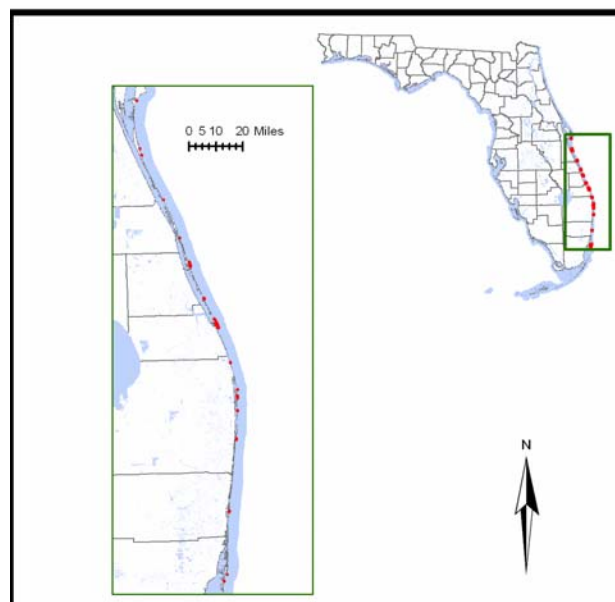


# Annelid Reef



## Status

**Current condition:** Poor and declining. According to the best available GIS information at this time (see Appendix D. GIS Data Tables), approximately 426 acres (172 ha) of Annelid Reefs are present in Florida.



Some habitat distributions or locations may be misrepresented on this map due to size, resolution and insufficient data sources.

## Habitat Description

**FNAI type:** Worm Reef

Annelid Reefs are formed by aggregations of *Phragmatopoma lapidosa* (also known as *P. caudata* and *P. lapidosa lapidosa*), a tropical marine worm, that create low reefs of sand tubes. These tubes consist of sand grains which are cemented together by protein produced by the worms. *Phragmatopoma* reproduce by releasing gametes into the water column. The free-floating larval stage can last from two to 20 weeks before they settle on or near existing Annelid Reefs that may result in habitat expansion. Waves and currents are important in transporting planktonic food and sand to the worms, thus influencing the health and growth of the reef. These reefs harbor a diverse community of live-bottom flora and fauna. Annelid Reefs provide a nursery for a variety of coastal fish and invertebrate species.

Annelid Reefs extend from Cape Canaveral to Key Biscayne in Florida but extend southward to near Santa Catarina, Brazil. In Florida, they occur in the highest abundances off St. Lucie and Martin counties. They are commonly found in the intertidal and shallow subtidal zone to about 10 m (33 ft) deep.

## Associated Species of Greatest Conservation Need

### Mammals

- *Trichechus manatus latirostris* Florida Manatee
- *Tursiops truncatus* Atlantic Bottlenose Dolphin

### Reptiles

- *Chelonia mydas* Green Turtle
- *Eretmochelys imbricata* Hawksbill
- *Caretta caretta* Loggerhead
- *Lepidochelys kempii* Kemp's Ridley

### Fish

- *Ginglymostoma cirratum* Nurse Shark
- *Carcharhinus falciformis* Spinner Shark
- *Carcharhinus leucas* Bull Shark
- *Negaprion brevirostris* Lemon Shark
- *Megalops atlanticus* Tarpon
- *Gymnothorax funebris* Green Moray
- *Gymnothorax moringa* Spotted Moray
- *Opsanus beta* Gulf Toadfish
- *Opsanus pardus* Leopard Toadfish
- *Mugil cephalus* Striped Mullet
- *Centropomus undecimalis* Common Snook
- *Lutjanus apodus* Schoolmaster
- *Lutjanus griseus* Gray Snapper
- *Lutjanus synagris* Lane Snapper
- *Anisotremus surinamensis* Black Margate
- *Anisotremus virginicus* Porkfish
- *Haemulon aurolineatum* Tomtate
- *Haemulon plumieri* White Grunt
- *Archosargus probatocephalus* Sheepshead
- *Bairdiella sanctaeluciae* Striped Croaker
- *Equetus lanceolatus* Jackknife Fish
- *Equetus punctatus* Spotted Drum
- *Pareques acumunatus* High-hat
- *Holacanthus bermudensis* Blue Angelfish
- *Holacanthus ciliaris* Queen Angelfish
- *Pomacanthus arcuatus* Gray Angelfish
- *Pomacanthus paru* French Angelfish
- *Abudefduf saxatilis* Sergeant Major
- *Stagastes adustus* Dusky Damselfish
- *Stegastes leucostictus* Beaugregory
- *Stegastes partitus* Bicolor Damselfish
- *Stegastes variabilis* Cocoa Damselfish
- *Halichoeres bivittatus* Slippery Dick
- *Thalassoma bifasciatum* Bluehead

- *Labrisomus nuchipinnis*                      Hairy Blenny
- *Chaetodipterus*                                Atlantic Spadefish
- *Acanthurus bahianus*                        Ocean Surgeon
- *Balistes capriscus*                            Gray Triggerfish
- *Gerres cinereus*                                Yellowfin Mojarra

### **Invertebrates**

- *Spongia barbara*                                Yellow Sponge
- *Sphaciospongia vesparia*                    Loggerhead Sponge
- *Octopus vulgaris*                                Octopus
- *Aplysia dactylomela*                         Spotted Seahare
- *Astraliium phoebium*                         Longspine Starsnail
- *Fasciolaria lilium*                              Banded Tulip
- *Pleuroploca gigantea*                        Horse Conch
- *Busycon sinistrum*                            Lightning Whelk
- *Cassis tuberosa*                                Helmet Shell
- *Cypraea cervus*                                Atlantic Deer Cowrie
- *Charonia tritonis variegata*                Atlantic Trumpet Triton
- *Elysia crispata*                                 Lettuce Slug
- *Oreaster reticulatis*                         Cushion Star, Bahama Star
- *Diadema antillarum*                         Long-spined Urchin
- *Lytechinus variegatus*                        Variegated Urchin
- *Tripneustes ventricosus*                    Sea Egg Urchin
- *Holothuria floridana*                         Florida Sea Cucumber
- *Ophiophragmus filigraneus*                Brittle Star
- *Astrophyton muricatum*                     Basket Star
- *Hermodice carunculata*                    Fire (Bristle) Worm
- *Phragmatopoma lapidosa*                    Worm Reef
- *Lysmata wurdemanni*                        Peppermint Shrimp
- *Stenorynchus seticornis*                    Yellowline Arrow Crab
- *Panulirus argus*                                Spiny Lobster
- *Farfantepenaeus duorarum*                 Pink Shrimp
- *Callinectes sapidus*                            Blue Crab
- *Upogebia islagrande*                        Ghost Shrimp
- *Menippe nodifrons*                          Cuban Stone Crab
- *Gonodactylus spp.*                            Mantis Shrimp
- *Lysiosquilla scabricauda*                    Thumbsplitter Mantis Shrimp

## Conservation Threats

Threats to the Annelid Reef habitat that were also identified for multiple other habitats are addressed in the Chapter Multiple Habitat Threats and Conservation Actions. These threats include:

- Channel Modification/Shipping Lanes
- Climate Variability
- Coastal Development
- Dam Operations/Incompatible release of water (quality, quantity, timing)
- Disruption of Longshore Transport of Sediments
- Fishing Gear Impacts
- Incompatible Industrial Operations
- Incompatible Recreational Activities

- Management of Nature (beach nourishment and impoundments)
- Shoreline Hardening

The following stresses and sources of stress threaten this habitat:

| <b>Stresses</b> |                                       | <b>Habitat Stress Rank</b> |
|-----------------|---------------------------------------|----------------------------|
| A               | Altered structure                     | Very High                  |
| B               | Altered weather regime/sea level rise | High                       |
| C               | Habitat destruction                   | High                       |
| D               | Habitat disturbance                   | High                       |
| E               | Sedimentation                         | High                       |

The sources of stress, or threats, were used to generate conservation actions.

| <b>Sources of Stress</b>                |   | <b>Habitat Source Rank</b> | <b>Related Stresses</b><br>(see above) |
|---|---|----------------------------|--|
| 1                                       | Climate variability   | High                       | A, B                                   |
| 2                                       | Coastal development   | High                       | A, C                                   |
| 3                                       | Management of nature (beach nourishment, impoundments)                    | High                       | A, C, D, E                             |
| 4                                       | Channel modification/shipping lanes                                       | High                       | A, C, D                                |
| 5                                       | Incompatible industrial operations  | High                       | A, D                                   |
| 6                                       | Utility corridors   | Medium                     | A, C                                   |
| 7                                       | Disruption of longshore transport of sediments                            | Medium                     | E                                      |
| 8                                       | Dam operations/incompatible release of water: (quality, quantity, timing) | Medium                     | D                                      |
| 9                                       | Placement of artificial structures  | Low                        | A, C                                   |
| 10                                      | Fishing gear impacts  | Low                        | C, D                                   |
| 11                                      | Incompatible recreational activities                                      | Low                        | D                                      |
| 12                                      | Shoreline hardening   | Low                        | C                                      |
| 13                                      | Inadequate stormwater management  | Low                        | D                                      |
| 14                                      | Boating impacts   | Low                        | C                                      |
| <b>Statewide Threat Rank of Habitat</b> |   | <b>High</b>                |  |

## Conservation Actions

Actions to abate the threats to Annelid Reef habitats that were also identified as statewide threats (see list above), are in the Chapter Multiple Habitat Threats and Conservation Actions. Many of the threats to Annelid Reefs are the same as for several other marine and estuarine

habitats. Consequently, actions to abate these threats will be the same or similar to the actions recommended for abating threats to several other marine and estuarine habitats (e.g., Submerged Aquatic Vegetation, Mangrove Swamp, Coral Reef, and Beach/Surf Zone).