



Joe Schumacker
Marine Resources Scientist
Quinault Department of Fisheries

Quinault Marine Resources Projects

- Sea Grant Funded Hypoxia Study
- Crab Pot Electronic Monitoring Pilot
- Marine Spatial Planning and Ecosystem Based Management

Seasonal Hypoxia and Razor Clam Recruitment on the Quinault Coast

Documented Fish Kills on the Pt. Grenville Beach



Common Conditions Around Events

- Generally late summer.
- Ocean is calm. Minimal swells and waves.
- Summer NW winds either stop or reverse direction.
- Normally reclusive marine fish appear within river mouths and in refugia on the beaches.



Figure 1. Map of the Olympic Coast National Marine Sanctuary showing shelf and canyon topography off the Washington coast of the United States.

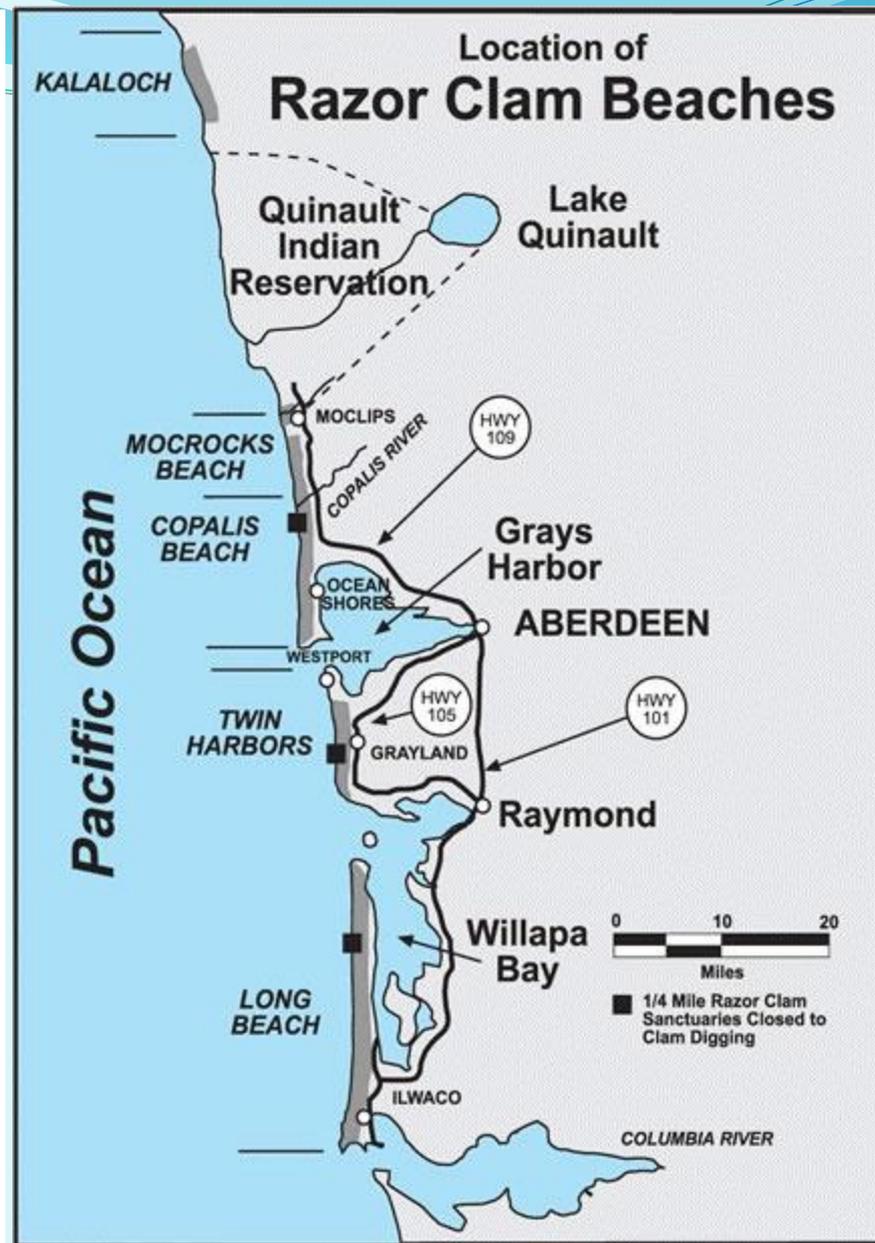
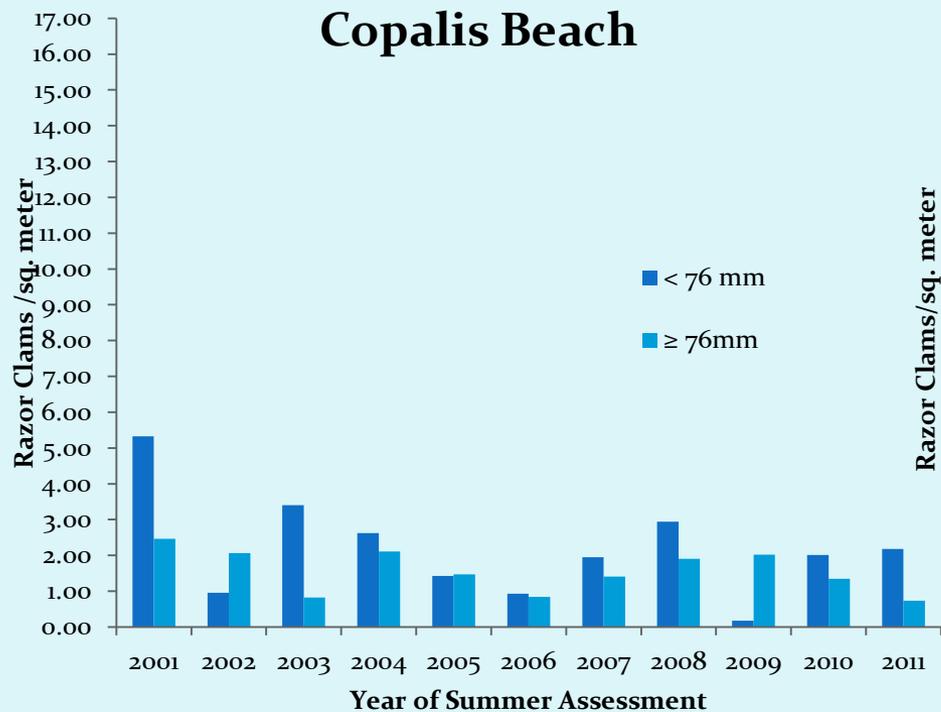
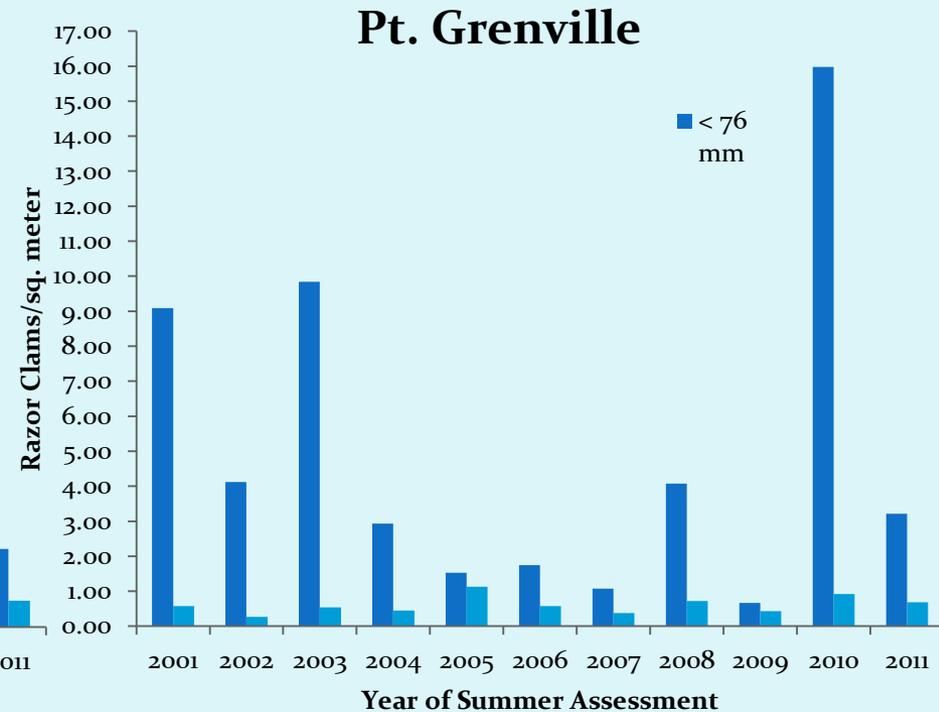


Figure 2. WDFW map of razor clam management beaches

Razor Clam Impacts?



Strong survival of juvenile clams year to year



Very poor survival of juvenile clams year to year

Study Design

- Monitor and Record Dissolved Oxygen, Salinity, Temperature in Nearshore, Onshore and In-River areas adjacent to Pt. Grenville.
- Continual Assessments of Juvenile Razor Clam Density Through Summer Months.
- Analyze Data for Potential Relationships Between Ocean Conditions and Razor Clam Density over Time and Spatial Area.

Hypoxia Study Status

- Ongoing
- Instruments and equipment purchased.
- Crab-pot instrument platforms fabricated (and re-fabricated).
- Taholah School science classes now sampling in-river and onshore.
- Will go through 2015 and beyond.

Crab Pot Electronic Monitoring (EM) Pilot Project

- Contracted with Ecotrust Canada to test feasibility of onboard monitoring of crab fleet and individual crab pots.
- Three Quinault vessels equipped with onboard computers (black boxes), GPS, hydraulic pressure sensors, RFID tag readers and RFID tags.
- Data collected during summer months thus far. Little crabbing activity during that time.
- Pilot to continue through January 2015. Then evaluate for installation in fleet.

Goals of Crab EM Project

- To limit illegal activity at-sea during crab season.
- To effectively track where pots have been deployed.
- To track numbers of pots in use more precisely.
- To gain better biological information on crab population, trends and movements.

Quinault Marine Spatial Planning (MSP)

- Lack of funding delayed planning activities until now (summer 2014).
- NOAA award for two years, cut to one year.
- Quinault contractor now compiling most recent marine data from available, vetted, sources to create Quinault GIS catalog of treaty ocean area and beyond.
 - Bathymetry, biogenic structure, species distributions, human uses (including fisheries), oceanographic data, cultural resources.
- Delivery scheduled for Spring 2015.

Goals of Quinault MSP

- To participate fully in ongoing State and Federal planning exercises.
- To protect the treaty rights of the Quinault Indian Nation.
- To avoid conflicting uses of the ocean in advance.
- To use this opportunity to gather comprehensive information on the treaty ocean area for use in future management and to update it as practicable.
- To begin Ecosystem-Based Management of Quinault Treaty Resources.

Thanks!

