

Ecological and biogeographic insights from the 2011 Japanese Tsunami Marine Debris (JTMD)

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Research Day 2018

Funding organizations and Research partners:

Ministry of Environment Japan (Funding)
PICES (North Pacific Marine Science Organization) (Funding)
Carlton Laboratory, Williams-Mystic Maritime Studies Program
Royal Ontario Museum
Hatfield Marine Science Center, Oregon State University
Moss Landing Marine Laboratories, CA



Tsunami-driven species dispersal

- Rafting
- Biodiversity characterization
- Non-indigenous species introduction



Key observations and questions

- Multi-year, multiple trajectories; not A to B
- Diversity per object declined over time
- Longevity, multiple generations

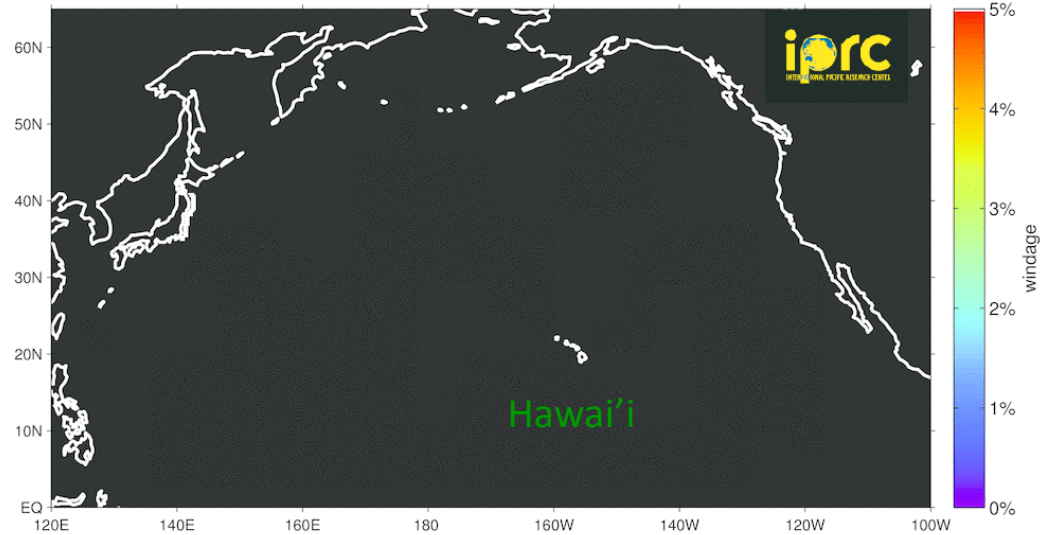
• >289 Japanese coastal species, living, some new records for Japan

• 85% in 5 invertebrate groups

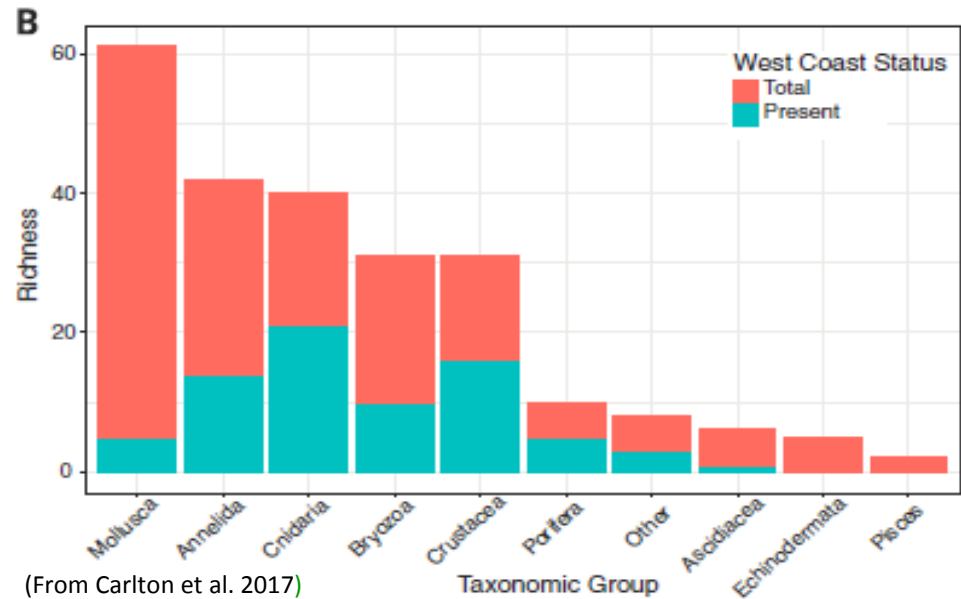
• Anthropogenic debris persists

• Invasions?

2011-03-10



Source: Maximenko & Hafner, IPRC/SOEST, Univ. of Hawaii



(From Carlton et al. 2017)

Ongoing research and JTMD legacy

PICES JTMD species database

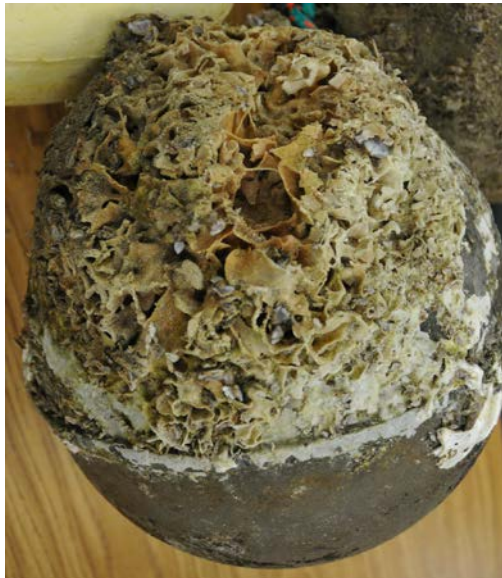
Smithsonian Institution online portal

NEMESIS

Genetic profiles

Match against future invasions

JTMD biodiversity archive at the
Royal BC Museum-over 650 registered
JTMD items->more than 1,000
individual samples



Systematic work

80 taxonomists from 13

Countries- only 5 in North America:

- 1) Smithsonian (1)
- 2) Bishop Museum (1)
- 3) California Academy of Science (x2)
- 4) Royal BC Museum (1)

