



Does Doing Donuts in the Ocean Remove Biofouling?

Pacific Ballast Water and Biofouling Group | April 30, 2025

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Lands Commission



TOPICS

1. Setting
2. Problem
3. Solution?
4. Did it work?



Setting: Automated LB Terminal 2015-2016



- Long Beach Container Terminal
 - Fully automated (planned)
 - Automated cranes (planned)
 - Automated trucks
 - Automated 2° cranes
 - Automated rail
- Not yet open
 - Testing automation
 - Test ship

Problem: Test Vessel

Test vessel idle at berth for approx. 6 months

BIOFOULING
2020, VOL. 36, NO. 4, 455-466
<https://doi.org/10.1080/08927014.2020.1769612>



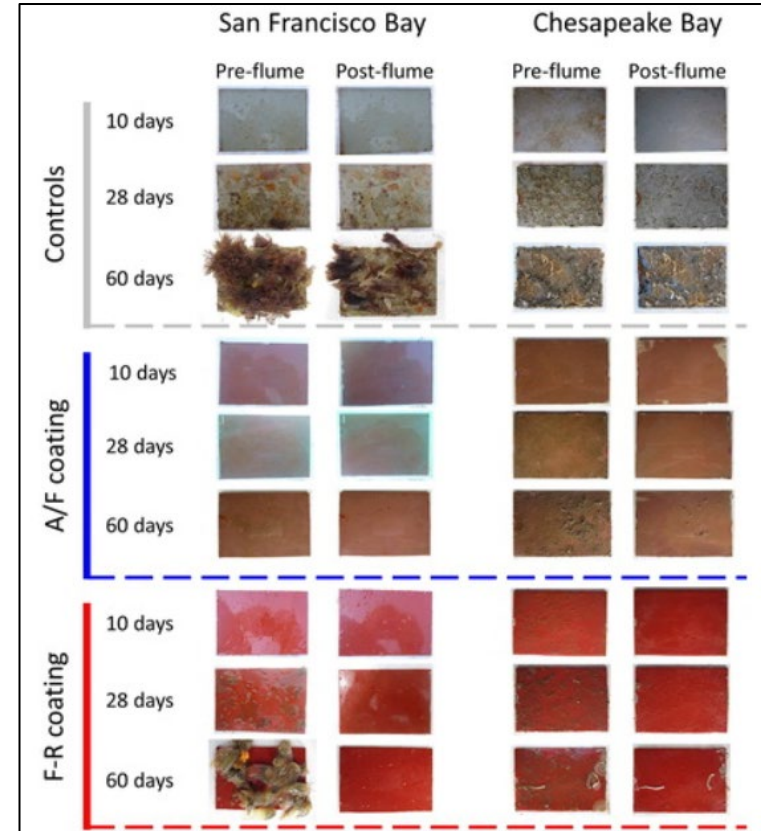
OPEN ACCESS Check for updates

An experimental test of stationary lay-up periods and simulated transit on biofouling accumulation and transfer on ships

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<https://www.tandfonline.com/doi/full/10.1080/08927014.2020.1769612>



Solution?



Data CSUMB SFML, CA OPC
Data USGS
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Data LDEO-Columbia, NSF, NOAA

Google Earth

Imagery Date: 12/31/2020 33°30'18.37" N 118°05'28.54" W elev -1407 ft eye alt 48.42 mi

Initial Survey: 5 October 2015

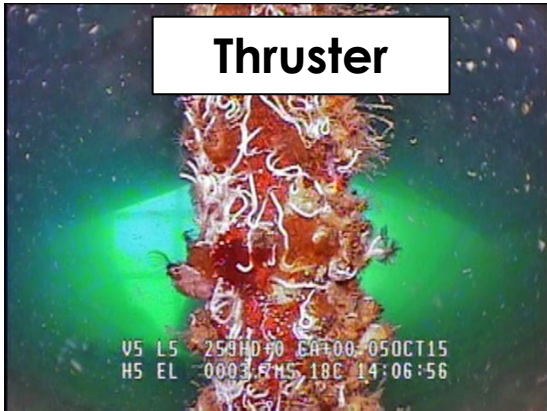
Bulbous bow



Rudder Hinge Gap



Thruster



Hull side



Mid Survey: 16 December 2015

Rudder hinge gap



Rudder trailing edge



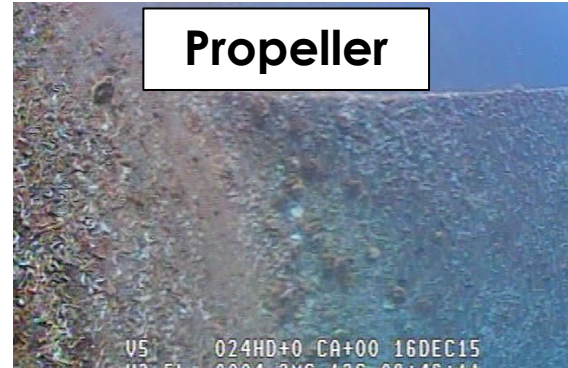
Hull side



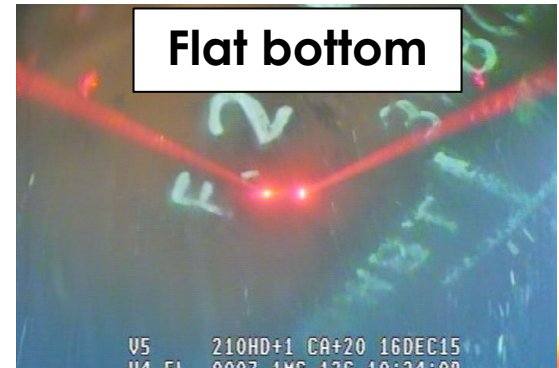
Thruster



Propeller



Flat bottom



End Survey: 18 February 2016

Rudder hinge gap



Rudder trailing edge



Hull side



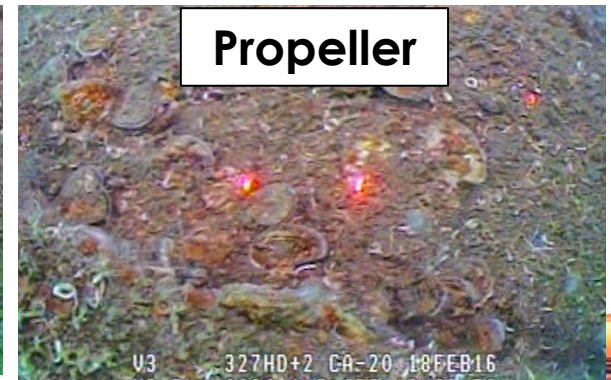
Thruster



Propeller



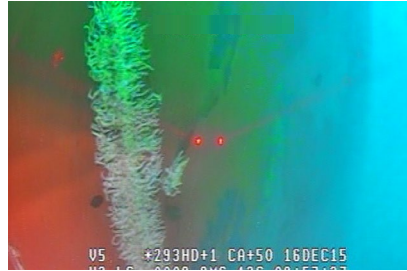
Propeller



Did it work?

Qualitatively: Kind of for the “flat surfaces (hull side and flat bottom)”

- Still issues with weld seams and painted numbers/symbols



Qualitatively: Absolutely not for damaged surfaces (bulbous bow) and niches (thrusters, rudders, propellers)





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THANK YOU & QUESTIONS

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