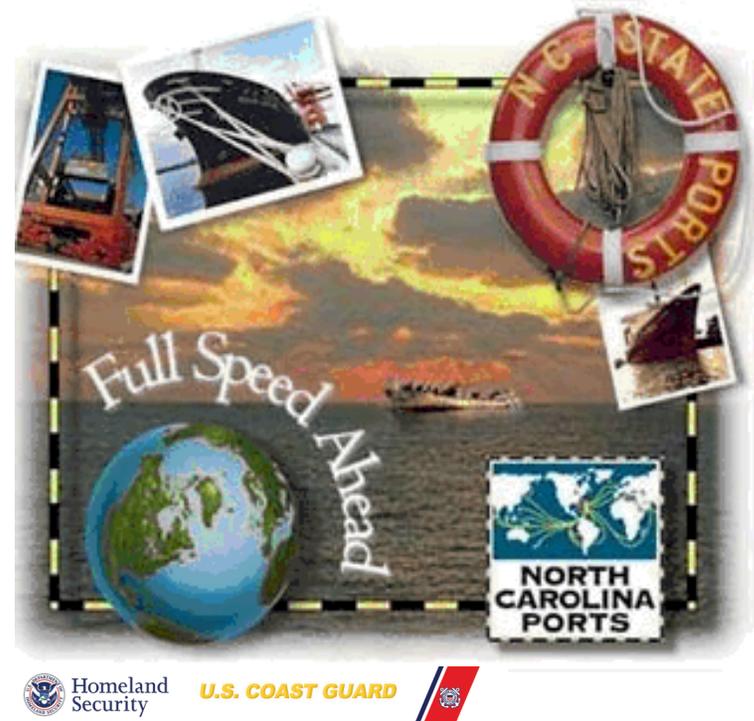


Technological Hazards Facing Coastal Communities

Ports and Shipping in the United States

Top Five U.S. Ports by Cargo Volume

1. Los Angeles, CA
2. Long Beach, CA
3. New York, NY
4. Charleston, SC
5. Savannah, GA



Cargo Ship at Dock



Source: <http://www.portofhouston.com/geninfo/overview1.html>

Ports and Harbors Get Busier: the volume of cargo increases with the rise in international trade



Source: www.portofhouston.com/geninfo/overview

Accident at the Port of New Orleans



Tugboats hold the freighter against
the riverfront wall (Courtesy USCG)

Diesel fuel from ships pollutes the air



Source: www.loe.org/archives/020503.htm

Ports Require Large Areas of Land and Coastal Waters



Source: www.halcrow.com/ports_capab/portplan.htm

Port Lights at Night May Disturb Wildlife and Nearby Residents



Source: www.hants.gov.uk/coast/portsandshipping.html

Construction in 1956 by Norfolk Dredging Co.



Source: US Army Corps of Engineers

Dredging Area



Source: US Army Corps of Engineers

Dredged area is divided into three cells. One cell is always receiving dredged material while the other two are drying out.

Pumping Dredged Material



Photo: U.S. Army Corps of Engineers, Norfolk District HQ, USACE Office of History
Source: <http://gisweb.nao.usace.army.mil/craneyee/AboutCraneyIsland.asp>

Dredged Material



Dredged material is 50 percent water by weight. As the material dries, it shrinks

Photo: U.S. Army Corps of Engineers, Norfolk District HQ, USACE Office of History
Source: <http://gisweb.nao.usace.army.mil/craneyee/AboutCraneyIsland.asp>

US Navy Facilities Within the United States



Source: US Navy

Navy Aircraft Carrier



Source: US Navy

Pocosin Lakes National Wildlife Refuge



Source: US Fish and Wildlife Service

ncplanning.fws.gov/.../pages/waterfowl3_JPG.htm

Navy Fighter Jet



Source: US Navy

Military Helicopter



Source: US Department of Defense

US Navy Submarine



Source: US Navy

Beached Whale



Photo Credit: Northwest Stranding Network
Source: NOAA Fisheries Office of Protected Resources
www.nmfs.noaa.gov/pr/health/mmume/

Offshore Oil Well May Leak Petroleum Onto Ocean Surface



Source: seis.natsci.csulb.edu/bperry/scbweb/pollution.htm

Accident During Tanker Transport



Source: NOAA <http://response.restoration.noaa.gov/kids/spills>

**Supertanker, the
Amoco Cadiz,
sinking off the coast
of France in 1978**

Exxon Valdez



Source: NOAA

Oil Spill On Shore



Source: NOAA

Growing Oil Slick



Source: NOAA

**Tanker ALVENUS
incident,
Cameron,
Louisiana, July
1984**

Heavy Oil in the Form of a Tar Mat on Beach



Source: NOAA

Boom Contains Oil Spill



Source: NOAA www.oceanservice.noaa.gov/.../welcome.html

Booms like these collect and trap oil to prevent it from reaching the shoreline

Oil Spill Cleanup on Shore

Source: NOAA <http://response.restoration.noaa.gov/kids/spills>



Response Vessels Tow a Boom in Place



Source: NOAA

**Tanker
ALVENUS
incident,
Cameron,
Louisiana, July
1984. Response
vessels towing a
containment
boom in the area
of the ALVENUS.**

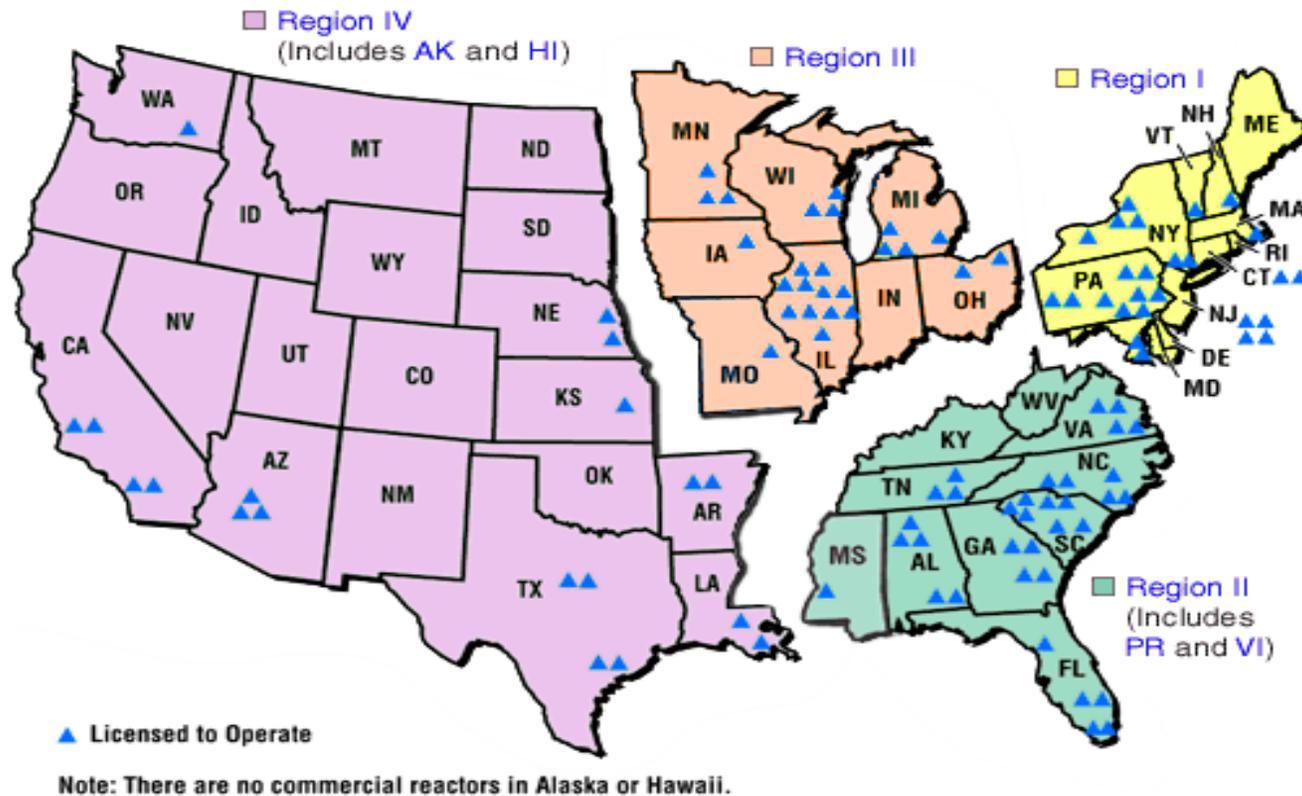
Damage Assessment Following An Oil Spill



Source: NOAA www.oceanservice.noaa.gov/.../welcome.html

**Natural resource
damage assessment is
an essential element in
determining
restoration needs.**

Location of U.S. Nuclear Power Reactors



Source: U.S. Nuclear Regulatory Commission

Nuclear Facility in Coastal Florida

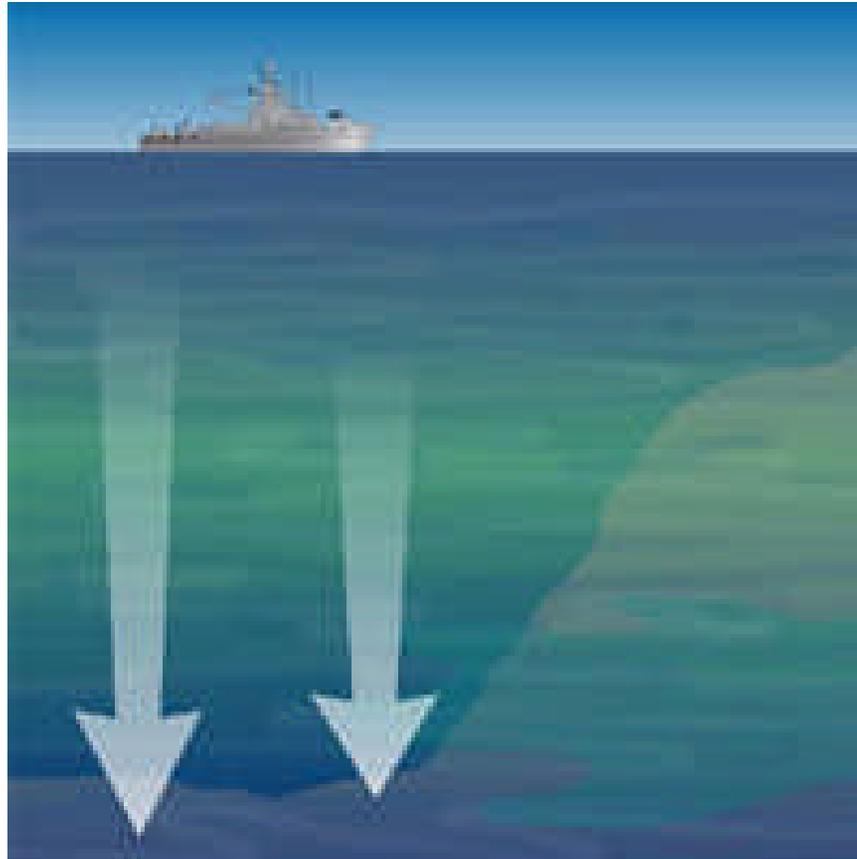


Crystal River 1-3

Photograph by Levy County Emergency Management

Source: www.industcards.com/nuclear-us-southeast.htm

Ocean Floor Disposal of Nuclear Waste



Source: US DOE
<http://www.ocrwm.doe.gov/ym/about/oceanfloor.shtml>

Offshore Wind Farm in Danish Coastal Waters

Source: Danish Trade Council www.um.dk/.../0202/0202/html/chapter03.htm



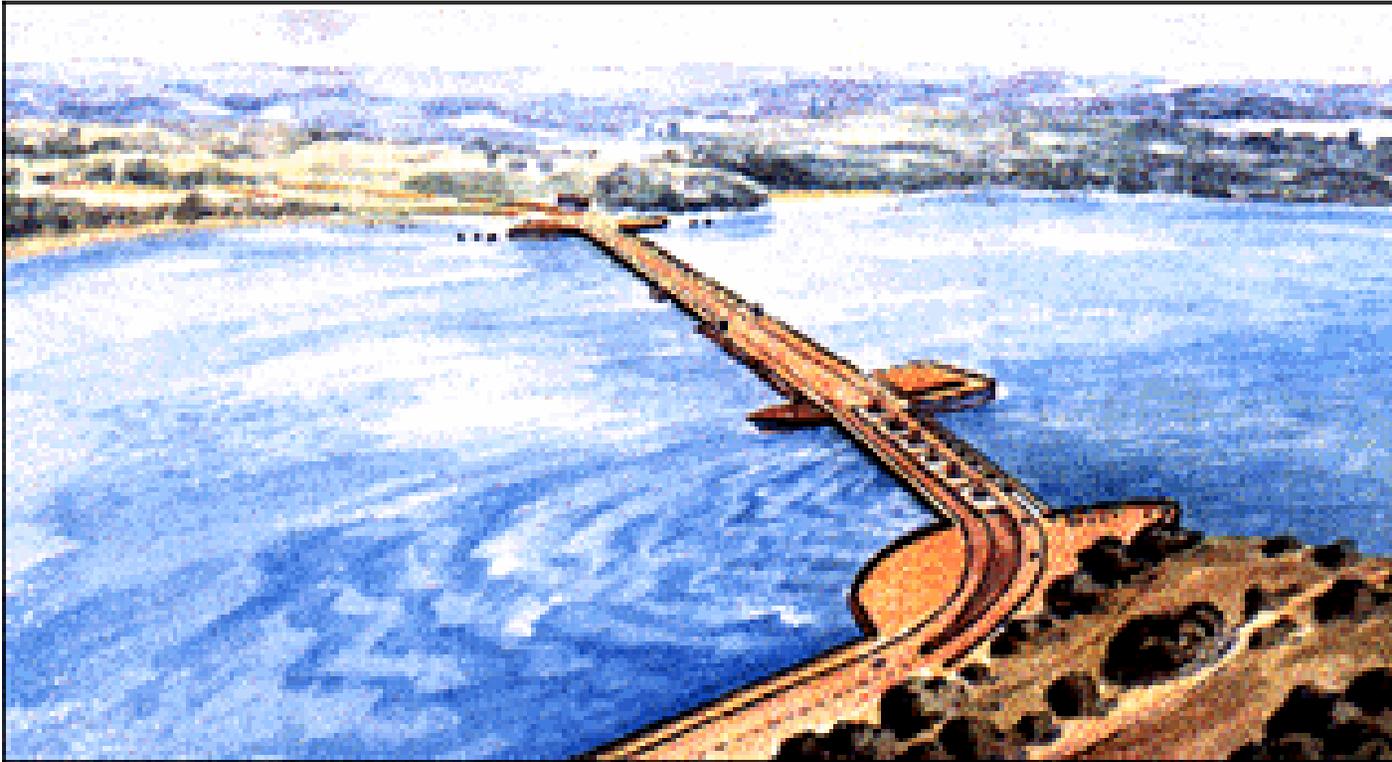
Wave Energy



Source: California Energy Commission

www.energy.ca.gov/development/oceanenergy/

Tidal Energy



Source: UN Atlas of the Oceans

Source: www.oceansatlas.org/cds_static/en/tidal_energ...

Coastal Brownfield



Source: NOAA www.magazine.noaa.gov/stories/mag57.htm

Brownfields are often sites of former industrial facilities



Source: NOAA

<http://www.brownfields.noaa.gov/htmls/portfields/portfields.html>

Surrounding waterways are often impaired in brownfield locations



Source: NOAA: www.magazine.noaa.gov/stories/mag57.htm

Multiple Brownfield Sites in New Bedford, MA

Source: NOAA
http://www.brownfields.noaa.gov/htmls/portfields/pilot_newbed.html



Improved Waterfront Access in Revitalized Coastal Brownfield



Source: NOAA

<http://www.brownfields.noaa.gov/htmls/portfields/portfields.html>

Dredging in New Bedford Harbor Improves Navigation



Source: NOAA

http://www.brownfields.noaa.gov/htmls/portfields/pilot_newbed.html

Trash in Coastal Waters



Source: US EPA

www.epa.gov/owow/oceans/debris/

Debris Hazardous to Marine Animals



Source: US EPA

www.epa.gov/owow/oceans/debris/

Trash Under the Ocean

Source: US EPA www.epa.gov/owow/oceans/debris/



Ocean Dumping from Split Hull Barge



Source: EPA
www.epa.gov/.../mprsa/whatsallowed.html

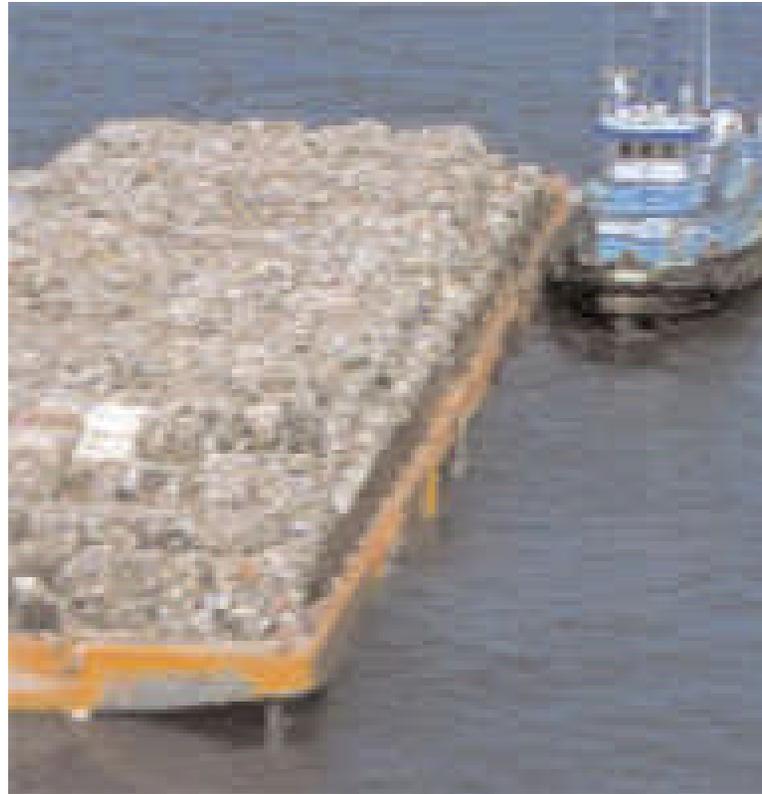
Dumping of Sewage Sludge



Source: US EPA

www.epa.gov/.../regulatory/mprsa/before.html

Garbage Barge



Source: US EPA

www.epa.gov/.../regulatory/mprsa/before.html

Coastal Tourism: Sand, Sea, and Sun



Source: NOAA
<http://spo.nos.noaa.gov/busline/socioeco.html>

Miami Beach, Florida



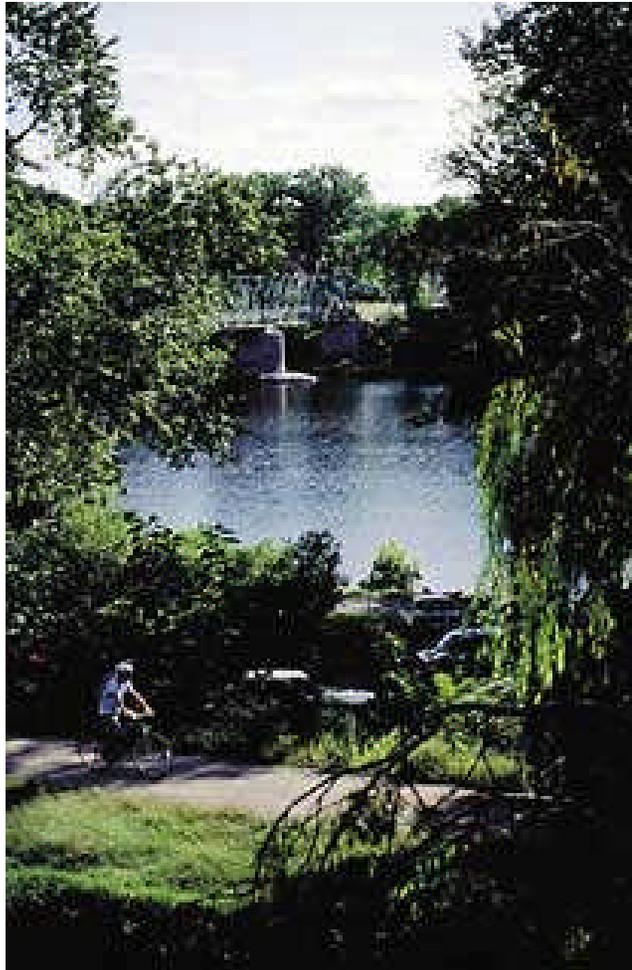
Source: www.miamibeachfl.gov/

Aerial View of Beach at Riis Park with Parking in Background (NY)



Source: Federal Transportation Administration
www.fta.dot.gov/.../NPS/Northeast/Gateway.html

Coastal Ecotourism: Biking



New Jersey's coastal region offers miles of scenic paths and routes for cyclists.

Coastal Ecotourism: Birdwatching



Source: NOAA

www.oar.noaa.gov/.../spot_ecotourism.html

Bird watching
generates millions of
ecotourism dollars in
Cape May, NJ.

Cruise Ship



Source: EPA

The Environmental Protection Agency EPA is developing standards for discharges of sewage and graywater from large cruise ships operating in the waters in and near Alaska.