The Pacific Coast Region: Potential Solutions to Lingering Compliance Issues and Industry Concerns

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2003 Marine Invasive Species Act


2004-2005: Coastal Exchange regulations developed with Technical and Scientific Advisory Groups
Management (effective March 22, 2006):

- Pub. Resource Code section 71204.3 and Title 2 CA Code section 2284.
- Arrivals from within: Exchange greater than 50 NM from land, in waters at least 200 m deep.
- Arrivals from outside: Exchange greater than 200 NM from land, in waters at least 2,000 m deep.
71204.3.
(a) The commission shall adopt regulations governing ballast water management practices for vessels arriving at a California port from a port outside of the Pacific Coast Region.

“The commission may modify these boundaries through regulation if the proponent for the boundary modification presents substantial scientific evidence that the proposed modification is equally or more effective at preventing the introduction of nonindigenous species through vessel vectors as the boundaries described herein.”
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Solutions?
Spalding et al. (2007) developed the Marine Ecosystems of the World (MEOW)

Hierarchical system based on
• Taxonomic configurations
• Evolutionary history
• Patterns of dispersal
• Isolation

Nested system of
• 12 realms
• 62 provinces
• 232 ecoregions
Large regions of coastal, benthic, or pelagic oceans

Biotas are similar at higher taxonomic levels, as a result of a shared and unique evolutionary history.

Realms have high levels of endemism, especially at generic and family levels.

Factors behind the development of such unique biotas include water temperature, historical isolation, and the proximity of the benthos.
- Large areas defined by the presence of distinct biotas that have at least some cohesion over evolutionary time frames.
- Hold some level of endemism, principally at the level of species.
- Distinctive abiotic features, including geomorphological features (isolated island and shelf systems, semi-enclosed seas); hydrographic features (currents, upwellings, ice dynamics); or geochemical influences (broadest-scale elements of nutrient supply and salinity).
Areas of relatively homogeneous species composition, clearly distinct from adjacent systems. The species composition is likely to be determined by the predominance of a small number of ecosystems and/or a distinct suite of oceanographic or topographic features. The dominant biogeographic forcing agents defining the ecoregions may include isolation, upwelling, nutrient inputs, freshwater influx, temperature regimes, ice regimes, exposure, sediments, currents, and bathymetric or coastal complexity.
Ecoregions

- Gulf of Alaska
- North American Pacific Fjordland
- Puget Trough
- OR, WA, VAN coast and shelf
- Northern California
- Southern CA Blight
- Cortezlan
- Magdelena Transition
- Clipperton
- Revillagigedos
CA Legislature defined the PCR, in part, from the findings of the 2003 report by Barth and Hickey

- Reviewed nearshore water movement features to inform ballast water management policy

3 Recommendations:

- Avoid specified retention zones located ~50 NM to land

- Discharge in waters more than 1,000 meters deep has a relatively low probability of reaching shore (probability increases with discharge in water less than 200 m deep)

- Seasonal fluctuations of currents and retentions zones should be considered
Require an alternative minimum distance and depth for vessels departing from Central Mexico/Gulf of California?

- 200 NM and 2,000 m?
- 200 NM and 1,000 m?
- 100 NM and 1,000 m?
- 100 NM and 500 m?
- 50 NM and 200 m?
  - Current EPA VGP requirement for all Pacific coastal voyages
Questions?

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