Fassett's Locoweed	<i>Oxytropis campestris var. chartacea</i>	T							X		X						X	X	
Houghton's Goldenrod	<i>Solidago houghtonii</i>	T			X						X				X		X	X	
Lakeside Daisy	<i>Hymenoxys herbacea</i>	T	X		X			X			X							X	
Leafy Prairie-clover	<i>Dalea foliosa</i>	E	X								X							X	
Leedy's Roseroot	<i>Rhodiola integrifolia ssp. leedyi</i>	T				X					X							X	
Mead's Milkweed	<i>Asclepias meadii</i>	T	X	X					X		X							X	
Michigan Monkey Flower	<i>Mimulus michiganensis</i>	E			X						X				X		X		
Minnesota Dwarf Trout Lily	<i>Erythronium propullans</i>	E				X					X				X			X	
Northern Wild Monkshood	<i>Aconitum noveboracense</i>	T						X	X		X				X			X	
Pitcher's thistle	<i>Cirsium pitcheri</i>	T	X	X	X				X		X				X			X	
Prairie Bush-clover	<i>Lespedeza leptostachya</i>	T	X			X			X		X							X	
Short's Bladderpod	<i>Physaria globosa</i>	E		X						D	X				X			X	
Short's Goldenrod	<i>Solidago shortii</i>	E		X							X							X	
Small whorled pogonia	<i>Isotria medeoloides</i>	T	X		X			X			X							X	
Tennessee Pondweed	<i>Potamogeton tennesseensis</i>	UR						X				X			X		X		
Virginia Sneezeweed	<i>Helenium virginicum</i>	T						X			X						X		
Virginia Spiraea	<i>Spiraea virginiana</i>	T						X			X				X				
Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	T				X					X							X	
Snails																			
Iowa Pleistocene Snail	<i>Discus macclintocki</i>	E	X								X							X	
Clams (Freshwater Mussels)																			
Clubshell	<i>Pleurobema clava</i>	E	X	X	X			X				X		X	X	X	X		
Fanshell	<i>Cyprogenia stegaria</i>	E	X	X				X				X		X	X	X	X		
Fat Pocketbook	<i>Potamilus capax</i>	E	X	X								X		X	X	X	X		
Higgins' Eye Pearlymussel	<i>Lampsilis higginsii</i>	E	X			X			X			X		X	X	X	X		
Longsolid	<i>Fusconaia subrotunda</i>	P	X	X				X		PCH		X		X	X	X	X		
Northern Riffleshell	<i>Epioblasma torulosa rangiana</i>	E	X	X	X			X				X		X	X	X	X		
Orangefoot Pimpleback	<i>Plethobasus cooperianus</i>	E	X									X		X	X	X	X		
Pink Mucket	<i>Lampsilis abrupta</i>	E	X	X				X				X		X	X	X	X		
Purple Cat's Paw Pearlymussel	<i>Epioblasma obliquata obliquata</i>	E						X				X		X	X	X	X		
Pyramid (Pink) Pigtoe	<i>Pleurobema rubrum</i>	UR						X				X		X	X	X	X		
Rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	T	X	X				X		D		X		X	X	X	X		
Rayed Bean	<i>Villosa fabalis</i>	E		X	X			X		PCH		X		X	X	X	X		
Rough Pigtoe	<i>Pleurobema plenum</i>	E		X								X		X	X	X	X		
Round Hickorynut	<i>Obovaria subrotunda</i>	P	X	X	X			X		PCH		X		X	X	X	X		
Salamander mussel	<i>Simpsonaias ambigua</i>	UR	X	X	X	X	X	X	X			X		X	X	X	X		
Scaleshell	<i>Leptodea leptodon</i>	E	X									X		X	X	X	X		

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			IL	IN	MI	MN	OH	WI	Terrestrial		Aquatic	1) Shoreline (beach/land)	2) Ports, Canals, Industrial Areas	3) Rivers and Streams	4) Bays and Estuaries	5) Ponds and Lakes	6) Wetlands	7) Upland Areas	
Sheepnose	<i>Plethobasus cyphus</i>	E	X	X		X	X	X		PCH		X		X			X		
Snuffbox	<i>Epioblasma triquetra</i>	E	X	X	X			X	X	PCH		X		X		X			
Spectaclecase	<i>Cumberlandia monodonta</i>	E	X				X		X	PCH		X		X					
White Catspaw	<i>Epioblasma obliquata perobliqua</i>	E		X				X						X					
Winged Mapleleaf	<i>Quadrula fragosa</i>	E					X		X				X		X				
Crustaceans																			
Illinois Cave amphipod	<i>Gammarus acherondytes</i>	E	X												X				X
Insects																			
American Burying Beetle	<i>Nicrophorus americanus</i>	T				X		X			X							X	X
Bog Buckmoth	<i>Hemileuca sp.</i>	UR							X		X							X	
Dakota Skipper	<i>Hesperia dacotae</i>	T					X			D	X								X
Frosted Elfin Butterfly	<i>Callophrys irus</i>	UR	X	X	X			X	X		X								X
Hine's Emerald Dragonfly	<i>Somatochlora hineana</i>	E	X		X				X	D	X							X	X
Hungerford's Crawling Water Beetle	<i>Brychius hungerfordi</i>	E			X										X				
Karner Blue Butterfly	<i>Lycaeides melissa samuelis</i>	E	X	X	X	X	X	X	X		X								X
Linda's Roadside Skipper	<i>Amblyscirtes linda</i>	UR	X								X				X			X	X
Mitchell's Satyr Butterfly	<i>Neonympha mitchellii mitchellii</i>	E		X	X			X			X							X	
Monarch Butterfly	<i>Danaus plexippus plexippus</i>	C	X	X	X	X	X	X	X		X				X			X	X
Poweshiek Skipperling	<i>Oarisma poweshiek</i>	E			X	X		X		D	X							X	X
Rattlesnake-master Borer Moth	<i>Papaipema eryngii</i>	UR	X								X								X
Regal Fritillary	<i>Speyeria idalia</i>	UR	X	X	X	X	X	X	X		X				X			X	X
Rusty Patched Bumble Bee	<i>Bombus affinis</i>	E	X	X			X	X	X		X				X			X	X
Fish																			
Lake Sturgeon	<i>Acipenser fulvescens</i>	UR	X	X	X	X	X	X	X				X		X		X		X
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	E	X										X		X				
Popeye Shiner	<i>Notropis ariommus</i>	UR						X							X				
Scioto Madtom	<i>Noturus trautmani</i>	E						X							X				
Sicklefin Chub	<i>Macrhybopsis meeki</i>	UR	X										X		X				
Sturgeon Chub	<i>Macrhybopsis gelida</i>	UR	X										X		X				
Topeka Shiner	<i>Notropis topeka</i>	E					X			D					X			X	
Herptiles																			
Alligator Snapping Turtle	<i>Macrolemys temmincki</i>	UR	X	X								X		X				X	
Blanding's Turtle	<i>Emydoidea blandingii</i>	UR	X	X	X	X	X	X	X		*X	X	X		X		X	X	X
Copperbelly Watersnake, N. DPS	<i>Nerodia erythrogaster neglecta</i>	T		X	X			X			X	X						X	X
Eastern Massasauga	<i>Sistrurus catenatus</i>	T	X	X	X			X	X		X	X						X	X
Illinois Chorus Frog	<i>Pseudacris illinoensis</i>	UR	X								X	X			X			X	X
Spotted Turtle	<i>Clemmys guttata</i>	UR	X	X	X			X			X*	X			X		X	X	X
Streamside Salamander	<i>Ambystoma barbouri</i>	UR		X				X			X	X			X			X	X
Wood Turtle	<i>Glyptemys insculpta</i>	UR			X	X	X	X	X		X	X			X			X	X

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Mammals																			
Canada Lynx	<i>Lynx canadensis</i>	T			X	X		X	D	X								X	
Gray Bat	<i>Myotis grisescens</i>	E	X	X						X				X			X	X	
Gray Wolf	<i>Canis lupus</i>	DR			X	X		X		X								X	
Indiana Bat	<i>Myotis sodalis</i>	E	X	X	X		X		D	X							X	X	
Little Brown Bat	<i>Myotis lucifugus</i>	UR	X	X	X	X	X	X		X								X	
Northern Bog Lemming	<i>Synaptomys borealis</i>	UR					X			X							X		
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	T	X	X	X	X	X	X		X							X	X	
Plains Spotted Skunk	<i>Spilogale putorius interrupta</i>	UR				X				X								X	
Prairie Gray Fox	<i>Urocyon cinereoargenteus ocythous</i>	UR				X		X		X								X	
Tricolored Bat	<i>Perimyotis subflavus</i>	UR	X	X	X	X	X	X		X				X			X	X	
Birds																			
Eastern Black Rail	<i>Laterallus jamaicensis ssp. jamaicensis</i>	T	X	X	X	X	X	X		X								X	
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	UR	X	X	X	X	X	X		X								X	
Piping Plover, Great Lakes Population	<i>Charadrius melodus</i>	E	X	X	X	X	X	X	D	X	X			X	X		X		
Rufa Red Knot	<i>Calidris canutus rufa</i>	T	X	X	X	X	X	X	PCH	X	X			X	X		X		
Whooping Crane, Non-essential Experimental Pop.	<i>Grus americana</i>	E	X	X	X	X	X	X									X	X	

¹ Status designations: E = endangered, T = threatened, UR = under review, P = proposed for listing, DR = delisted due to recovery, D = designated critical habitat, PCH = proposed critical habitat under review (USFWS, 2021; USFWS, 2022)

² Primary habitat occupied by the species. Species denoted with an asterisk are those that can occupy both terrestrial and aquatic habitats.

