

### **Guidelines for other Terrestrial and Aquatic Wildlife During Oil Spill Response**

Response to marine mammals, sea turtles, birds, and other terrestrial wildlife not listed below should follow the applicable appendix in this Wildlife Contingency Plan, or be coordinated with the USFWS and/or FWC. Daily reports about all species listed below that are recovered and treated should be sent to [oilspill@myfwc.com](mailto:oilspill@myfwc.com) and [ImperiledSpecies@myfwc.com](mailto:ImperiledSpecies@myfwc.com).

In Florida, all species that are oiled should be rehabilitated, with the exception of exotic/invasive species described below, individuals that a veterinarian determines have little likelihood of recovery, and those individuals that cannot be captured per the guidance provided in this Wildlife Contingency Plan. Several Florida wildlife species require special consideration as described below.

#### **Exotic/Invasive species**

- Exotics that could potentially be oiled are Muscovy ducks, iguanas, Nile monitors, pythons, nutria, basilisk lizards, Eurasian collared doves, Norway and black rats, European starlings, and others.
- Information regarding exotic species found in Florida may be viewed at [http://www.myfwc.com/WILDLIFEHABITATS/Nonnative\\_index.htm](http://www.myfwc.com/WILDLIFEHABITATS/Nonnative_index.htm) this information should be provided to the Public via the Joint Information Center (JIC).
- These species should be humanely euthanized in accordance with the American Veterinary Medicine Association Guidelines on Euthanasia (AVMA 2007).

#### **Mallard Ducks**

- Mallard ducks found in Florida between May 1 and August 31 are considered exotics and should be euthanized. (This requires a free Mallard Control Permit)  
[http://www.myfwc.com/WildlifeHabitats/Duck\\_Mallard\\_Control\\_Permit.htm](http://www.myfwc.com/WildlifeHabitats/Duck_Mallard_Control_Permit.htm)
- Numbers of euthanized mallards need to be reported  
<http://www.myfwc.com/mallard/searchPermits.asp>
- There are still a few wild mallards that migrate to Florida during fall/winter. Mallards found from September 1 to April 30 are considered wild mallards and are covered under the Migratory Bird Treaty Act. These birds should be rehabilitated.

#### **Mottled Ducks**

- Oiled or otherwise impacted mottled ducks from the Western Gulf Coast Population (TX and LA and possibly MS and AL) should NOT be released in Florida due to genetic differences and possible impacts to Florida's native mottled duck populations.

### **Diamondback Terrapins**

There are several sub-species of diamondback terrapins, so rehabilitated terrapins should be released within their species' range and as close to their point of capture as possible (if no chance of re-oiling exists). If a determination of sub-species must be made (i. e., the area where the animal was captured is not known), then contact FWC's Herp Taxa Coordinator or Lead Herp researcher and email [oilspill@myfwc.com](mailto:oilspill@myfwc.com) and [ImperiledSpecies@myfwc.com](mailto:ImperiledSpecies@myfwc.com). There are six sub-species of diamondback terrapins that occur along the entire coast of Florida, including the Keys, in marshes, mangroves, tidal creeks, bays, lagoons, and similar habitats. Their distributions are as follows:

- Texas diamond-backed terrapin (*M. t. littoralis*)
- Mississippi diamond-backed terrapin (*M. t. pileata*): Western Louisiana to the Florida Panhandle.
- Ornate diamond-backed terrapin (*M. t. macrospilota*): Florida Panhandle south to Florida Bay.
- Mangrove diamond-backed terrapin (*M. t. rhizophorarum*): Florida Keys.
- Florida east coast diamondback terrapin (*M. t. tequesta*): Volusia Co. south to Miami-Dade Co. and perhaps the upper Keys.
- Carolina Diamondback terrapin (*M. t. centrata*): Georgia border south to Volusia Co.

### **Snakes**

There are several sub-species of Saltmarsh snakes, a listed species, so rehabilitated snakes should be released within their species' range and as close to their point of capture as possible (if no chance of re-oiling exists). If a determination of sub-species must be made (i. e., the area where the animal was captured is not known), then contact FWC's Herp Taxa Coordinator or Lead Herp researcher and email [oilspill@myfwc.com](mailto:oilspill@myfwc.com) and [ImperiledSpecies@myfwc.com](mailto:ImperiledSpecies@myfwc.com). There are two sub-species of Saltmarsh snakes that occur along the coast of Florida in marshes, mangroves, tidal creeks, bays, lagoons, and similar habitats. Their distributions are as follows:

- Atlantic Saltmarsh Snake (*Nerodia clarkii taeniata*): Florida East Coast – S. Flagler Co., Volusia Co., N. Brevard Co.
- Gulf Saltmarsh Snake (*Nerodia clarkii*): Florida Panhandle, Bay Co East to Taylor Co.

### **Florida Black Bears**

- Bears should not be approached or pursued and should only be captured if they appear to be incapacitated.
- Procedures for capturing and cleaning oiled bears have not been developed and so treatment is generally not feasible, as treatment procedures could hurt the animals more than the oil itself.
- Bears may become incapacitated by feeding on fish or animals that have been weakened or died due to exposure to oil. It is also possible that a bear could ingest oil if they come in contact with oil and groom themselves.

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- Direct exposure to oil can result in eye problems, nerve damage, and behavioral abnormalities. Ingestion of oil can result in digestive tract bleeding or liver and kidney damage.
- If a bear is believed to be incapacitated by oil, contact the FWC Wildlife Alert Hotline **1-888-404-3922**. Dispatch will coordinate a response by appropriate FWC staff. The bear's general location should be monitored until FWC staff arrives on the scene.
- Once FWC staff arrives on the scene, they will evaluate the situation and anesthetize the bear, if necessary. FWC staff will then decide whether the bear will be treated or euthanized depending on the severity of its condition.
- If the bear is euthanized due to suspected ingestion of oil, necropsy and samples will be taken following approved NRDA procedures.
- If FWC staff decides the bear can be treated, they will transport the anesthetized bear to the closest location where appropriate personnel can de-oil the animal. FWC staff will remain on site to monitor the bear and keep it anesthetized until it has been de-oiled. FWC staff will then apply ear-tags, a lip tattoo, extract a tooth, weigh and measure the bear.
- After the bear has been treated and worked up by FWC staff, it will then be placed in a culvert trap and transported to as close to the point of capture that will allow safe release. FWC staff will ensure the bear is recovered from anesthesia before they leave the release site.

**Otters, Mink, Raccoons, and other carnivores**

- Anyone handling these species should have rabies pre-exposure vaccines
- Anyone handling these species should have prior experience handling them
- When releasing these species, they should be released close to the capture site after consultation with FWC's Mammal Taxa Coordinator or Lead Mammal Researcher. Also email [oilspill@myfwc.com](mailto:oilspill@myfwc.com)

**Small Mammals in Marsh Communities**

Small mammals, such as marsh rice rats, marsh rabbits, and cotton rats may be encountered throughout the coastal marsh ecosystems of Florida. Additional rare and listed species may be found at certain localities. ACP – Geographic Response Plan and/or Environmental Sensitivity Index maps [should be consulted prior to and during cleanup activities to identify Resources at Risk.

<http://ocean.floridamarine.org/esimaps> (ESI Maps) or <http://ocean.floridamarine.org/acp> (ACP – Geographic Response Plan). These species include round tailed muskrats (Choctawhatchee Bay), Florida salt marsh vole (Cedar Key area and Lower Suwannee NWR), Sanibel Island rice rat and Pine Island rice rat (Sanibel and Pine Islands), silver rice rat (lower Keys), and lower keys marsh rabbit (lower Keys).

**General guidelines:**

- If oiled or injured rare or listed small mammals are encountered, report locality to FWC's mammal contacts (information below).

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- When releasing these species, they should be released close to the capture site after consultation with FWC's Mammal Taxa Coordinator or Lead Mammal Researcher). Also email oilspill@myfwc.com

## **Crocodylians**

### **Crocodylian Guidelines for Oil Spill Response**

Alligators use coastal marshes to some extent, but the impacts of oil washing ashore in Florida on the coastal alligator population are expected to be limited. Crocodiles, however, do live in coastal wetlands (including mangrove swamps and along low-energy mangrove-lined bays, creeks, and inland swamps) and are much more at risk to exposure. The impact of oil, in its various viscosities and states, on the skin and health of crocodylians is not well known. Because alligators are less likely to be at biological risk due to their lower densities in coastal aquatic habitats, the emphasis of these guidelines will be on the American crocodile.

### **Distribution of American Crocodiles in Florida**

Crocodiles are commonly found throughout Biscayne Bay, including Card and Barnes Sounds, as far south as Key West, and as far north as Lake Worth and Sebastian Inlet on the east coast of Florida. On the west coast, they are found as far south as Cape Sable and as far north as Charlotte Harbor (Hornaday 1875, 1904, LeBuff 1957, Neill 1971, Kushlan and Mazzotti 1989). Critical habitat for the American crocodile has been designated (50 CRF 17.95). The area encompasses the easternmost tip of Turkey Point (TP), Miami Dade County to Elliott Key then south along the keys to Long Key then northwest to Cape Sable. They have also been sighted as far west as the Dry Tortugas. The distribution of crocodiles during the non-nesting season may vary considerably among years because adult crocodiles can disperse great distances. However, the majority of crocodiles are present in the vicinity of core nesting areas, located near Biscayne and Florida Bays (Kushlan and Mazzotti 1989).

### **Habitat of American Crocodiles in Florida**

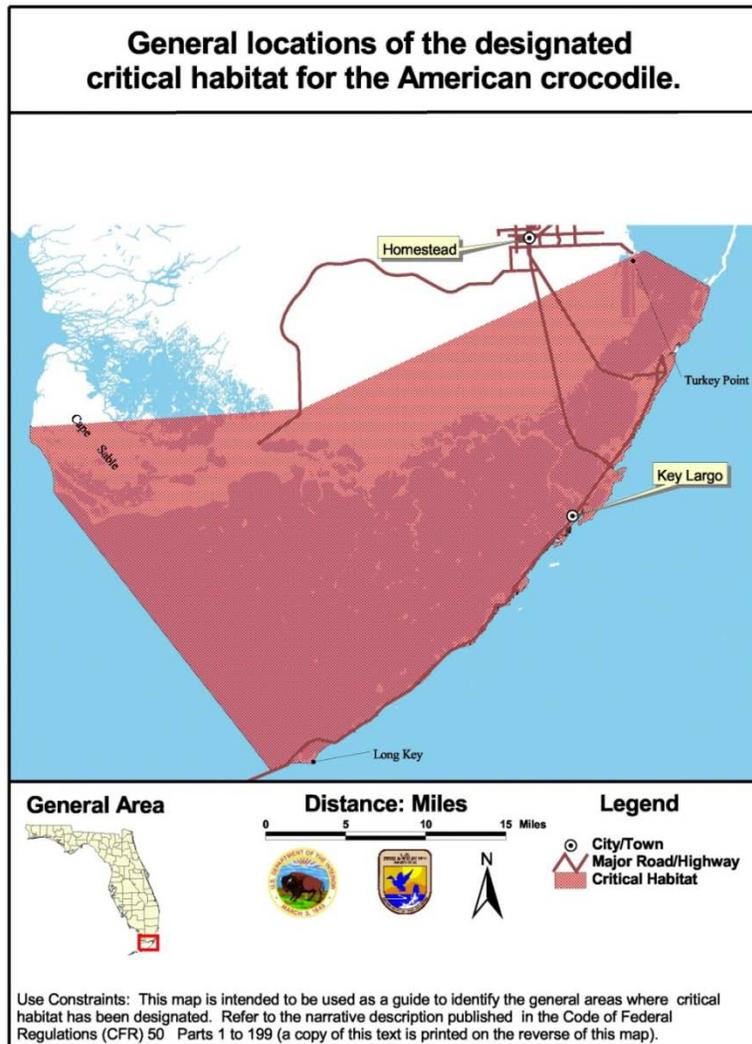
***Nesting Habitat:*** American crocodiles nest on land. Nesting occurs from April to September when hatching occurs. Optimal nesting habitat for crocodiles is defined as elevated, well drained, nesting substrate adjacent to relatively deep (>1m), low to intermediate salinity (<20ppt) water, protected from effects of wind and wave action, and free from human disturbance. However, human-made nesting areas along elevated canal banks at Crocodile Lake National Wildlife Refuge (CLNWR), East Cape Canal in Everglades National Park (ENP), and the cooling canal system at Turkey Point power plant provide nearly ideal nesting conditions (Mazzotti et al. 2007).

### **Special Vulnerabilities/Considerations**

- During the nesting and hatching season (April – September), mature females and hatchlings are most vulnerable to contaminants associated with an oil spill.

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- Females may be very sensitive to disturbance at their nest site and may not return to excavate hatchlings if they have been disturbed (Kushlan 1998, p.784).
- Females may also abandon nests if disturbed (captured) before hatching, which is why adults are typically not handled during the nesting season. In most cases, the maternal crocodile is needed to open nest cavities to allow the young to successfully emerge.



**Potential Impacts to American Crocodiles from oil spills**

- Adult crocodiles generally have well defined home ranges and high site fidelity, and likely will not leave contaminated habitats.
- Hatchling crocodiles, because of their size, have limited ability to avoid oil products that move into crocodile habitat.
- Eggs are laid near the shoreline and are not moved throughout incubation. In the unlikely event that a storm surge or other extreme weather event deposits oil products on a nest site, eggs might be exposed to direct or indirect effects of oil.

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- Impacts of direct contamination of individual animals that may occur through physical contact, ingestion, inhalation and absorption of oil or contaminants associated with the oil spill are expected to be similar to those for sea turtles, but exposure times may be longer because crocodiles spend most of their time at the water's surface or along the shoreline.
- Indirect contamination can occur through eating prey items that have ingested, absorbed, or been exposed to oil products.

### **Recommended Mitigation Actions**

#### ***Direct contamination to individual animals – Animals alive***

- Oiled alligators and crocodiles should be documented and closely monitored, but individual animals should be left undisturbed. Such animals should be reported through the **888 404 FWCC (3922) (FWC wildlife alert hotline)** number. Only in instances when an alligator or crocodile is found moribund, or otherwise does not flee when approached, should capture be considered through the coordination of the Crocodile Response/Recovery Team. Members of this team will be dispatched only after such animals have been reported through the **888 404 FWCC (3922) (FWC wildlife alert hotline)** number.
- Captured animals will be brought to an established de-oiling facility, and FWC-permitted wildlife rehabilitators may accept cleaned crocodylians and handle them consistent with the provisions of their FWC permit.
- The final disposition of all crocodylians handled under this protocol shall be coordinated through the Crocodile Response/Recovery Team to facilitate data collection from individual animals. This team will report all of its handling efforts to [oilspill@myfwc.com](mailto:oilspill@myfwc.com) and [ImperiledSpecies@myfwc.com](mailto:ImperiledSpecies@myfwc.com)
- Anyone handling these species should have prior training, permits, and experience.

#### ***Direct contamination to individual animals – Animals dead***

- Dead, oiled alligators and crocodiles should be reported through **888 404 FWCC (FWC wildlife alert hotline)** and will be recovered by the Crocodile Response/Recovery Team pursuant to the established general carcass recovery protocol.
- The final disposition of all carcasses recovered shall be coordinated through the Crocodile Response/Recovery Team to facilitate data and specimen collection from individual animals. This team will report all of its recovery efforts to [Oilspill@myfwc.com](mailto:Oilspill@myfwc.com) and [ImperiledSpecies@myfwc.com](mailto:ImperiledSpecies@myfwc.com)

#### ***Contamination of Habitat, Nests, and Juveniles***

- Contamination of nesting and hatchling habitat should be prevented, to the extent possible, through strategic placement of booms or other shoreline protection strategies designed to deflect product away from the nesting areas. The use of other available technologies for protection of nesting areas should be consulted with the Resource Managers.
- If contamination of nesting habitat occurs after nesting has occurred, but prior to hatching of eggs, Resource Managers will evaluate the type and extent of the contamination to assess

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whether excavation of eggs and artificial hatching is warranted. If warranted, nest collections would proceed through the use of the Crocodile Response/Recovery Team. Final disposition of eggs and resulting hatchlings would be coordinated through the Crocodile Response/Recovery Team.

- If contamination of nesting habitat occurs after hatching of eggs, Trustees will evaluate the type and extent of the contamination to assess whether collection of hatchlings is warranted. If warranted, hatchling collection would proceed through the use of the Crocodile Response/Recovery Team. Final disposition of the juveniles would be coordinated through the Crocodile Response/Recovery Team.

### **Data Collection and Sharing**

Morphometric data, geospatial data, and necessary tissue samples will be collected from all animals handled under this protocol, and will be shared with key persons identified in the American crocodile Natural Resources Damage Assessment document. This will ensure critical assessment data is available and will serve to ensure the highest levels of integration between damage assessment and species response. Any additional data that can bolster the robustness of the American crocodile NRDA will be collected, if at all feasible.

### **Crocodile Response/Recovery Team Members**

- Harry Dutton, Co-Team Leader, FWC, Alligator Management Program (harry.dutton@myfwc.com, 850-410-0656 x17279)
- Dana Hartley, Co-Team Leader, USFWS, South Florida Ecological Services Office (Dana\_Hartley@fws.gov, 772-562-3909 x236 or 772-532-7293 cell)
- Skip Snow, NPS, Everglades National Park (Skip\_Snow@nps.gov, 305-242-7827)
- Steve Klett, USFWS, Crocodile Lake National Wildlife Refuge (Steve\_Klett@fws.gov, 305-451-4223)
- Dr. Frank Mazzotti, UF, Fort Lauderdale Research and Education Center (fjma@ufl.edu, 954-577-6304)
- Mike Cherkiss, UF, Fort Lauderdale Research and Education Center (mcherkis@ufl.edu, 954-577-6304)
- Trained Technicians/Biologists, UF, Fort Lauderdale Research and Education Center (see Dr. Mazzotti/Mike Cherkiss)
- Dr. Laura Brandt, USFWS, Fort Lauderdale Research and Education Center (Laura\_Brandt@fws.gov, 954-577-6343)
- Jim Lindsay, Florida Power and Light, Turkey Point Power Plant (Jim.Lindsay@FPL.com, 561-691-7032)
- Jodie Gless, Florida Power and Light, Turkey Point Power Plant (Jodie.Gless@FPL.com, 561-691-2801 or 561-358-0374 cell)
- Joe Wasilewski, Natural Selections of South Florida, Inc. (jawnatsel@bellsouth.net, 305-962-3363)

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- Florida-based federal and state natural resource agency employees

**Other Key American Crocodile Resource Managers**

- Jane Tutton, USFWS, South Florida Ecological Services Office (Jane\_Tutton@fws.gov, 772-562-3909 x235 or 772-538-1088 cell)
- Anne Morkill, USFWS, National Key Deer Refuge (Anne\_Morkill@fws.gov, 305-872-2239 x209 or 305-304-4907 cell)
- Lindsey Hord, FWC, Crocodile Response Coordinator (Lindsey.Hord@myfwc.com, 863-697-6438)
- Allan “Woody” Woodward, FWC, Alligator and Reptile Research Leader, (Allan.Woodward@myfwc.com, 352-955-2231 x107)
- Bill Turner, FWC, Herp Taxa Coordinator, (Bill.Turner@myfwc.com, 850-410-0656 x17331)
- Paul Moler, FWC, Gainesville Wildlife Research Lab (Paul.Moler@myfwc.com, 352-955-2231)
- Joyce Mazourek, USFWS, Ten Thousand Islands NWR (Joyce\_Mazourek@fws.gov, 239-353-8442 x228)
- Ben Nottingham, USFWS, Florida Panther NWR (Ben\_Nottingham@fws.gov, 239-353-8442 x225)
- Steve Bertone, DEP, Rookery Bay National Estuarine Research Reserve (Bertone\_S@dep.state.fl.us, 239-417-6310 x205)

**Primary Response Leaders**

- Harry Dutton, FWC, Tallahassee, FL, Alligator Management Program (Harry.Dutton@myfwc.com, 850-410-0656, x17279)

Dana Hartley, USFWS, Vero Beach, FL, Ecological Services Field Office, (Dana\_Hartley@fws.gov, 772-562-3909, x236 or 772-532-7293 cell)

**Other Considerations**

**General safety concerns when handling wildlife**

- Bill stabs, especially from herons, are typically directed towards the face/eyes of its captor. Seabirds (terns, gulls, gannets, boobies, frigate birds, brown pelicans) can do some damage to hands and arms of their captor. Eye protection is mandatory when handling these species.
- Botulism/salmonella: a low percentage of herons and other birds carry these organisms and shed them in their feces. Some species (storks, vultures, etc.) regularly defecate on their legs as a cooling mechanism so exposure to feces is often common. Wash the hands after handling birds, and keep fingers away from mouth and face, especially before eating.

**Oiled carcasses**

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- All species protected under the federal Endangered Species Act and Migratory Bird Treaty Act will be handled as evidence through the federal system.
- Any state-listed species that do not fall under the federal Endangered Species Act and Migratory Bird Treaty Act (<http://www.fws.gov/migratorybirds/RegulationsPolicies/mbta/10-13%20Final%20Rule%201%20March%202010.pdf>) should be reported to FWC's Wildlife Alert Hotline: **1-888-404-3922** for transfer to FWC Law Enforcement, and will be treated as evidence by the state.
- Contact FWC Mammal Taxa Coordinator before disposing of any mink or round-tailed muskrat carcass.
- All other species should be documented (photograph and data collected to include species, date collected, and location) by the contracted rehabilitator or their sub-contractor and then appropriately disposed of by the RP or their contractors.

All NRDA protocols must be followed.

**FWC Points of Contact**

Daily admission/disposition numbers of oiled animals and species-specific information should be emailed to [oilspill@myfwc.com](mailto:oilspill@myfwc.com) and [ImperiledSpecies@myfwc.com](mailto:ImperiledSpecies@myfwc.com)

FWC Veterinarian:

Mark Cunningham  
Office: (352) 334-4233  
Cell: 352-494-4229  
Email: [Mark.Cunningham@myfwc.com](mailto:Mark.Cunningham@myfwc.com)

Birds:

(Includes process for releasing birds, and developing plans for large scale rescue/recovery efforts of specific groups of birds if needed.)

Robin Boughton – Avian Coordinator - Division of Habitat and Species Conservation  
Office: (352)620-7347  
Cell: 352-427-7306  
Email: [Robin.Boughton@myfwc.com](mailto:Robin.Boughton@myfwc.com))

Jim Rodgers - Research Administrator - Division of Habitat and Species Conservation  
Office: (352) 334-4218  
Email: [James.Rodgers@myfwc.com](mailto:James.Rodgers@myfwc.com)

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**Mammal Contacts** (other than marine mammals):

Jeff Gore

Office: 850-541-2399

Email: [Jeff.Gore@myfwc.com](mailto:Jeff.Gore@myfwc.com)

Melissa Tucker

Office: 386-623-0986

Email: [Melissa.Tucker@myfwc.com](mailto:Melissa.Tucker@myfwc.com)

Marine Mammals (including Manatees):

FWC Marine Mammal Rescue/Necropsy Coordinators (In order and as available):

Andy Garrett

Office: 727-896-8626, ext

Cell: 727- 638-3295

Email: [andy.garrett@myfwc.com](mailto:andy.garrett@myfwc.com)

Martine deWit

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Margie Barlas

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Leslie Ward-Geiger

Office: 727-896-8626, ext Cell: 813-781-1175

Email: [leslie.ward@myfwc.com](mailto:leslie.ward@myfwc.com)

Exotic species:

FWC Exotic Species Section Leader

Scott Hardin - Section Leader – Division of Habitat and Species Conservation

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**Office:** 850-488-3831

**Email:** [Scott.Hardin@myfwc.com](mailto:Scott.Hardin@myfwc.com)

**Reptile Contacts** (other than alligators):

Bill Turner - FWC Herp Taxa Coordinator

Office: 850-410-0656 x17331

Email: [bill.turner@myfwc.com](mailto:bill.turner@myfwc.com)

Kevin Enge

Office: 352-955-2081 x121

Email: [Kevin.enge@myfwc.com](mailto:Kevin.enge@myfwc.com)

**Regional Species Conservation Biologists.**

**These biologists will serve as the initial wildlife leads and points of contact during any spill event.**

Hernando through Lee Counties

Nancy Douglass – Regional Biologist, Lakeland

Office: 863-648-3200

Cell: 863-581-6903

Email: [Nancy.Douglass@myfwc.com](mailto:Nancy.Douglass@myfwc.com)

Collier and Monroe County (Gulf) and Miami-Dade through St. Lucie Counties (Atlantic)

Ricardo Zambrano – Regional Biologist, West Palm

Office: 561-625-5122

Cell: 561-248-9072

Email: [Ricardo.Zambrano@myfwc.com](mailto:Ricardo.Zambrano@myfwc.com)

St. Johns through Indian River County

Alex Kropp – Regional Biologist, Ocala

Office: 352-732-1225

Cell: 352-342-0063

Email: [Alex.Kropp@myfwc.com](mailto:Alex.Kropp@myfwc.com)

Taylor through Citrus Counties (Gulf coast) and Nassau and Duval Counties (Atlantic coast)

Terry Doonan – Regional Biologist, Lake City

Office: 386-758-0525

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Email: [Terry.Doonan@myfwc.com](mailto:Terry.Doonan@myfwc.com)

Jefferson through Escambia Counties

John Himes – Regional Biologist, Panama City

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