Considerations for using POP data in evaluating SSL habitat use

- Garbage in garbage out?
- Did Boor overcome the problems with POP data?
- Parsing the data.

Garbage In, Garbage Out?

NMML Nov. 2012:

"As a reminder, POP sightings data are opportunistically collected by observers aboard (various) vessels…Thus, POP data cannot be used to infer abundance, or even indexes of abundance using traditional methods of population assessment. Apparent gaps in distributions of animals may simply reflect a lack of effort or lack of reporting of sightings in that area."

NMFS Response to Comments, Sept. 2013:

"The POP data provides limited information on the locations of marine mammals during observed fishing activities. For these reasons the POP data is not used in the method to analyze the effects of the alternatives in Section 5.2.2.2."

Did Boor, et al, find the treasure in the trash?

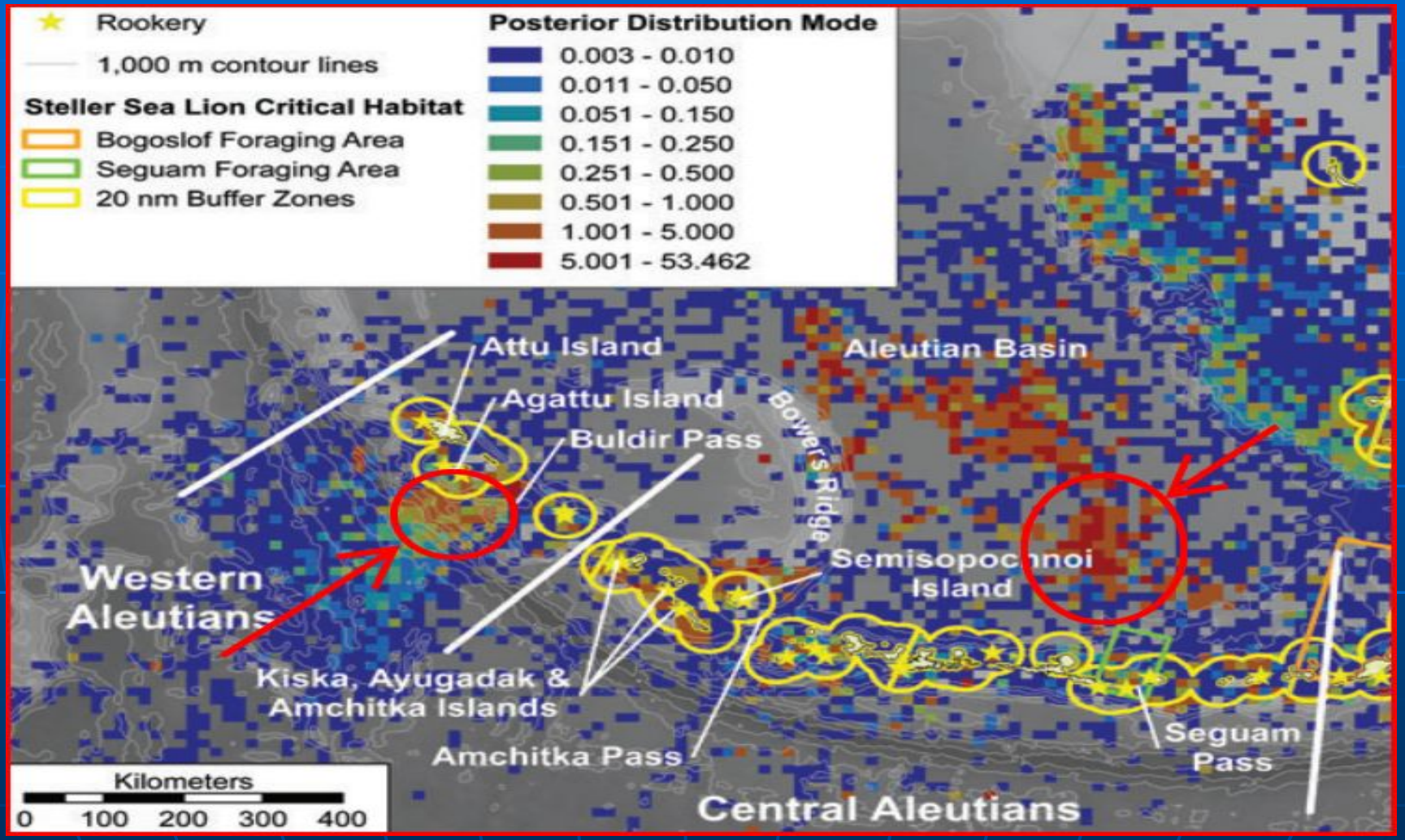
NMFS Response to Comments 5-7, 5-8, 5-52, Sept. 2013:

"Himes Boor and Small (2012) describe in great detail their rigorous approach to derive effort-corrected data from the POP dataset, and discuss effects of sparse or missing data, how encounter rate values should be interpreted, and potential biases associated with their model assumptions. The conclusions of Himes Boor and Small (2012) are supported by their study methodology and results."

Boor, et al, Abstract

"... a novel approach was used to overcome the lack of effort data through development of an effort index and a Bayesian negative binomial model...The results of this analysis identify several previously undocumented areas of high use by Steller sea lions, indicate that only 37% of Steller sea lion high-use areas fall within designated critical habitat..."

Platform of Opportunity Data - Boor, et al

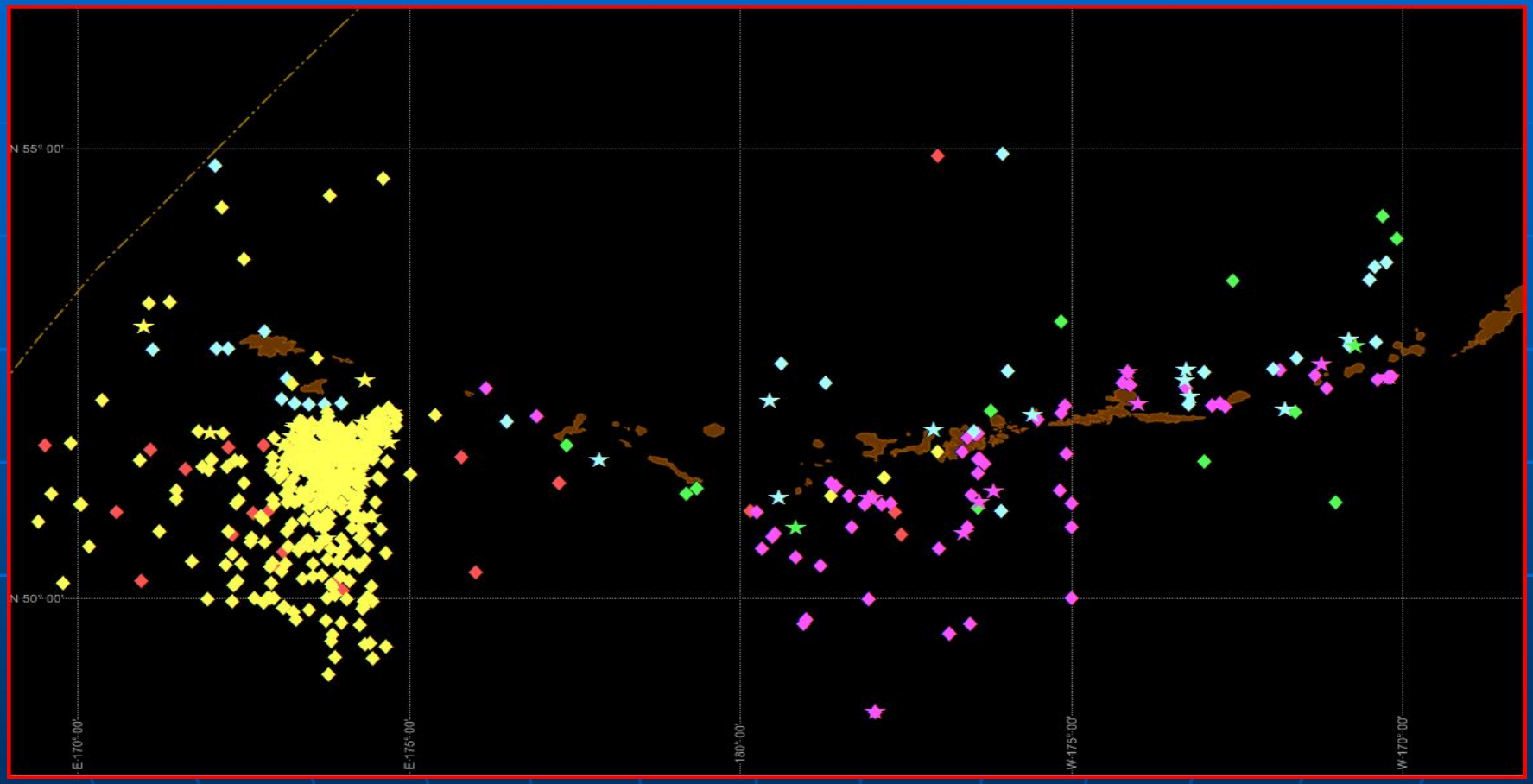


"...previously undocumented areas of high use by Steller sea lions"

Are All Observations Equal?
(if not, can they be made so by a model?)

- Foreign Drift Net Fleet - 1980's
- Foreign Trawl Fleet -1980's
- Domestic Trawl Fleet
  - Pollock
  - CVs
  - CPs
  - 1990's
  - 2000's
  - H&G
- Domestic Longline CPs
- Research Survey Vessels
- Other

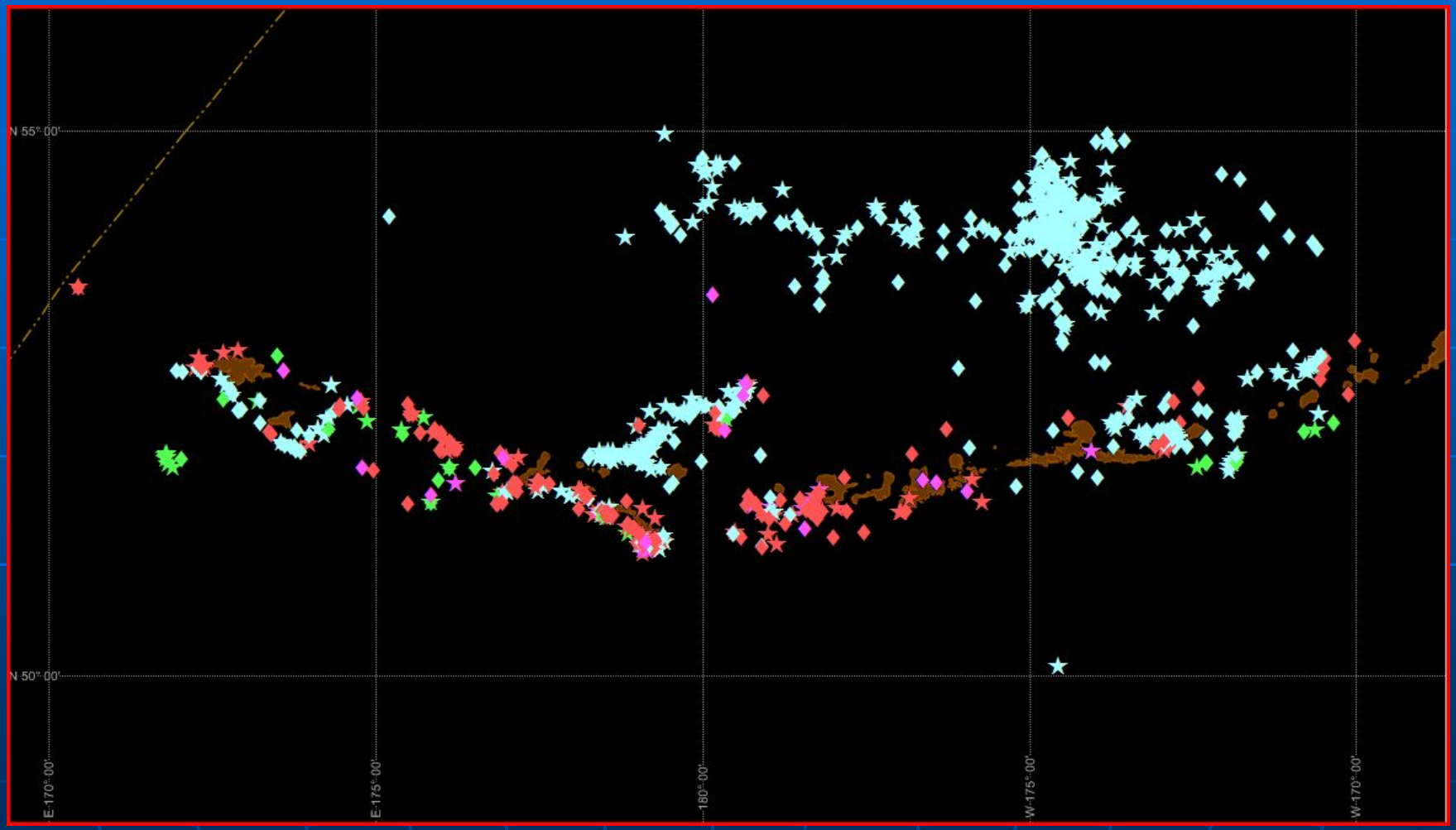
Platform of Opportunity Data
By Non-Fisheries Observers in the Aleutians



Yellow=Japanese Salmon Driftnet Fleet, Red= Japanese Research,
Purple=NMML, Green=NMFS Blue=Coast Guard,
614 records (608 before 1990)

Platform of Opportunity Data

By Fisheries Observers in the Aleutians 1977 – 2011

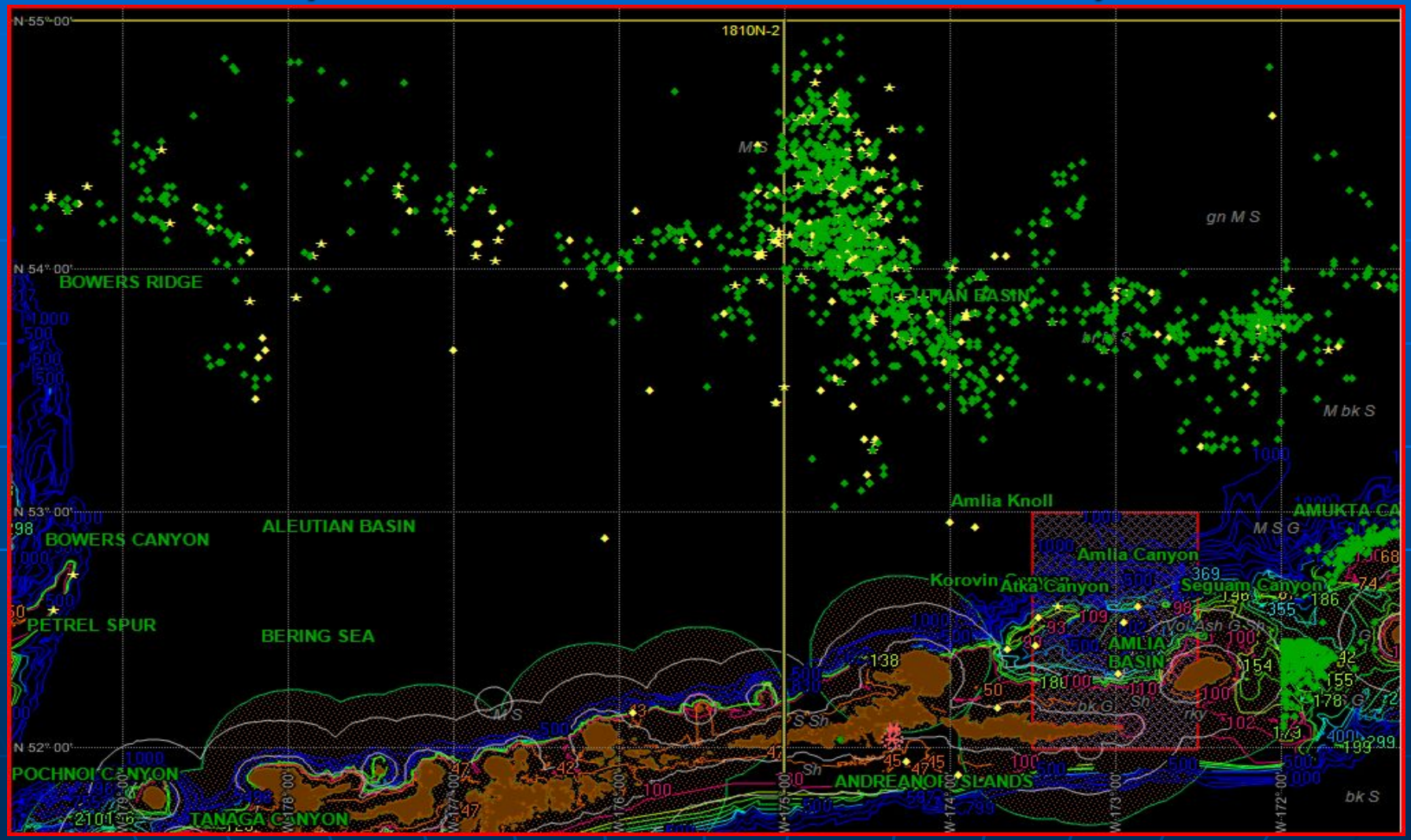


Blue = 1977 & 1980's (726 records)

Red = 1990's (193 records) Green = 2000's (28 records)

Platform of Opportunity Data

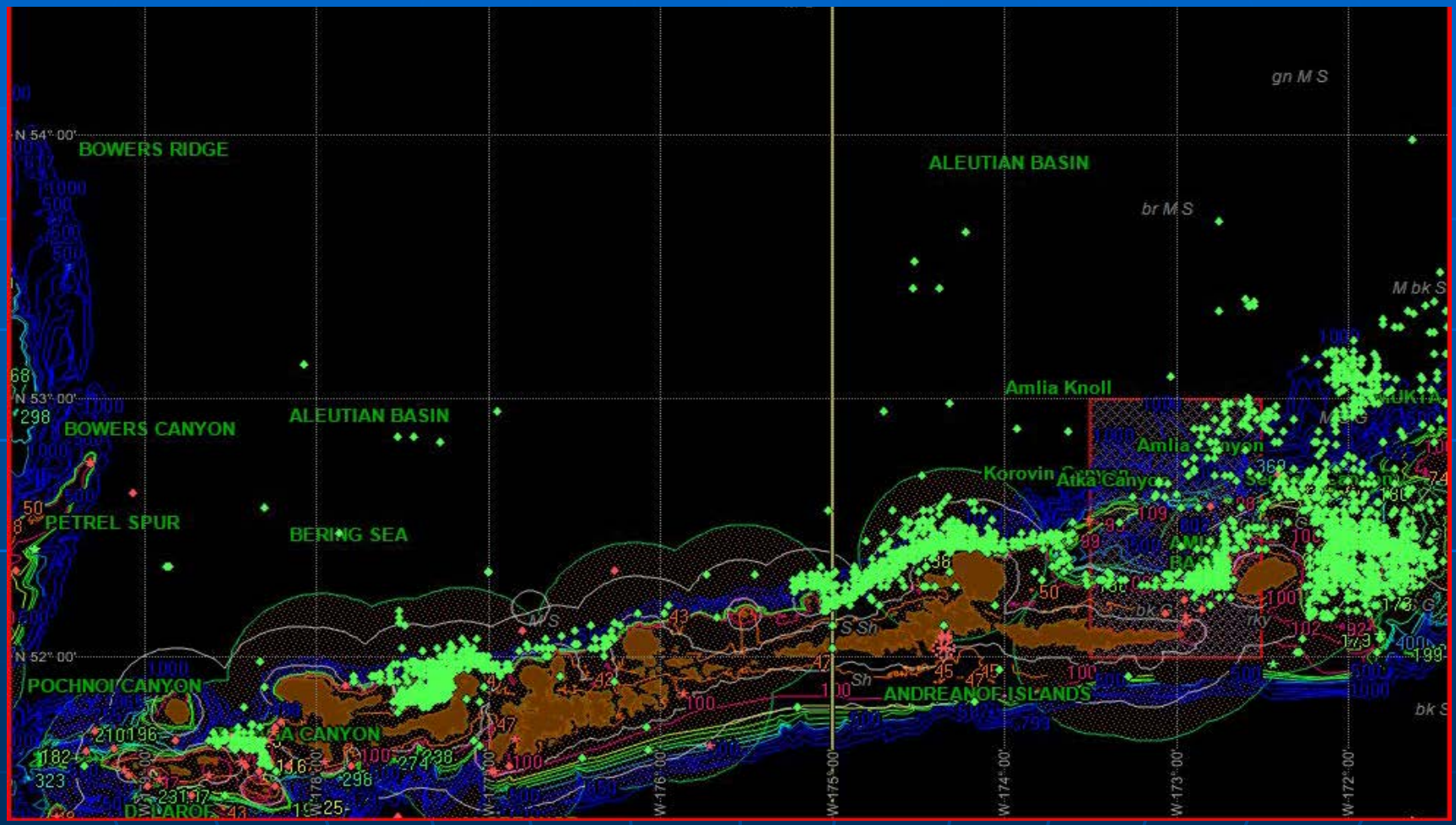
Where you look determines what you see



Yellow = 1984 SSL sightings Green =1984 Observed Pollock Hauls

Platform of Opportunity Data

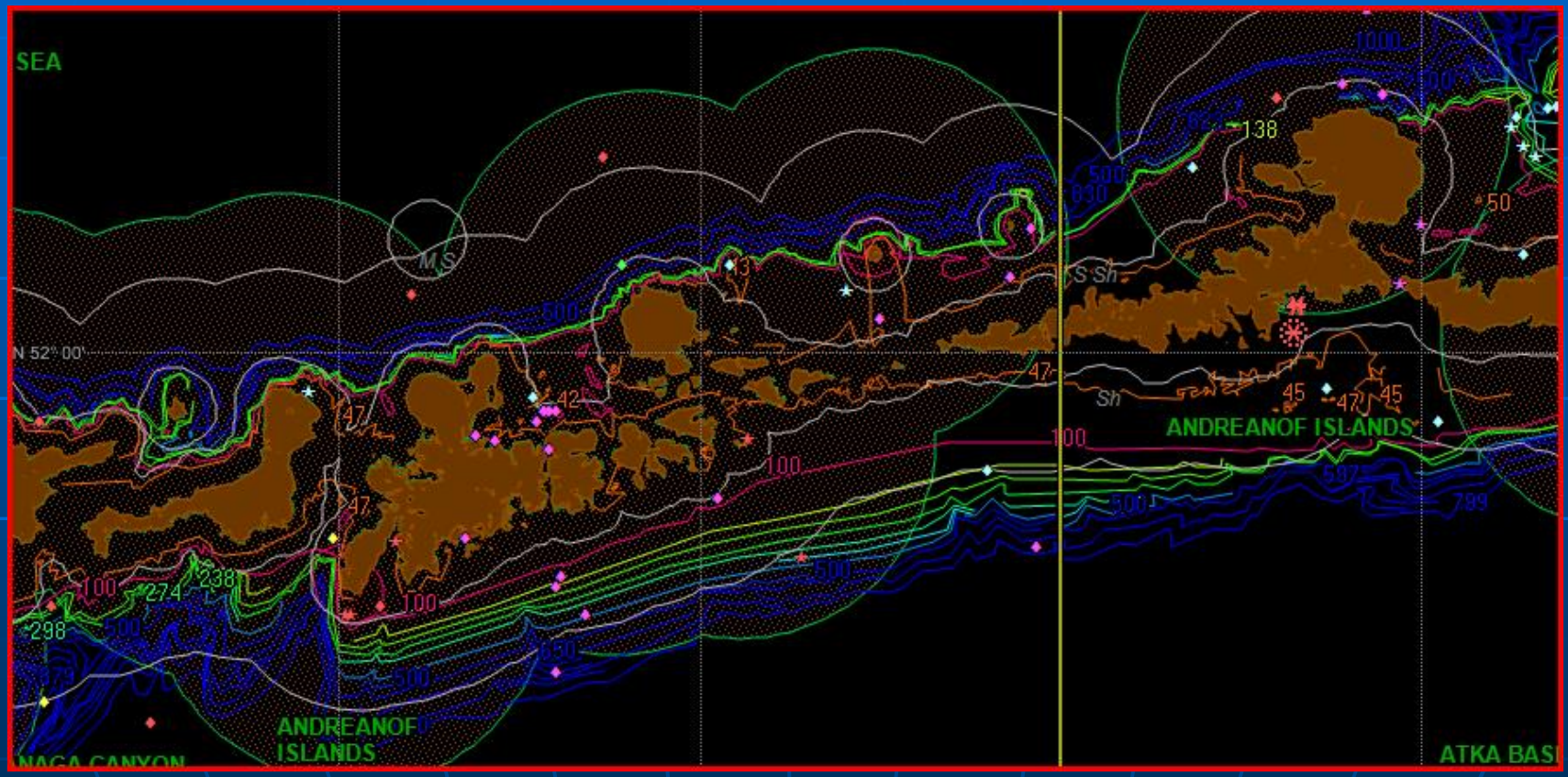
Where you look determines what you see



1990's Domestic Pollock Trawl Locations in Green

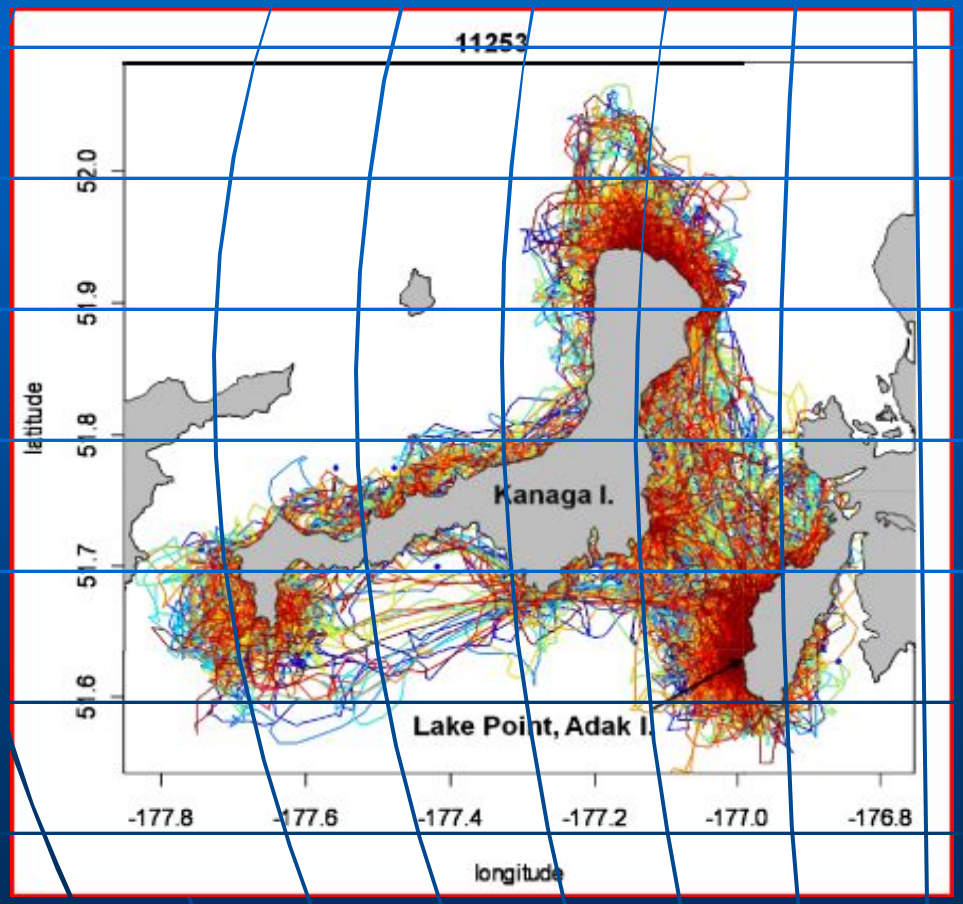
Platform of Opportunity Data

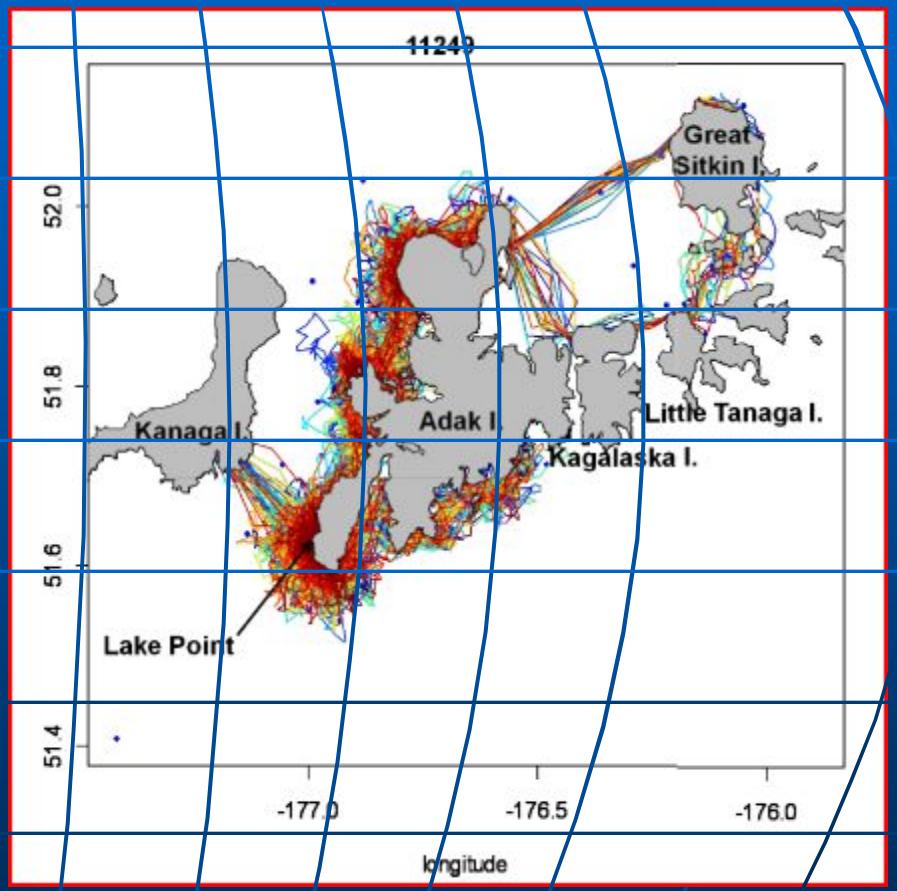
When you look determines what you see



- All SSL sighting 1977 to 2011 by fishery observers in the Andreanofs.
- Would the Boor, et al, model conclude this is a low use area?

Telemetry in the Andreanofs

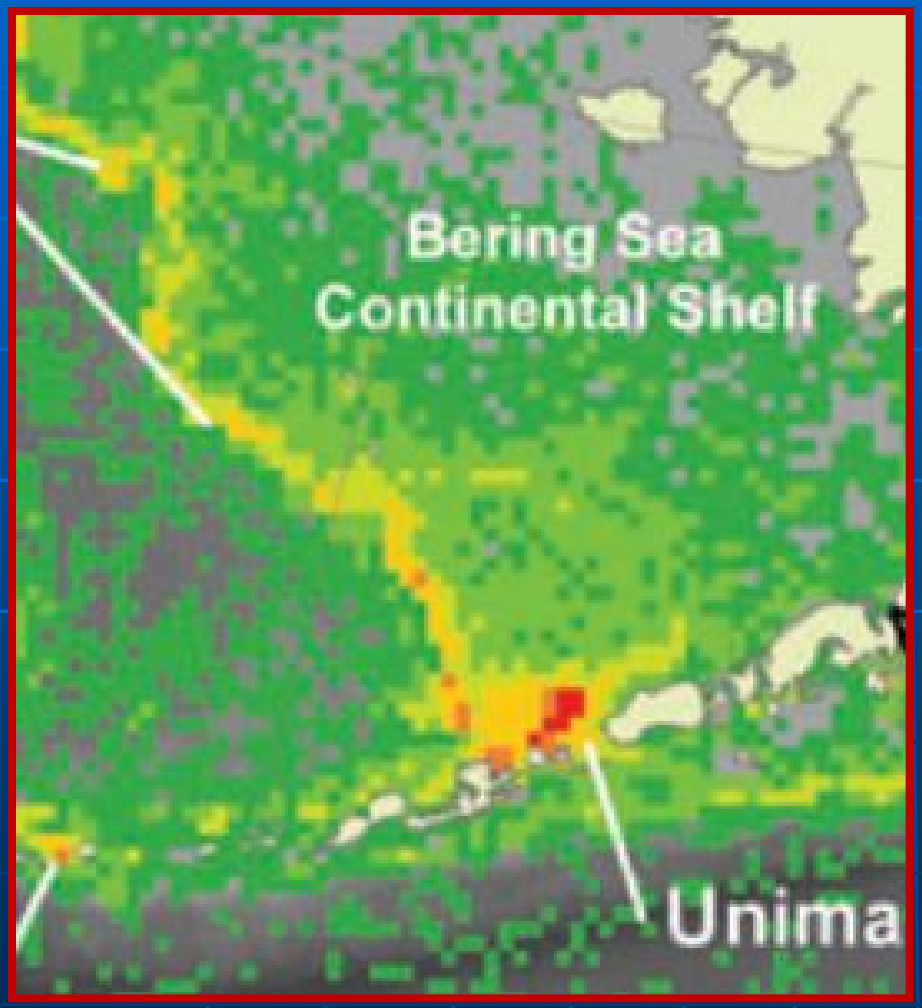


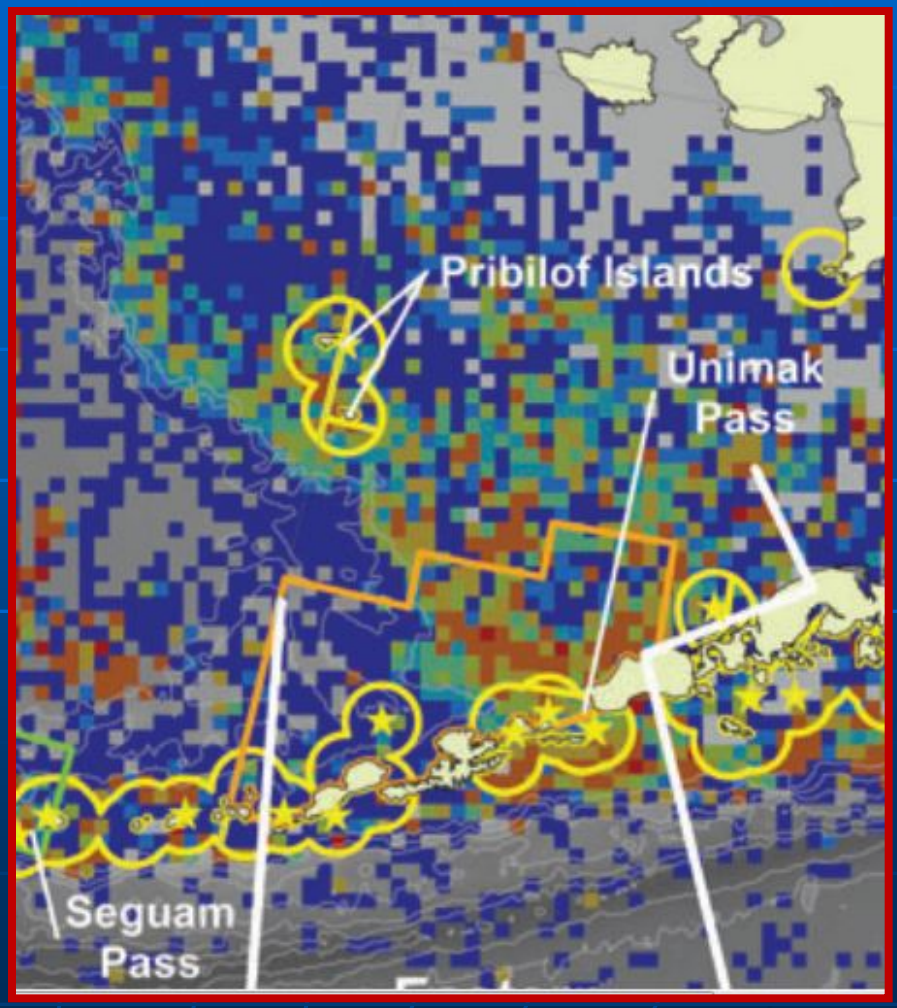


Figures from *Lander 2011*, displaying the data also analyzed in *Fadely 2010*, show typical juvenile behaviour during the winter.

Sighting “Effort” vs Sighting “Density”

Where you look determines what you see





- Boor’s “discovery” of high use areas

Parsing the Data

- *"...observations must be effort-corrected..." (Boor, et al)*
- *"If no platform-days occurred (i.e., no marine mammals were observed) in a given cell, it was considered to be unsurveyed. Unsurveyed cells did not provide any information about presence or absence of Steller sea lions and were therefore excluded from the analysis." (Boor, et al)*
- Why not assume that a platform/observer had an equal likelihood of making a sighting on days with and without a marine mammal encounter?
- If POP data is to be used, each discreet platform type should be analyzed separately and "zero's" treated as data.

Utility of POP Data

"As a reminder, POP sightings data are opportunistically collected by observers aboard NOAA, Navy, USCG vessels, some fishing and tourist vessels, and certain aircraft. Whether sightings are reported is dependent upon the interest of the observer and the observer's workload. Thus, POP data cannot be used to infer abundance, or even indexes of abundance using traditional methods of population assessment. Apparent gaps in the distributions of animals may simply reflect a lack of effort or lack of reporting of sightings in that area."

Robyn Angliss, Deputy Director, NMML