



California Coast Surveys of Non-Indigenous Aquatic Species (NIS)



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1) What is the Marine Invasive Species Program?

We conduct biological surveys to monitor the level of invasion in the coastal and estuarine waters of the state for new introductions to determine the effectiveness of ballast water control measures. As well as, maintaining a comprehensive database, CANOD, of non-indigenous species occurrences.

2) Organism Categories

Introductions
 Not native to California

Cryptogenic
 Neither demonstratively native or introduced

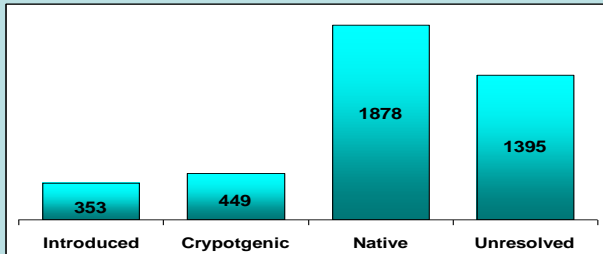
Unresolved
 Not identified to species level

Native
 Native to California

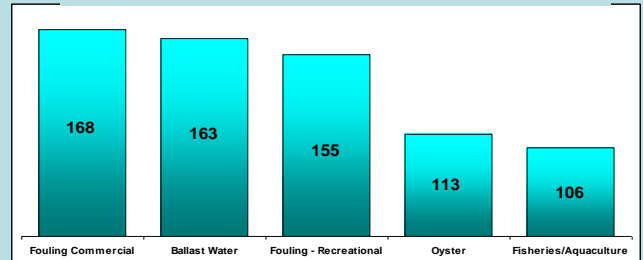
3) Outer Coast and Bays & Harbor Sampling Sites



4) Statewide Totals of Taxa per Classification



5) Top 5 Vectors of Introduction per Species



6) Monitoring Timeline

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
B&H	B&H														
OC					OC										
SF Bay						SF Bay									
B&H							B&H								
OC								OC							
SF Bay										SF Bay					
Bay's & Harbor Survey	Bay's & Harbor Survey											B&H			
Outer Coast Survey														OC	
San Francisco Survey															

7) Additional Research

•Settling Plate Study

MLMLs and SERC are conducting a survey of NIS in CA to establish detection, baseline measures and the efficacy of exhaustive DNA sequence analysis.

•Vector Study

MLMLs is examining the relationship between shipping traffic patterns along the CA coast and occurrence of NIS likely introduced via shipping vectors.

•Halichondria Sponge DNA Study

Prof. Jonathan Geller from MLML conducted a study on the diversity and geographic origins of sponges in the genus Halichondria in California.

•Species Distribution Study

Through literature research, MLMLs is writing a report to determine the NIS distribution in CA water as well as secondary spread of NIS within CA.



European green crab (Carcinus maenas) Photo: Interagency Ecological Program