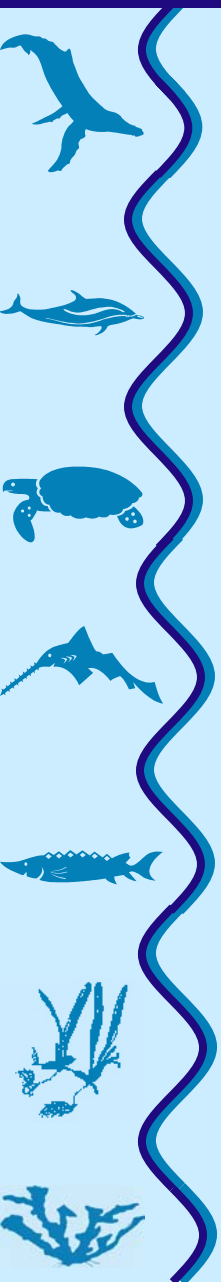





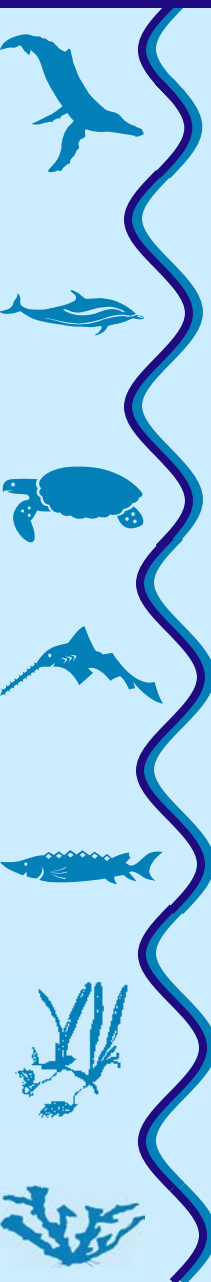


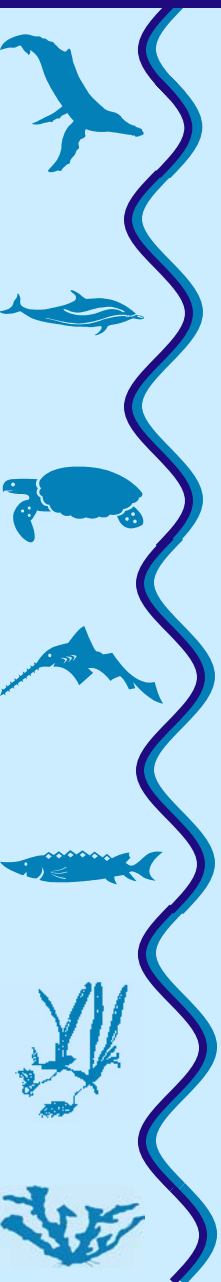
**NOAA Fisheries Service Proposes to List
Elkhorn and Staghorn Corals
as Threatened under the Endangered Species Act**





**Jennifer Moore
Stephanie Bolden**



-  On March 4, 2004, the Center for Biological Diversity (CBD) petitioned NOAA Fisheries Service to list three *Acropora* spp., elkhorn, staghorn, and fused-staghorn coral, as either threatened or endangered under the Endangered Species Act (ESA) and to designate critical habitat
-  On June 23, 2004, NOAA Fisheries Service made a positive 90-day finding (69 FR 34995) that CBD presented substantial information indicating that the petitioned actions may be warranted and announced the initiation of a formal status review by convening an Atlantic *Acropora* Biological Review Team (BRT)
-  Their status review (available at <http://sero.nmfs.noaa.gov/pr/protres.htm>) incorporates and summarizes the best available scientific and commercial data to date; and it addresses the status of the species, the five ESA listing factors, and current regulatory, conservation and research efforts that may yield protection





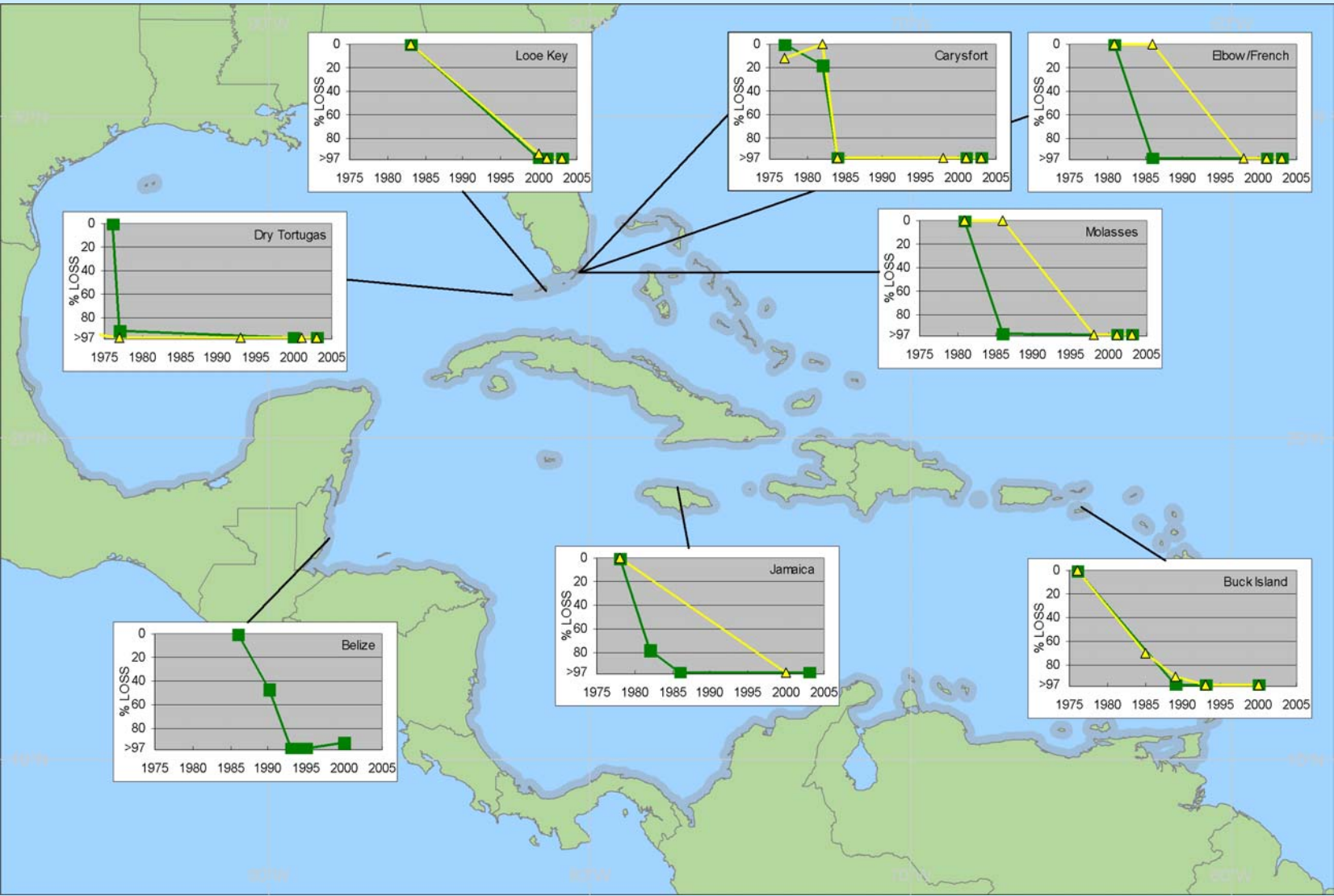
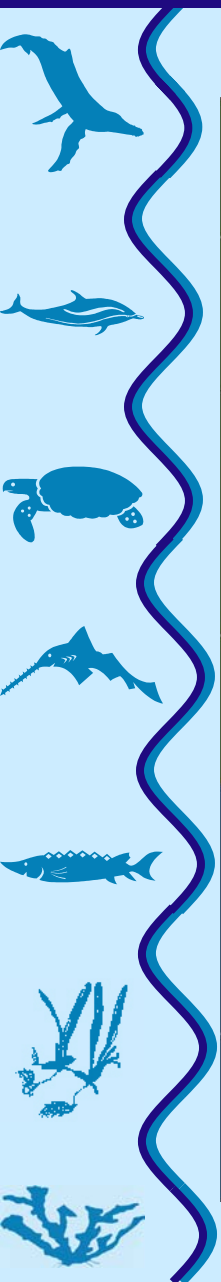
-  **Both sexual (broadcast spawners) and asexual (fragmentation) reproduction**
-  **Clear well circulated water**
-  **Rely on sunlight (almost exclusively) for nourishment**
-  **Optimal water temperature = 25 to 29°C (77 to 85°F)**
-  **Near oceanic salinities (34 to 37 ppt)**

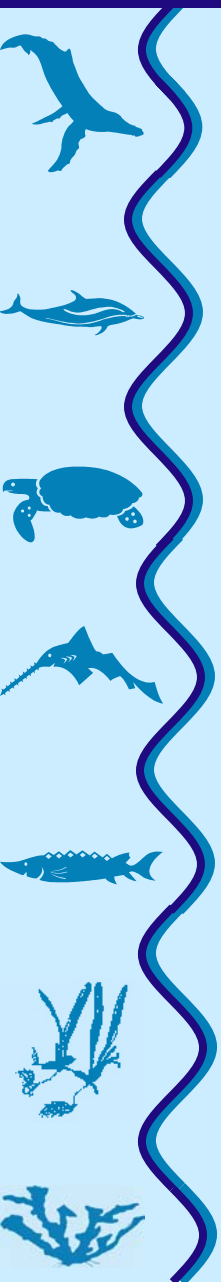
Elkhorn coral (*Acropora palmata*)






-  Common depth range = 1 to 5 m

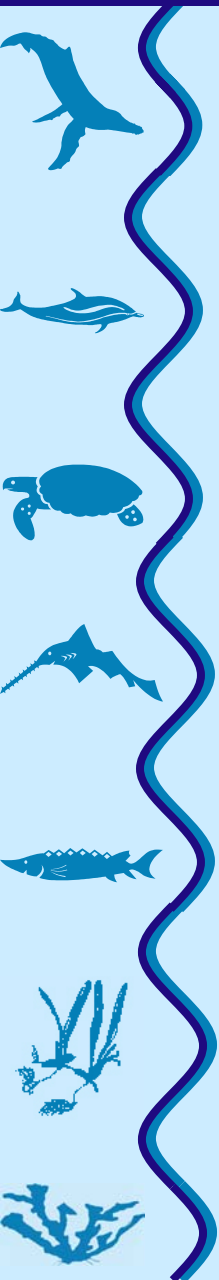
Staghorn coral (*Acropora cervicornis*)






-  Common depth range = 5 to 15 m

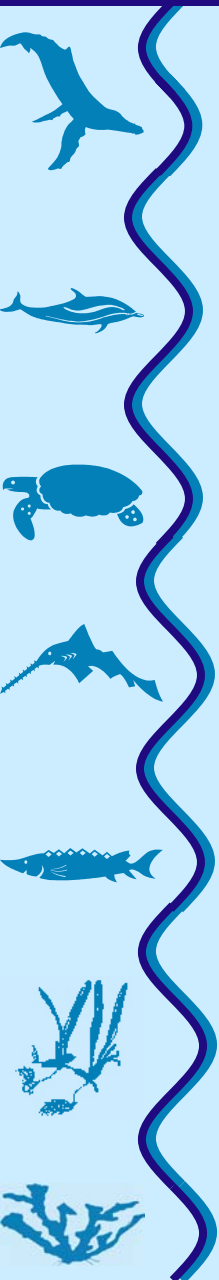


















-  Both species underwent precipitous declines in the early 1980s throughout their ranges
-  Declines in abundance (coverage and colony numbers) are estimated at >97% (e.g., Florida Keys, Dry Tortugas, Belize, Jamaica and the U.S.V.I.),
-  Downward (decline) trend continued through the 1990s until present, but local extirpations (i.e., at the island or country scale) have not been rigorously documented
-  Recruitment of new colonies has been reported in various geographic locations, but new recruits appear to be suffering mortality faster than they can mature
-  Moderate recovery of elkhorn at Buck Island Reef National Monument, however their contribution to the corals' Caribbean-wide recovery remains undetermined

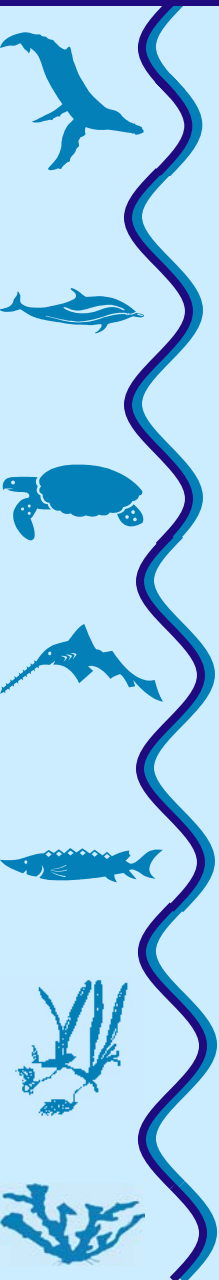







-  Present or threatened destruction, modification or curtailment of its habitat or range
-  Overutilization for commercial, recreational, scientific, or educational purposes
-  Disease or predation
-  Inadequacy of existing regulatory mechanisms
-  Other natural or manmade factors affecting its continued existence



-  Disease
-  Elevated sea surface temperature
-  Hurricanes

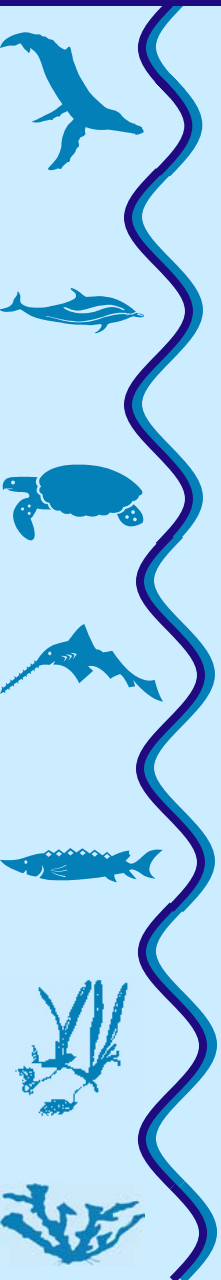
-  Predation
-  Competition
-  Sedimentation
-  Nutrients
-  Contaminants
-  Over-harvest
-  CO₂
-  Sponge boring
-  African Dust
-  Loss of genetic diversity
-  Anthropogenic abrasion and breakage






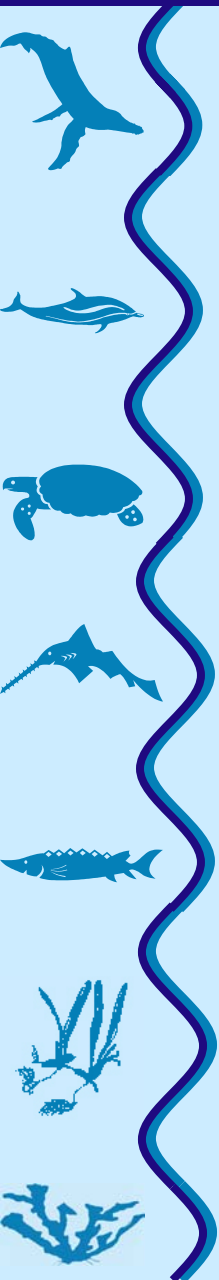
-  Primary cause of region-wide decline
-  White Band Disease
-  White Pox Disease
-  Exact cause unknown
-  No known management actions






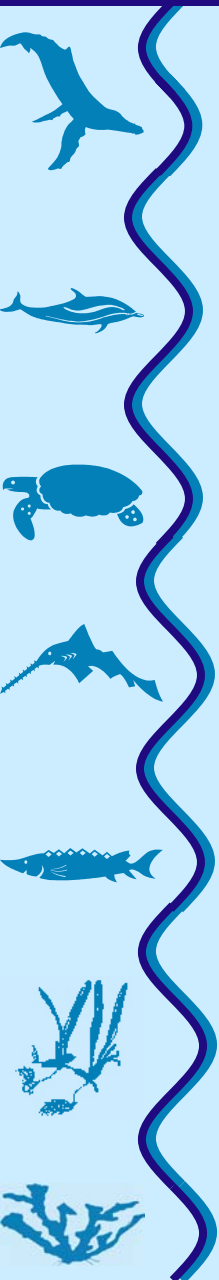
Elevated sea surface temperature








-  Induces bleaching
-  Mass bleaching events have occurred throughout the Caribbean in the 1980s and 1990s
-  Pattern of increasing severity and frequency





-  Causes most severe physical damage
-  Among primary causes of decline in certain locations
-  Entering into a period of more frequent more intense storms

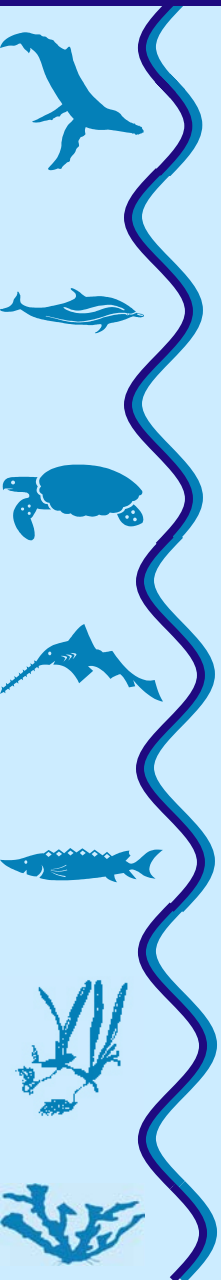






Predation

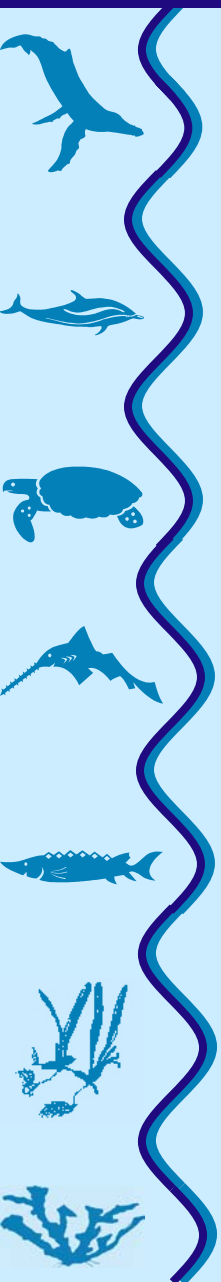
-  Fireworm
-  Short Coral Snail
-  Damselfishes
-  Long-spined Sea urchin
-  Parrotfishes

Competition





-  Normally competitive dominants
-  Macroalgal shift







-  *Acropora* spp. particularly sensitive
-  Land development and run-off
-  Dredging and disposal
-  Major storm events

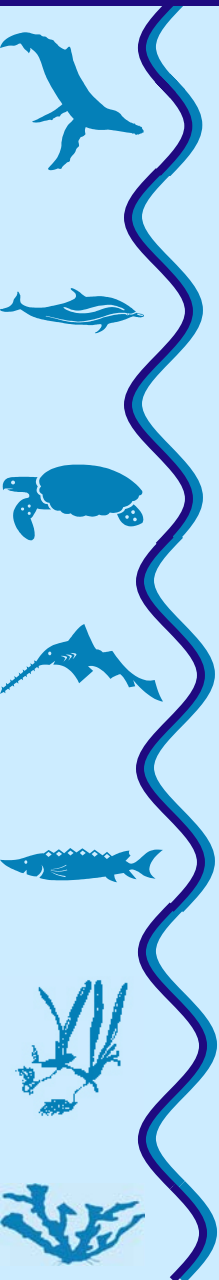







Elevated Nutrients

-  Create imbalance in the community structure
-  Allow for increase plant growth on reefs
-  Disrupts relationship with symbiotic algae
-  Comes from point and non-point sources

Contaminants

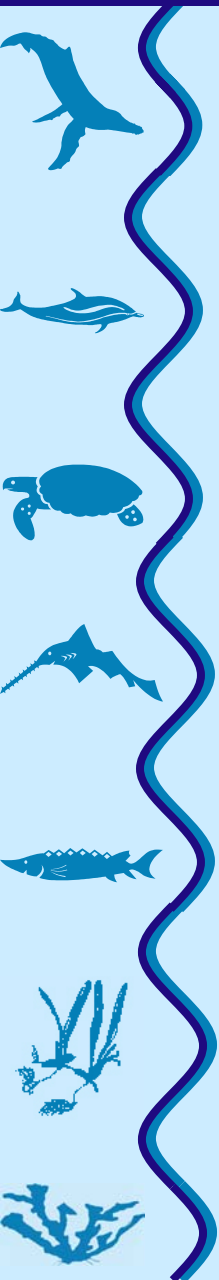
-  Different contaminants have various physiological responses
-  Typically chronic sub-lethal effects
-  Drilling muds, pesticides, heavy metals, exogenous estrogen compounds known to cause negatives effects
-  Comes from point and non-point sources



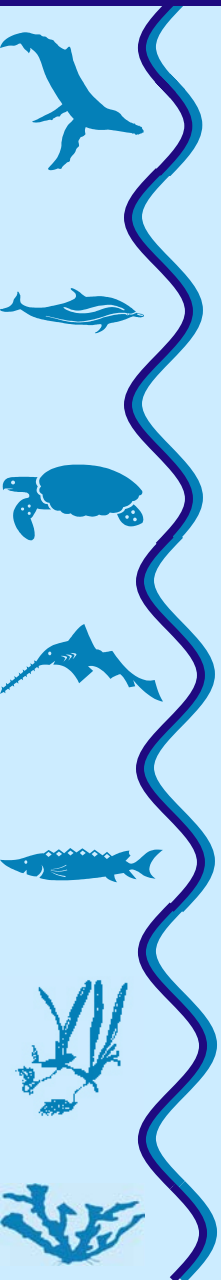
-  Elevated carbon dioxide (CO_2) makes seawater more acidic
-  Shifts balance of inorganic carbon from CO_2 and carbonate to bicarbonate
-  Corals use carbonate to build skeleton
-  Decreases calcification rates
-  Oceanic CO_2 rises with atmospheric CO_2 which has risen approximately 100 ppm in the past 200 years






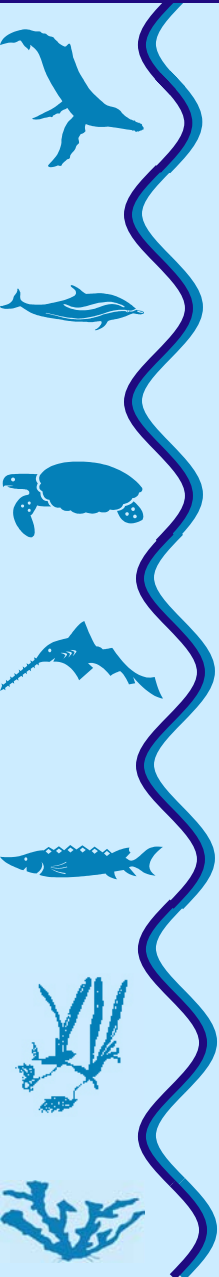
Anthropogenic Abrasion and Breakage








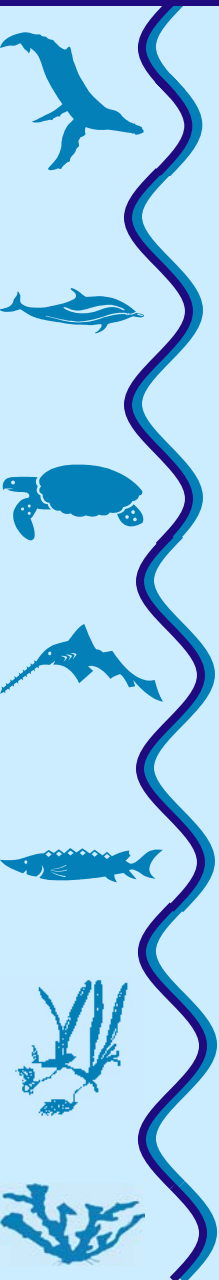
- ✧ Vessel groundings
- ✧ Anchor impacts
- ✧ Divers and snorkelers
- ✧ Fishing gear and debris
 - ✧ *Bottom longline gear*
 - ✧ *Fish and lobster traps*
 - ✧ *Hook-and-line and handline*
 - ✧ *Gill and trammel nets*
 - ✧ *Spear and powerhead*
 - ✧ *By hand*











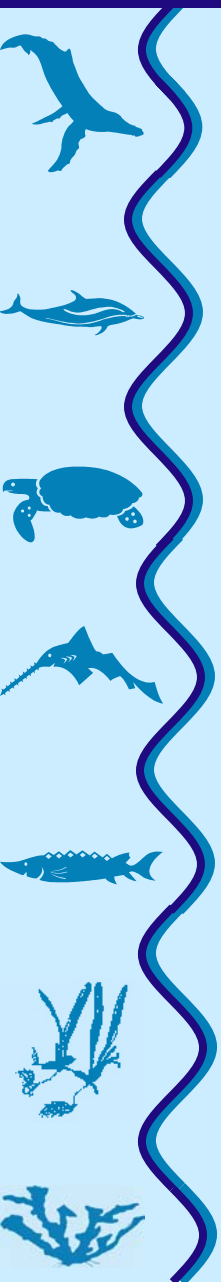
-  African Dust
-  Loss of genetic diversity
-  Overharvest (potentially serious but abated by regulations)



-  On March 3, 2005, NOAA Fisheries Service determined that both elkhorn and staghorn corals are likely to become in danger of extinction throughout all or a significant portion of their range in the foreseeable future from a combination of factors
-  A **THREATENED** listing is warranted
-  NOAA Fisheries Service also determined that fused-staghorn coral (*A. prolifera*) is a hybrid and does not constitute a species under the ESA
-  NOAA Fisheries Service relied on the status review developed by the BRT in coming to these conclusions
-  A *Federal Notice* announcing this determination was published March 18, 2005 (70 FR 13151)



-  On May 9, 2005 NOAA Fisheries Service published a proposed rule to list the two species as **threatened** (70 FR 24359)
-  A 90-day comment period was opened to end on August 8, 2005
-  The proposed rule will include numerous ways that the public can comment on the proposed action:
 -  Mail
 -  Email
 -  Federal eRulemaking Portal
 -  Fax
 -  Public meetings




Within one year of publishing the proposed listing rule, NOAA Fisheries Service will:

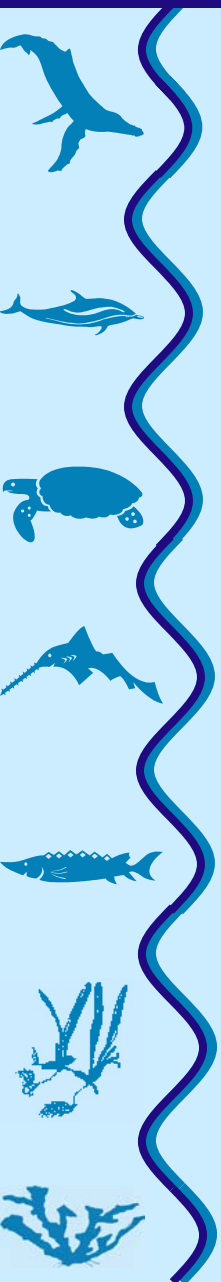
 finalize the proposed rule






or

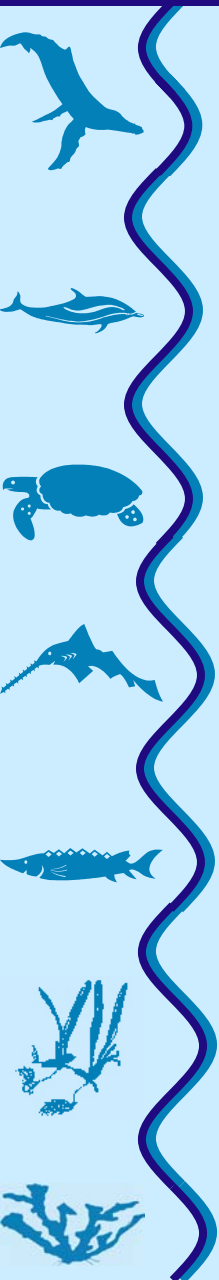
 withdraw the proposed rule

or

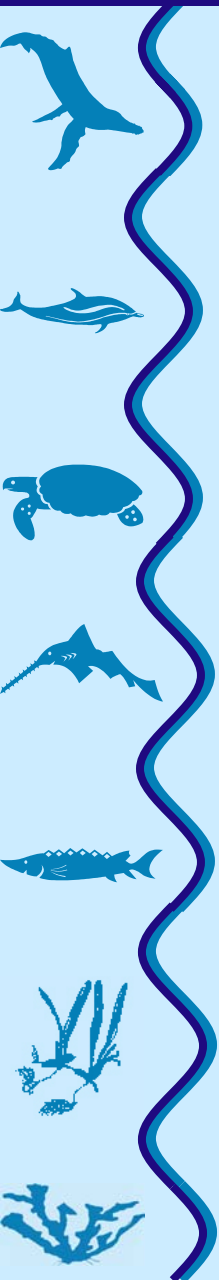
 If there is substantial scientific disagreement about the available information, extend the deadline for a final determination up to six months





-  When a species is listed as **endangered**, it automatically receives certain protections, including the prohibition to “take” the species
-  Take = harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct
-  When a species is listed as **threatened**, TAKE is not automatically prohibited
-  NOAA Fisheries Service must propose and publish a special rule to issue protective regulations and exemptions that it finds necessary and appropriate to provide for the conservation of threatened species
-  This is called a 4(d) rule, as it is required by section 4(d) of the ESA



- 🌿 NOAA Fisheries Service is proposing a **threatened** status for both species
- 🌿 Anticipate proposing a 4(d) rule to issue protective regulations and exemptions
- 🌿 During the development of the 4(d) rule, NOAA Fisheries Service will contact and coordinate with:
 - 🌿 *State/Territory and federal resource managers*
 - 🌿 *Researchers*
 - 🌿 *Potentially affect parties*



-  Designate Critical Habitat with one year after listing if prudent
-  Develop a Recovery Plan to serve as the road map to actions to help the 2 species no longer need the protection of the ESA



The Southeast Region Protected Resources Division is the lead in developing the rules and all subsequent management actions for these species. For more information, please contact:

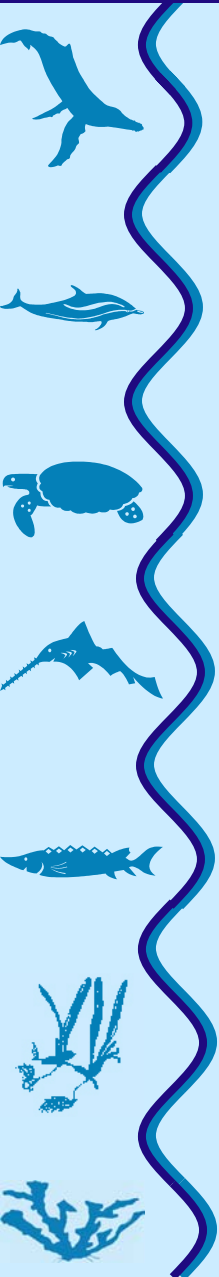
Jennifer Moore or Stephania Bolden

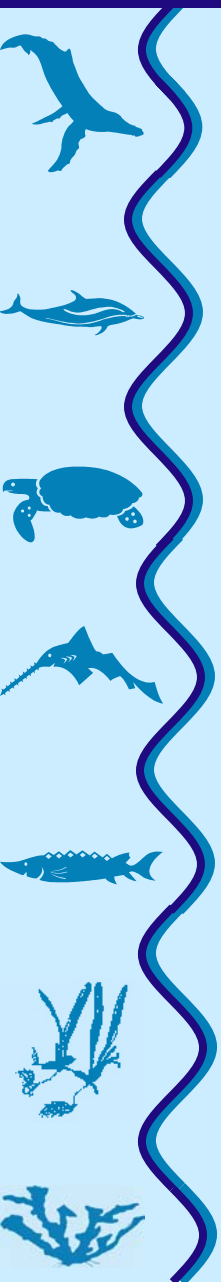
By mail: National Marine Fisheries Service
Southeast Regional Office
Protected Resources Division
263 13th Ave. S
St. Petersburg, FL 33701

By phone: (727) 824-5312

By email: jennifer.moore@noaa.gov
stephania.bolden@noaa.gov

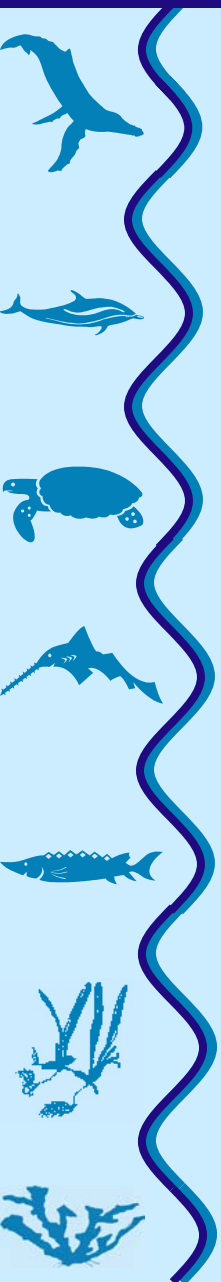
<http://sero.nmfs.noaa.gov/pr/protres.htm>











Questions on the Presentation or Process ???

<http://sero.nmfs.noaa.gov/pr/protres.htm>






-  Commenter called to front of room
-  Please state name clearly
-  Notifies when 4 minutes have passed
-  Court reported recording comments

YES

-  5 minute time limit
-  Additional information

NO

-  Debate
-  Questions
-  No economics

<http://sero.nmfs.noaa.gov/pr/protres.htm>