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Salish Sea Ecosystem Conference

2022 Salish Sea Ecosystem Conference
(Online)

Apr 27th, 4:00 PM - 4:30 PM

How does stuff wash ashore in the Salish Sea?

Rich Pawlowicz
University Of British Columbia

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Pawlowicz, Rich, "How does stuff wash ashore in the Salish Sea?" (2022). *Salish Sea Ecosystem Conference*. 79.

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Rich Pawlowicz, Dept. of Earth, Ocean and Atmospheric Sciences, University of British Columbia...wonders:

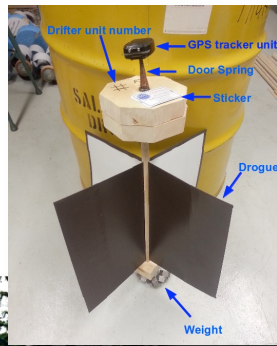
Q: How does stuff wash ashore in the Salish Sea?



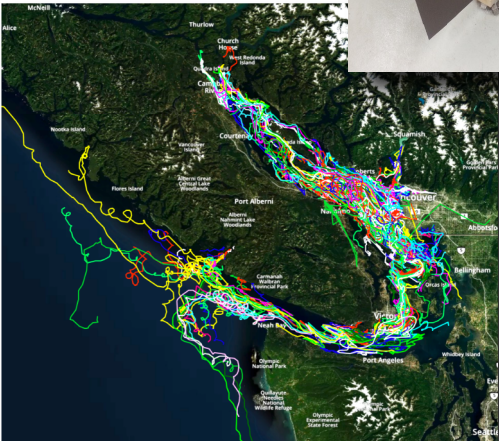
Like this stuff. Logs. Plastic (large and small). Feet. Oil. Other weird things.

Methods:

Make these cheap satellite tracked expendable drifters:



...And deploy lots of them (3×10^5 recorded positions, including where they ground)



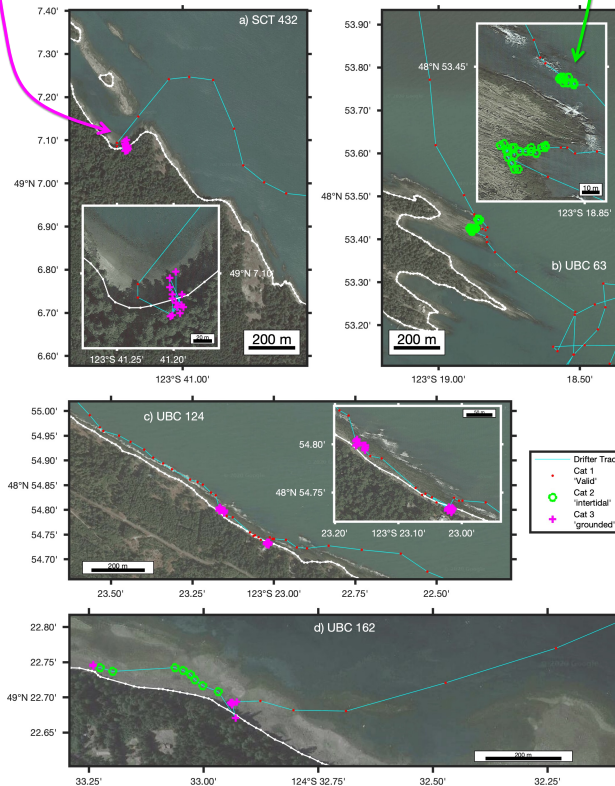
Next...CAREFULLY analyze the tracks by overplotting on high-resolution satellite imagery.

DISCOVER:

-High resolutions coastlines aren't good enough for this: you need the satellite imagery (e.g., Google Maps)

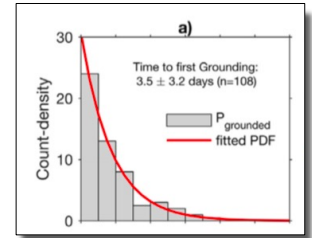
-“grounding” is sometimes not easy to define. Classify points as:

1. Freely Floating
2. Mostly floating but touching land
3. Mostly or fully grounded
4. Bad position fix
5. Being carried by someone or something

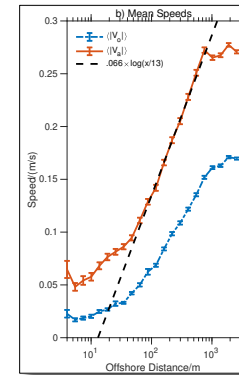
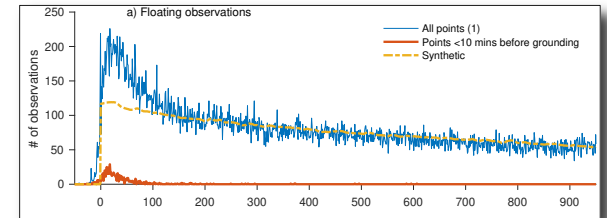


A: Some interesting statistical findings for the Salish Sea:

1. Drifter ground in 2-4 days on average from “offshore” deployment (but with a long-tailed exponential distribution)



2. Floating drifters tend to concentrate within 100m of the shore



3. There is a “coastal log-layer”; drifter speeds in the along and across-shore direction decrease logarithmically as we approach land but there is a lower limit within 50m of shore

...Lots more has been found (see references below), and there is still much more to find with this dataset!

For more info....

Pawlowicz, Hannah, Rosenberger (2019) *Lagrangian observations of estuarine residence times, dispersion, and trapping in the Salish Sea*, Est. Coast. Shelf Sci., 215.

Pawlowicz, (2021), *The Grounding of Floating Objects in a Marginal Sea*, J. Physical Oceanography 51, 537-551.



Thanks to...

