Dredging and Threatened/Endangered Species in the Southeastern US

DENA DICKERSON
ERDC, Environmental Lab
U.S. Army Corps of Engineers
Vicksburg, Mississippi
Southeastern US
Southeastern US

USACE DISTRICTS

New Orleans (MVN)
Mobile (SAM)
Galveston (SWG)
Jacksonville (SAJ)
Wilmington (SAW)
Charleston (SAC)
Savannah (SAS)
Norfolk (NAN)
Bucket or Clamshell
Cutterhead
Hopper Trailing Suction
26 Federal TE Species Potentially Impacted during Dredging Projects in the Southeastern US

- Beach Jacquemontia (E)
- Seabeach amaranth (T)
- Stag horn coral (T)
- Elkhorn coral (T)
- Piping plover (T)
- Alabama red-bellied turtle (E)
- Kemp’s ridley sea turtle (E)
- Hawksbill sea turtle (E)
- Leatherback sea turtle (E)
- Green sea turtle (E/T)
- Loggerhead sea turtle (T)
- Olive ridley sea turtle (T)

- Anastasia Island beach mouse (E)
- Southeastern beach mouse (T)
- West Indian manatee (E)
- North Atlantic right whale (E)
- Humpback whale (E)
- Blue whale (E)
- Fin whale (E)
- Sei whale (E)
- Sperm whale (E)
- Shortnose sturgeon (E)
- Atlantic sturgeon (Pending)
- Gulf sturgeon (T)
- Pallid sturgeon (E)
- Smalltooth sawfish (E)
### 26 Federal TE Species Potentially Impacted during Dredging Projects in the Southeastern US

#### Limited Distribution (7)

<table>
<thead>
<tr>
<th>(E) Species</th>
<th>(T) Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beach jacquemontia</td>
<td>Anastasia Island beach mouse</td>
</tr>
<tr>
<td>Seabeach amaranth</td>
<td>Southeastern beach mouse</td>
</tr>
<tr>
<td>Stag horn coral</td>
<td>West Indian manatee</td>
</tr>
<tr>
<td>Elkhorn coral</td>
<td>North Atlantic right whale</td>
</tr>
<tr>
<td>Piping plover</td>
<td>Humpback whale</td>
</tr>
<tr>
<td>Alabama red-bellied turtle</td>
<td>Blue whale</td>
</tr>
<tr>
<td>Kemp’s ridley sea turtle</td>
<td>Fin whale</td>
</tr>
<tr>
<td>Hawksbill sea turtle</td>
<td>Sei whale</td>
</tr>
<tr>
<td>Leatherback sea turtle</td>
<td>Sperm whale</td>
</tr>
<tr>
<td>Green sea turtle</td>
<td>Shortnose sturgeon</td>
</tr>
<tr>
<td>Loggerhead sea turtle</td>
<td>Atlantic sturgeon (Pending)</td>
</tr>
<tr>
<td>Olive ridley sea turtle</td>
<td>Gulf sturgeon</td>
</tr>
<tr>
<td></td>
<td>Pallid sturgeon</td>
</tr>
<tr>
<td></td>
<td>Smalltooth sawfish</td>
</tr>
</tbody>
</table>

*E* indicates Endangered, *T* indicates Threatened
# Beach Plants

<table>
<thead>
<tr>
<th>Federal T/E Species</th>
<th>SAJ</th>
<th>SAC</th>
<th>SAW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beach Jacquemontia (E)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seabeach Amaranth (T)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**Beach Jacquemontia**

Photo: George K. Rogers  
[www.plantbook.org](http://www.plantbook.org)

**Seabeach Amaranth**

Photo by Bill Adams
## Corals

<table>
<thead>
<tr>
<th>Federal T/E Species</th>
<th>SAJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staghorn Coral (<em>Acropora cervicornis</em>) (T)</td>
<td>X</td>
</tr>
<tr>
<td>Elkhorn Coral (<em>Acropora palmata</em>) (T)</td>
<td>X</td>
</tr>
</tbody>
</table>

### Photos
- **Staghorn Coral**
  - Photo: Wikipedia
- **Elkhorn Coral**
  - Photo: Wikipedia
# Beach Mammals

<table>
<thead>
<tr>
<th>Federal T/E Species</th>
<th>SAJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anastasia Island Beach Mouse (E)</td>
<td>X</td>
</tr>
<tr>
<td>Southeastern Beach Mouse (T)</td>
<td>X</td>
</tr>
</tbody>
</table>

### Anastasia Isl. Beach Mouse

![Anastasia Isl. Beach Mouse](Photo: Florida DEP)

### Southeastern Beach Mouse

![Southeastern Beach Mouse](Photo: USFWS – Archie Carr National Wildlife Refuge)
# Freshwater Turtle

<table>
<thead>
<tr>
<th>Federal T/E Species</th>
<th>SAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama Red-Bellied Turtle (E)</td>
<td>X</td>
</tr>
</tbody>
</table>

**Alabama Red-Bellied Turtle**

*Photo: Bill Summerour*
26 Federal TE Species Potentially Impacted during Dredging Projects in the Southeastern US

Widespread Distribution (19)

- Beach Jacquemontia (E)
- Seabeach amaranth (T)
- Staghorn coral (T)
- Elkhorn coral (T)
- Piping plover (T)
- Alabama red-bellied turtle (E)
- Kemp’s ridley sea turtle (E)
- Hawksbill sea turtle (E)
- Leatherback sea turtle (E)
- Green sea turtle (E/T)
- Loggerhead sea turtle (T)
- Olive ridley sea turtle (T)

- Anastasia Island beach mouse (E)
- Southeastern beach mouse (T)
- West Indian manatee (E)
- North Atlantic right whale (E)
- Humpback whale (E)
- Blue whale (E)
- Fin whale (E)
- Sei whale (E)
- Sperm whale (E)
- Shortnose sturgeon (E)
- Atlantic sturgeon (Pending)
- Gulf sturgeon (T)
- Pallid sturgeon (E)
- Smalltooth sawfish (E)
# Piping Plover

<table>
<thead>
<tr>
<th>Federal T/E Species</th>
<th>SWG</th>
<th>MVN</th>
<th>SAM</th>
<th>SAJ</th>
<th>SAS</th>
<th>SAC</th>
<th>SAW</th>
<th>NAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piping Plover (T)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Photo: USFWS
Smalltooth sawfish

<table>
<thead>
<tr>
<th>Federal T/E Species</th>
<th>SWG</th>
<th>MVN</th>
<th>SAM</th>
<th>SAJ</th>
<th>SAS</th>
<th>SAC</th>
<th>SAW</th>
<th>NAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smalltooth Sawfish (E)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>X</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
</tr>
</tbody>
</table>

Photo: USFWS
## Marine Mammals

<table>
<thead>
<tr>
<th>Federal T/E Species</th>
<th>SWG</th>
<th>MVN</th>
<th>SAM</th>
<th>SAJ</th>
<th>SAS</th>
<th>SAC</th>
<th>SAW</th>
<th>NAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Indian Manatee (E)</td>
<td>(x)</td>
<td>(x)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
</tr>
</tbody>
</table>

*Photo: Dena Dickerson*

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### West Indian Manatee

*Photo: Dena Dickerson*
# Nearshore Whales

<table>
<thead>
<tr>
<th>Federal T/E Species</th>
<th>SWG</th>
<th>MVN</th>
<th>SAM</th>
<th>SAJ</th>
<th>SAS</th>
<th>SAC</th>
<th>SAW</th>
<th>NAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Atlantic Right Whale (E)</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Humpback Whale (E)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

## North Atlantic Right Whale

![North Atlantic Right Whale](Photo: Chris Slay)

## Humpback whale

![Humpback whale](Photo: Wikipedia)
Nearshore Whales
# Offshore Whales

<table>
<thead>
<tr>
<th>Federal T/E Species</th>
<th>SWG</th>
<th>MVN</th>
<th>SAM</th>
<th>SAJ</th>
<th>SAS</th>
<th>SAC</th>
<th>SAW</th>
<th>NAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Whale (E)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
</tr>
<tr>
<td>Fin Whale (E)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
</tr>
<tr>
<td>Sei Whale (E)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
</tr>
<tr>
<td>Sperm Whale (E)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
</tr>
</tbody>
</table>

**Photos:**
- Blue Whale: Photo: Mike Johnson
- Sei Whale: Photo: www.mainwhales.com
- Sperm Whale: Photo: NationalGeographic.com
# Sturgeon

<table>
<thead>
<tr>
<th>Federal T/E Species</th>
<th>MVN</th>
<th>SAM</th>
<th>SAJ</th>
<th>SAS</th>
<th>SAC</th>
<th>SAW</th>
<th>NAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortnose Sturgeon (E)</td>
<td></td>
<td></td>
<td>(x)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Atlantic Sturgeon (Federal Listing Pending)</td>
<td></td>
<td></td>
<td>(x)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Gulf Sturgeon (T)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pallid Sturgeon (E)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Atlantic and Gulf Coast Sturgeon

**Shortnose Sturgeon**

*(Acipenser brevirostrum)*

**Atlantic Sturgeon**

*(Federal Listing Pending)*

*(Acipenser o. oxyrinchus)*

**Gulf Sturgeon**

*(Acipenser oxyrinchus desotoi)*
Atlantic & Gulf Coast Sturgeon

- Atlantic (Acipenser oxyrinchus oxyrinchus)
- Shortnose (Acipenser brevirostrum)
- Gulf (Acipenser oxyrinchus desotoi)

The Atlantic Sturgeon is Presumed Extirpated in DC.

The Shortnose Sturgeon is Presumed Extirpated in DC and VA.
Inland Sturgeon (Rare or Uncommon)

Pallid Sturgeon
(Scaphirhynchus albus)

Alabama Sturgeon
(Scaphirhynchus suttkusi)

Photo J Hoover

Photo USFWS
Inland Sturgeon

The Lake Sturgeon is Presumed Extirpated in AL, LA, MS, NC, ND, WV.

The Shovelnose Sturgeon is Presumed Extirpated in AL, NM, OH, PA, WV.
Dredging Impacts to Sturgeon
From NMFS Biological Opinions

- Entrain adults, juveniles, larvae, eggs
- Bury sturgeon, eggs, habitat
- Disrupt migration
- Disturb spawning, foraging, refuge areas
- Destroy benthic food resources
- Release contaminated toxins
Take
Incidental Take
# Sea Turtles

<table>
<thead>
<tr>
<th>Federal T/E Species</th>
<th>SWG</th>
<th>MVN</th>
<th>SAM</th>
<th>SAJ</th>
<th>SAS</th>
<th>SAC</th>
<th>SAW</th>
<th>NAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kemp’s Ridley Sea Turtle (E)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Loggerhead Sea Turtle (T)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Green Sea Turtle (E/T)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Leatherback Sea Turtle (E)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Hawksbill Sea Turtle (E)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>(x)</td>
<td>(x)</td>
<td>(x)</td>
</tr>
<tr>
<td>Olive Ridley Sea Turtle (T)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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</tbody>
</table>
Southeastern US Sea Turtles

- Kemp’s ridley
- Loggerhead
- Green
- Leatherback
- Hawksbill
- Olive ridley
Dredging Impacts to Sea Turtles

- Entrain adults, subadults, juveniles
- Disrupt nesting activities
- Destroy nests and nesting habitat
Dredge Observer Program

Sea Turtles
Sturgeon
Manatees
Whales

77+ sites monitored
Documented Takes by Dredges

693
Sea Turtles
1980-2011
(31.5 years)

34
Sturgeon
1990-2011
(21.5 years)
34 Documented Sturgeon Takes by Dredges (1990-2011)

3 Sturgeon Species

11 Shortnose

21 Atlantic

2 Gulf
693 Documented Sea Turtles Takes by Dredges
(1980-2011)

3 Sea Turtle Species
(61 Unknown)

467 84 74
Loggerhead  Green  Kemp’s ridley
<table>
<thead>
<tr>
<th></th>
<th>Loggerheads</th>
<th>Kemp’s</th>
<th>Greens</th>
<th>Hawksbill</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Atlantic (NC - FL)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Allotted</td>
<td>35</td>
<td>7</td>
<td>7</td>
<td>2</td>
<td>51</td>
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<tr>
<td>FY10</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>6</td>
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<tr>
<td>Remained</td>
<td>34</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>45</td>
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<tr>
<td><strong>US Gulf</strong></td>
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</tr>
<tr>
<td>CW</td>
<td>32</td>
<td>8</td>
<td>16</td>
<td>4</td>
<td>78</td>
</tr>
<tr>
<td>FY10</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Remained</td>
<td>31</td>
<td>5</td>
<td>13</td>
<td>4</td>
<td>70</td>
</tr>
<tr>
<td>CW=Civil Works; R=Regulatory</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Total FY10 Takes** 14
Methods used to minimize dredging impacts on T/E species include.........