

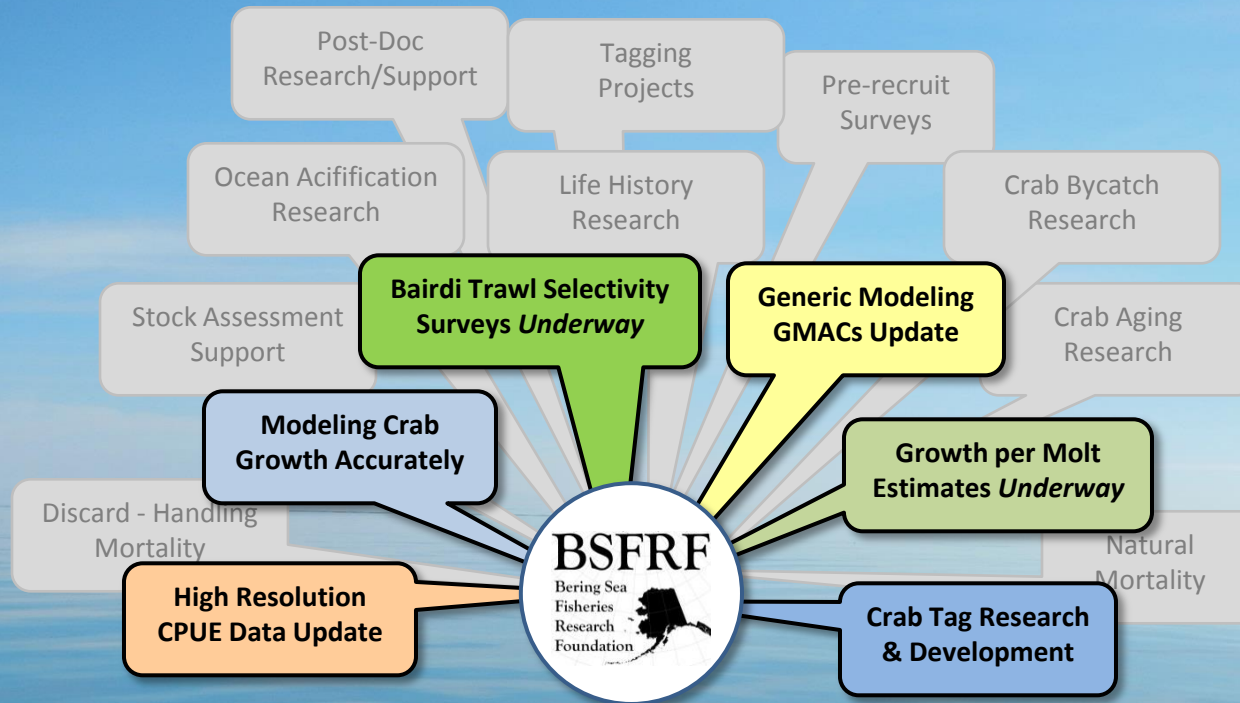
BSFRF Research Update – Focus on Bairdi Surveys CPT – September 2017



Scott Goodman, BSFRF

Cooperative BSFRF Trawl Surveys
Side by Side w/ NMFS Charters

BSFRF Research



Who We Are...

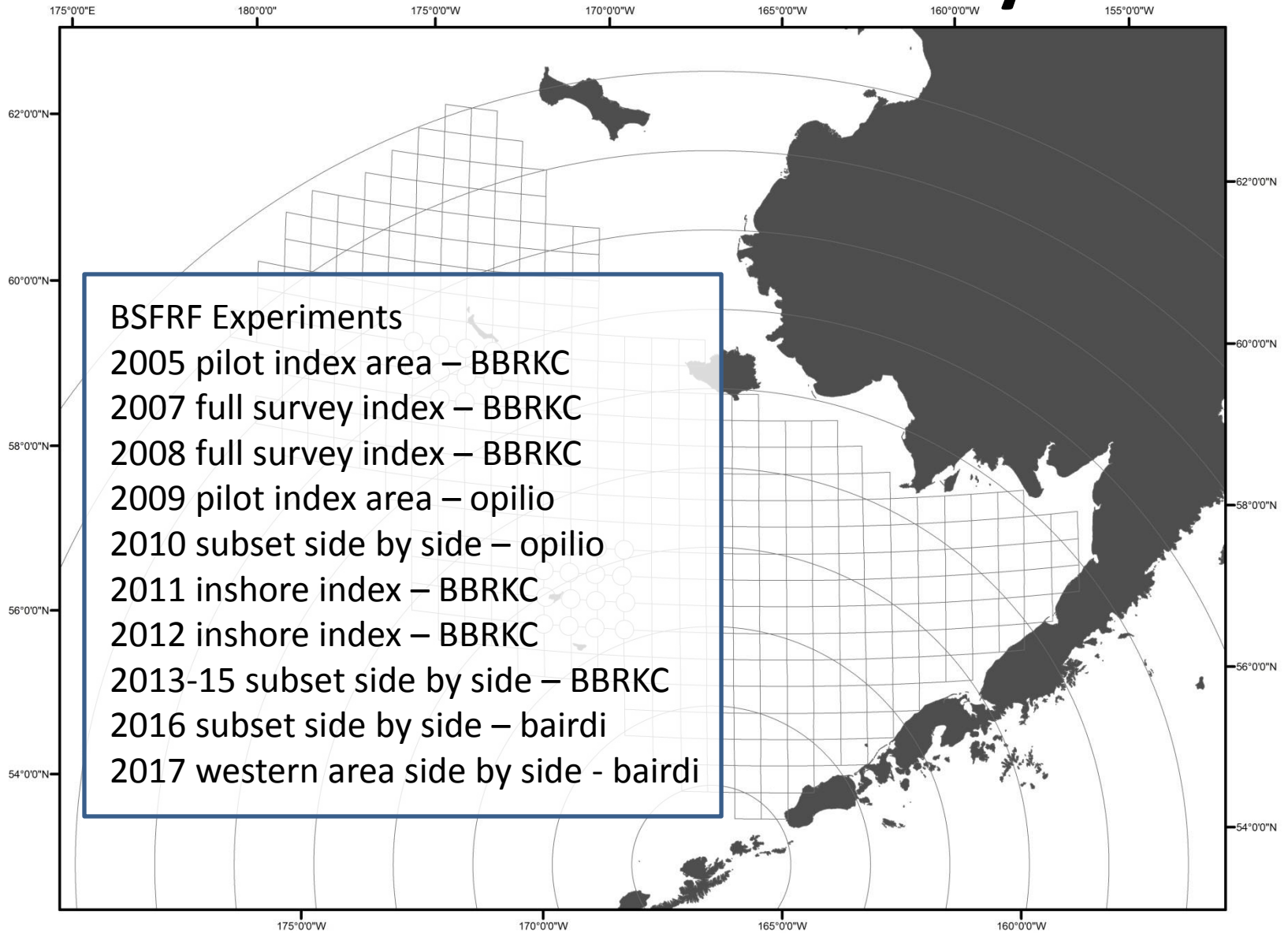
Harvesters - Processors



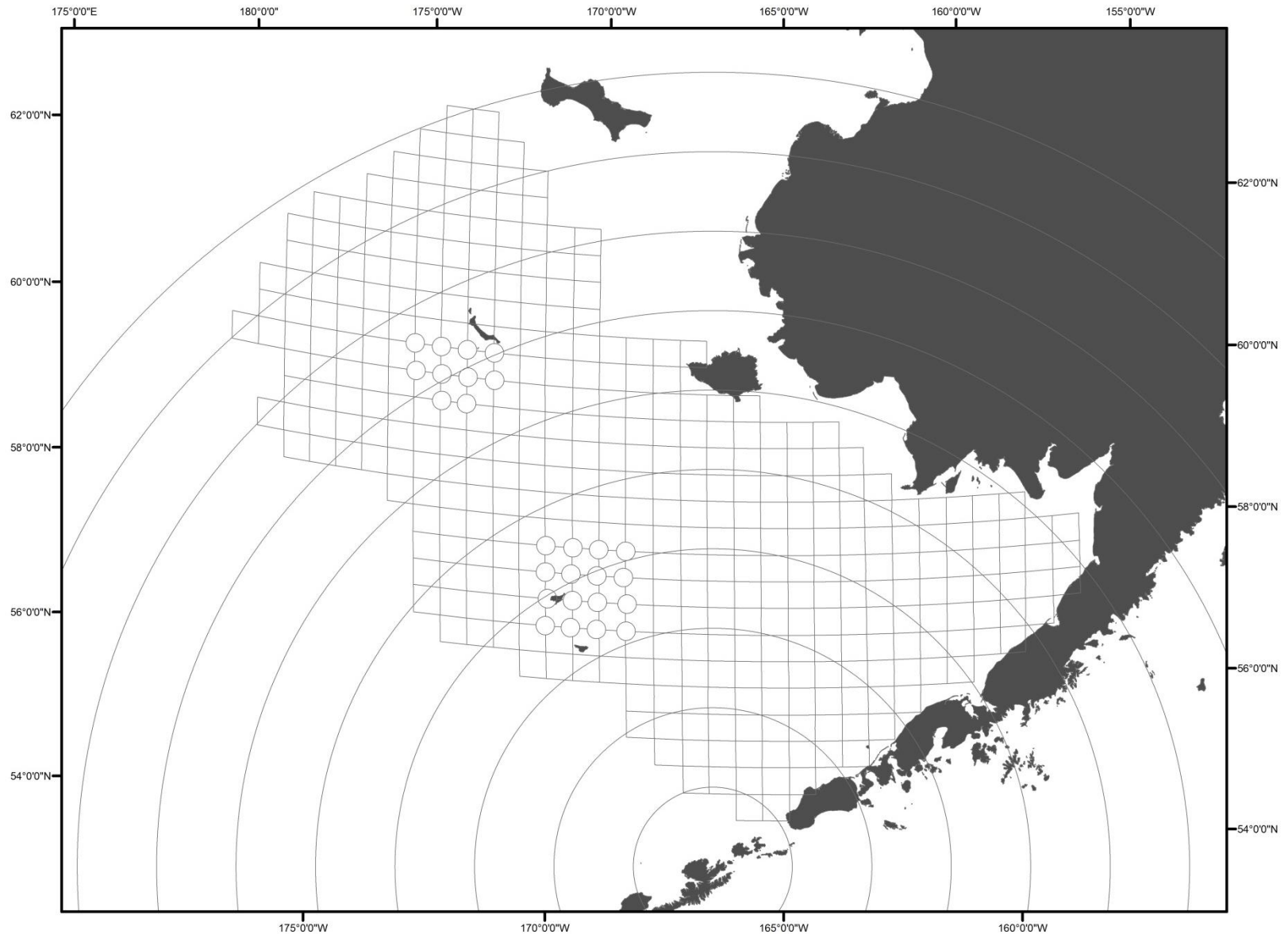
Cooperative Research Partners



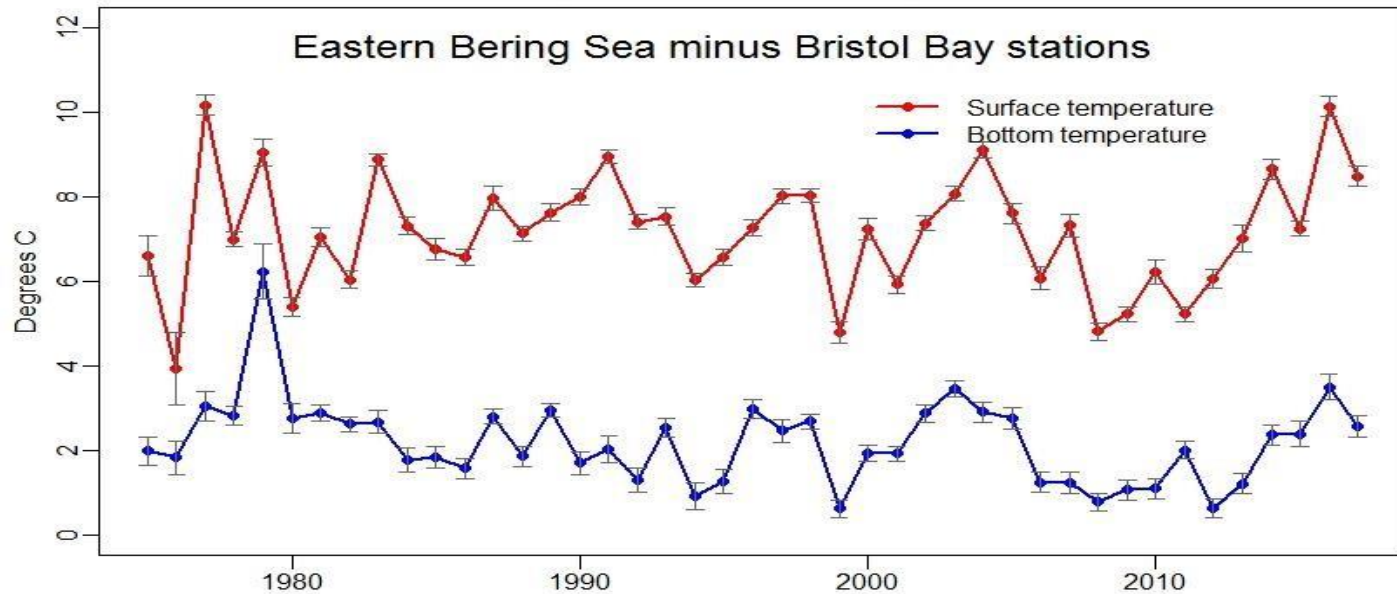
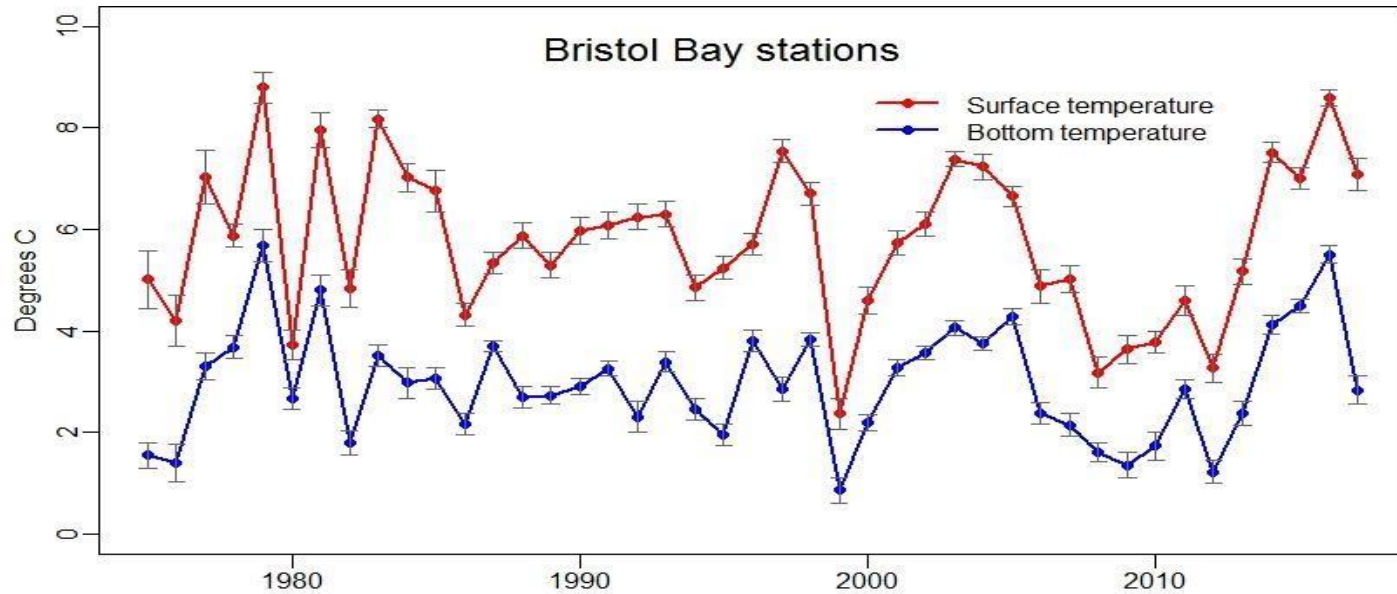
NFMS Trawl Selectivity



Bering Sea Surveys

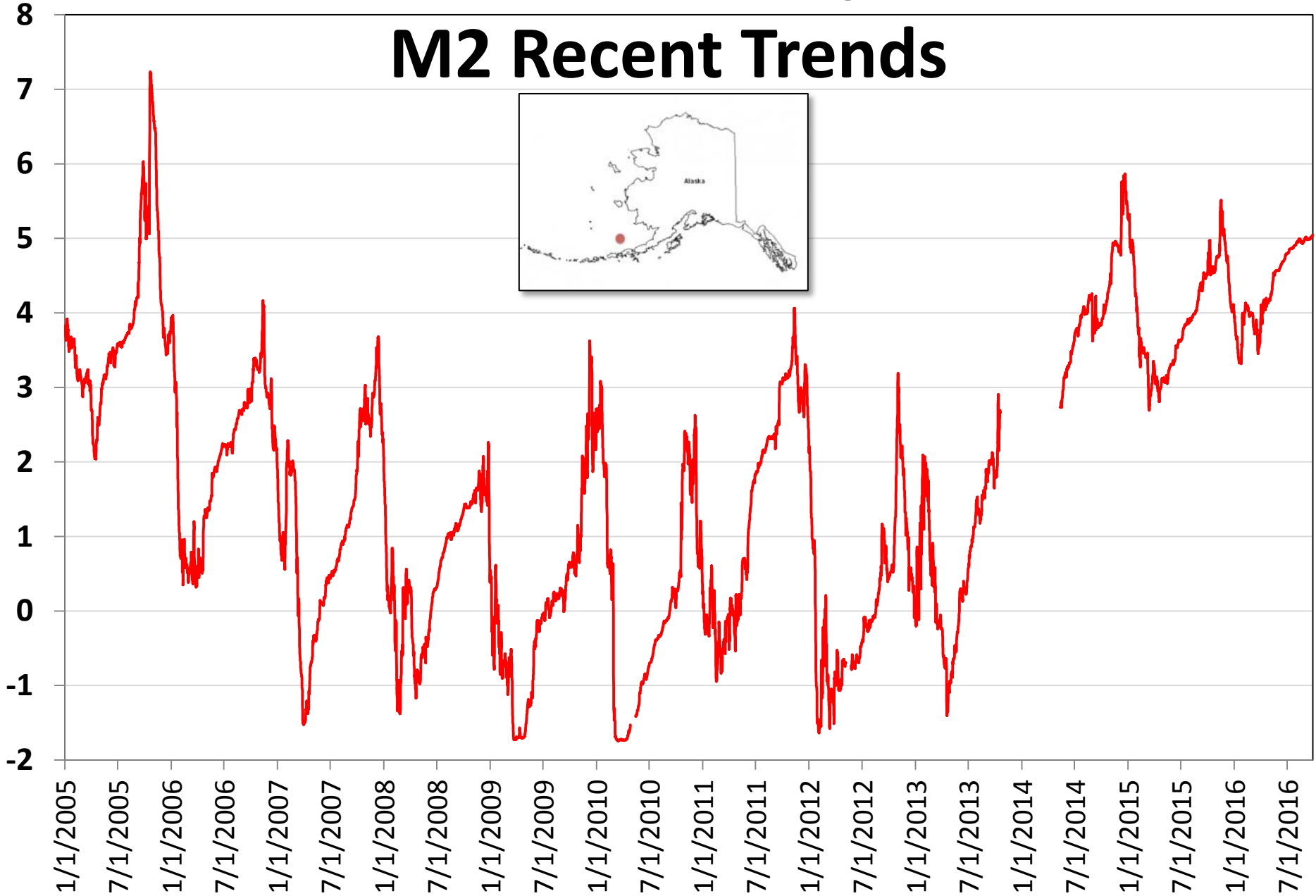


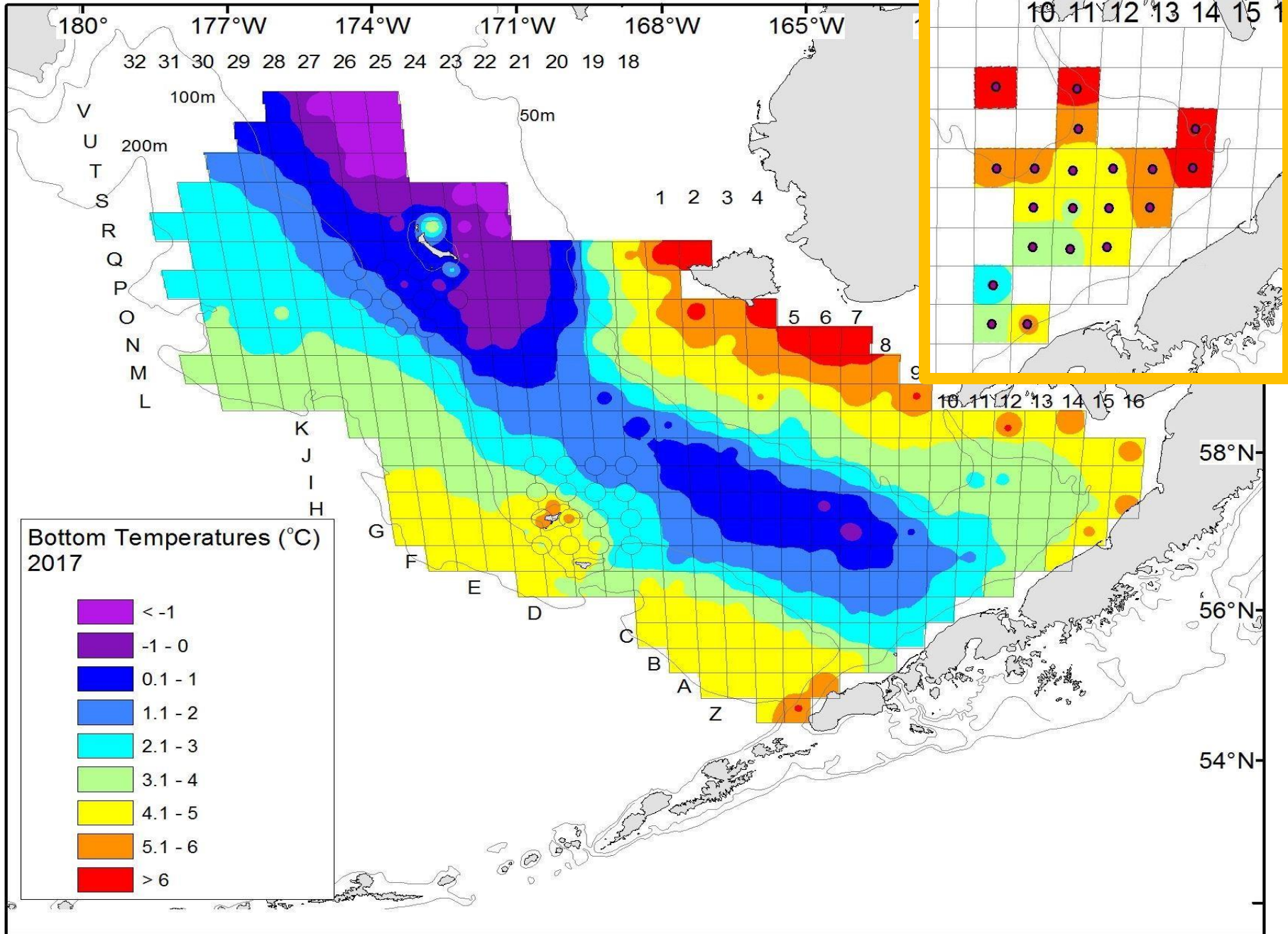
Bering Sea Temp – Recent Trends

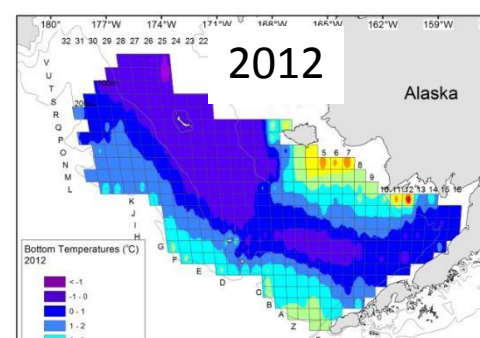
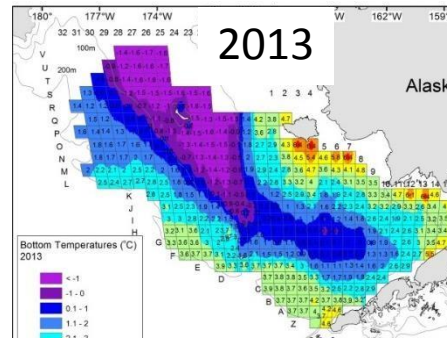
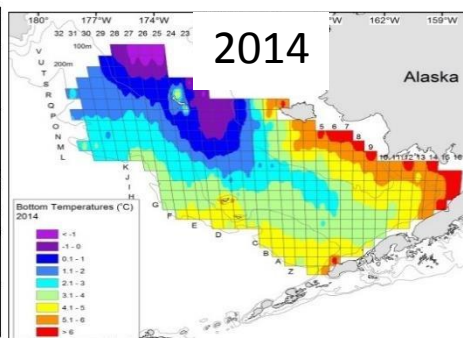
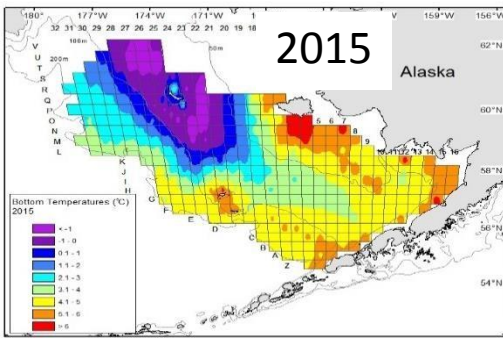
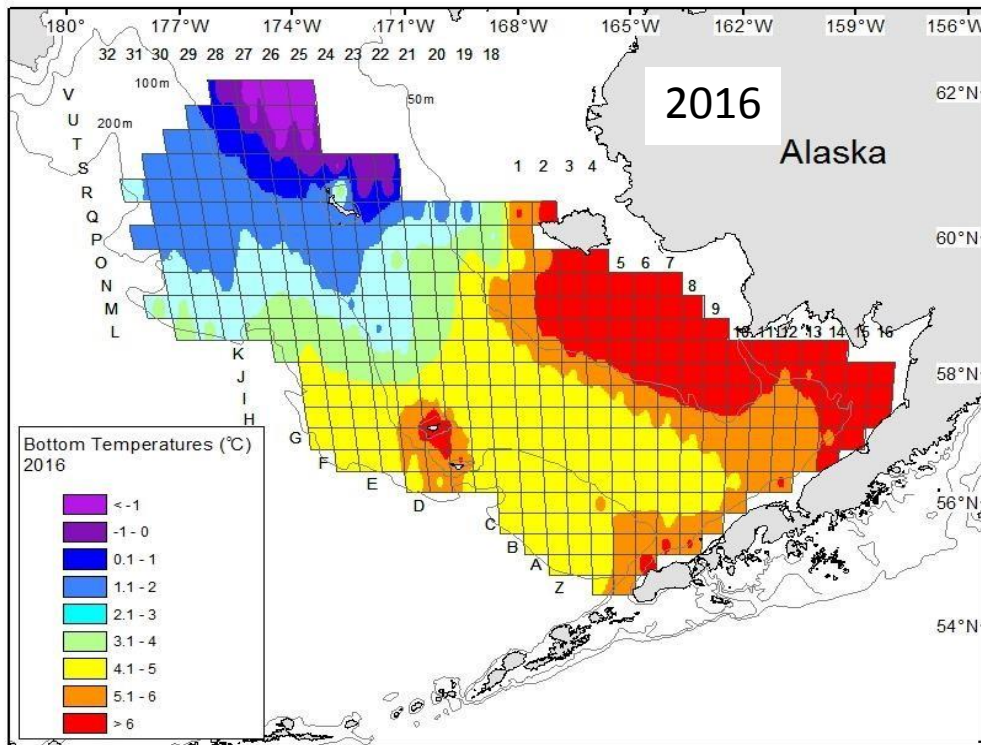
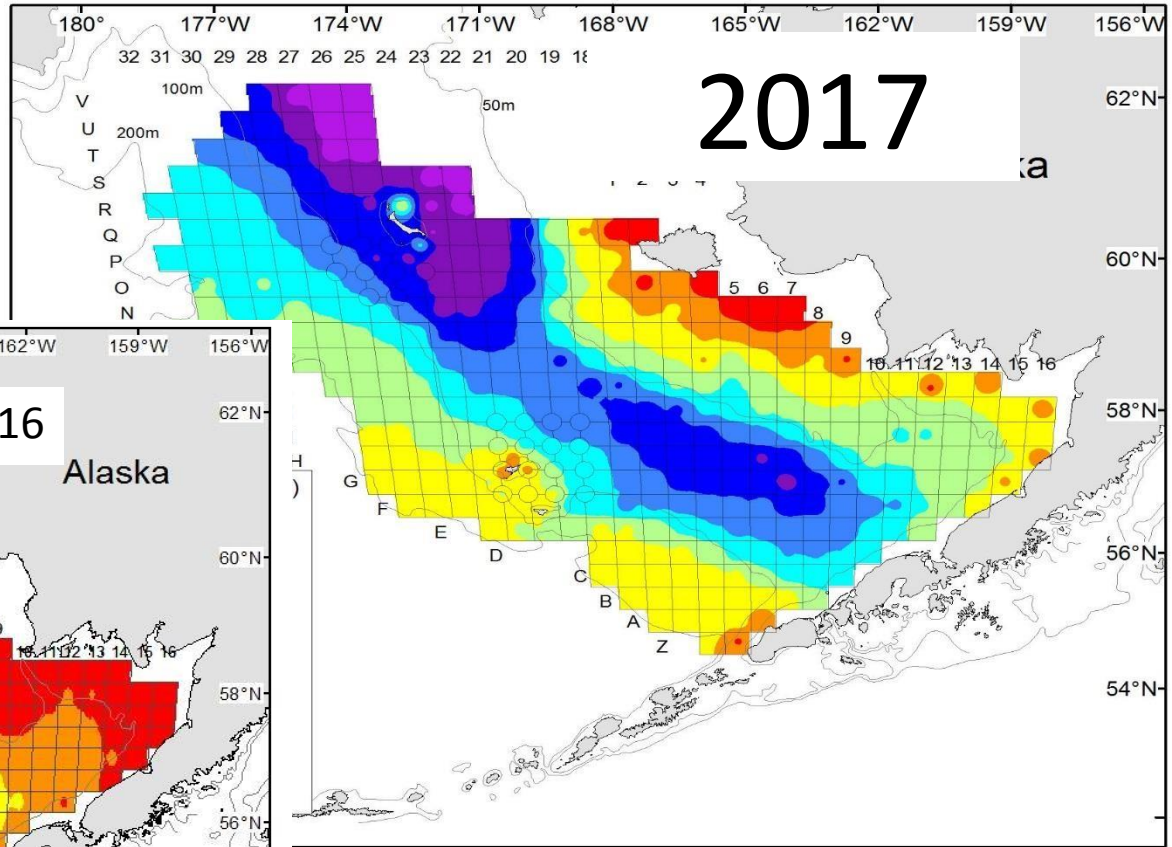


Bottom Temp

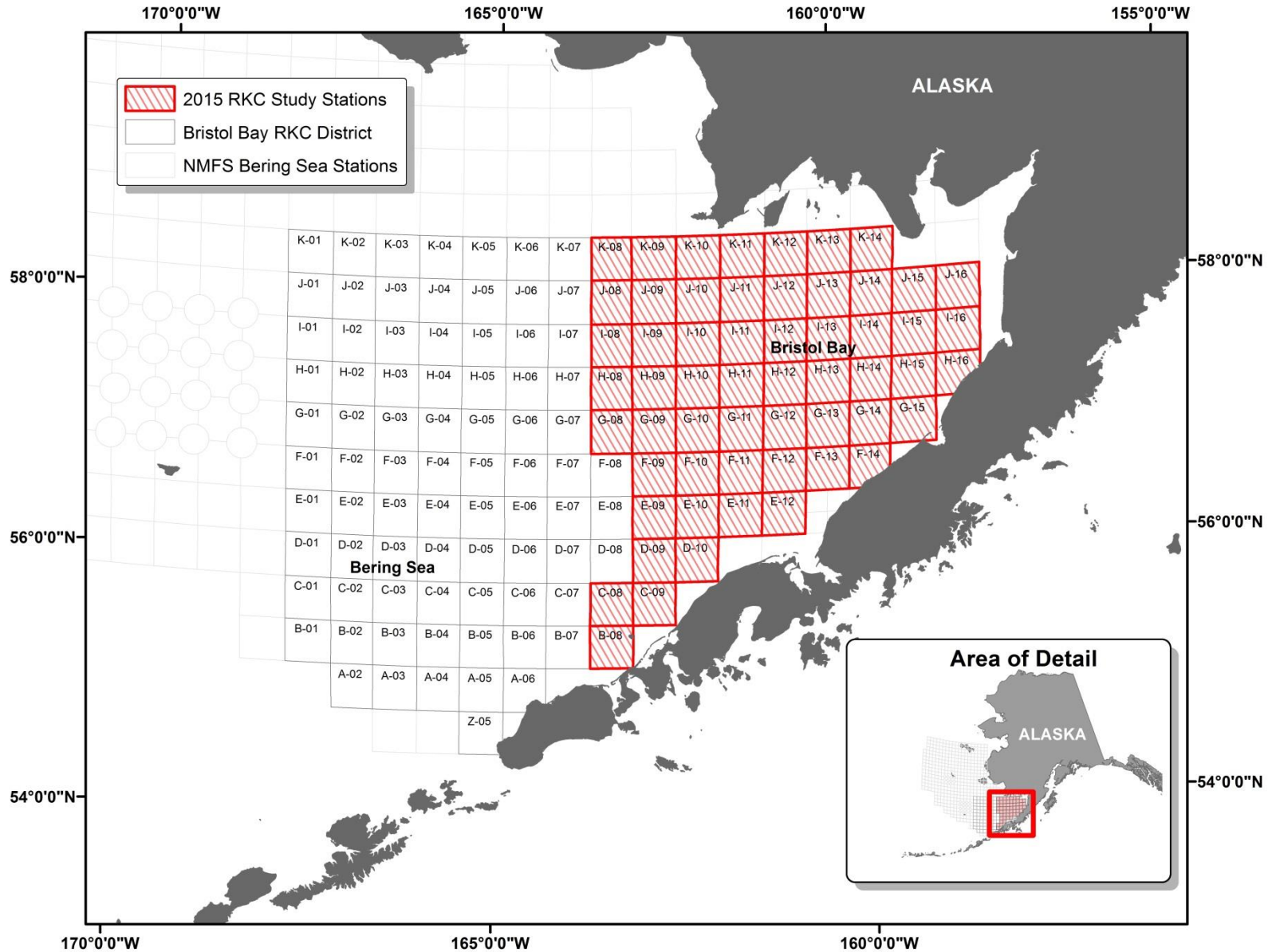
M2 Recent Trends



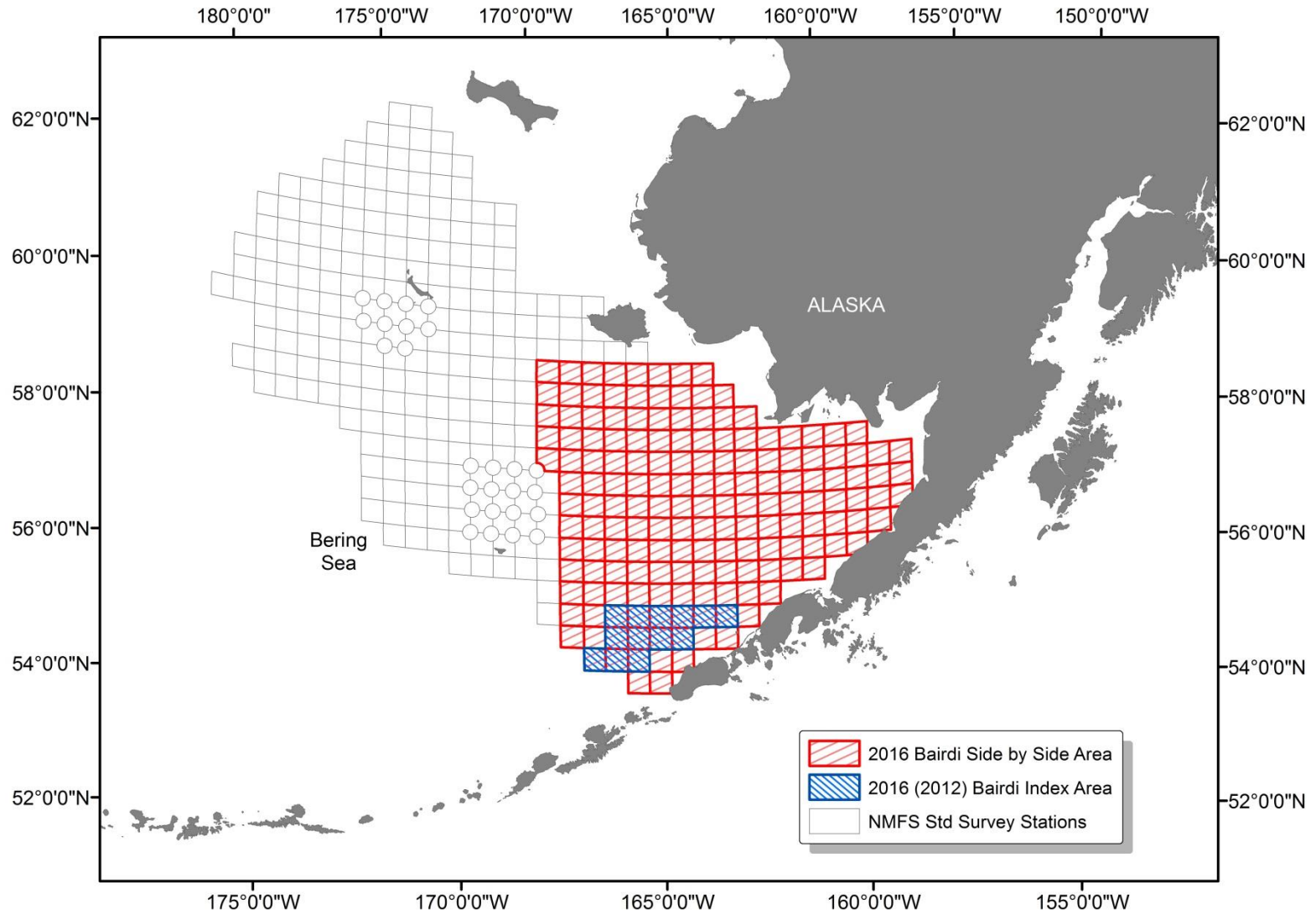




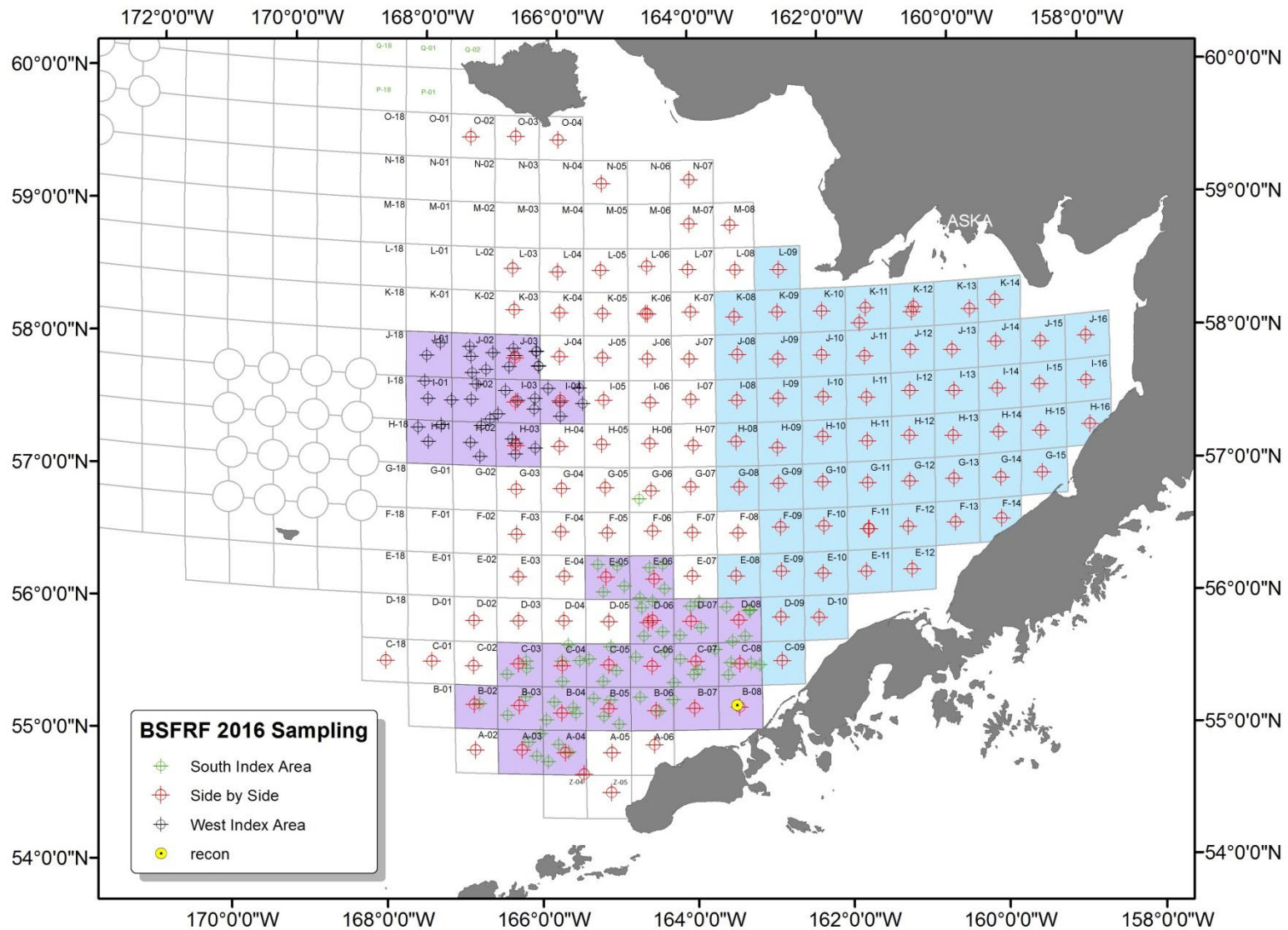
BBRKC Trawl Selectivity



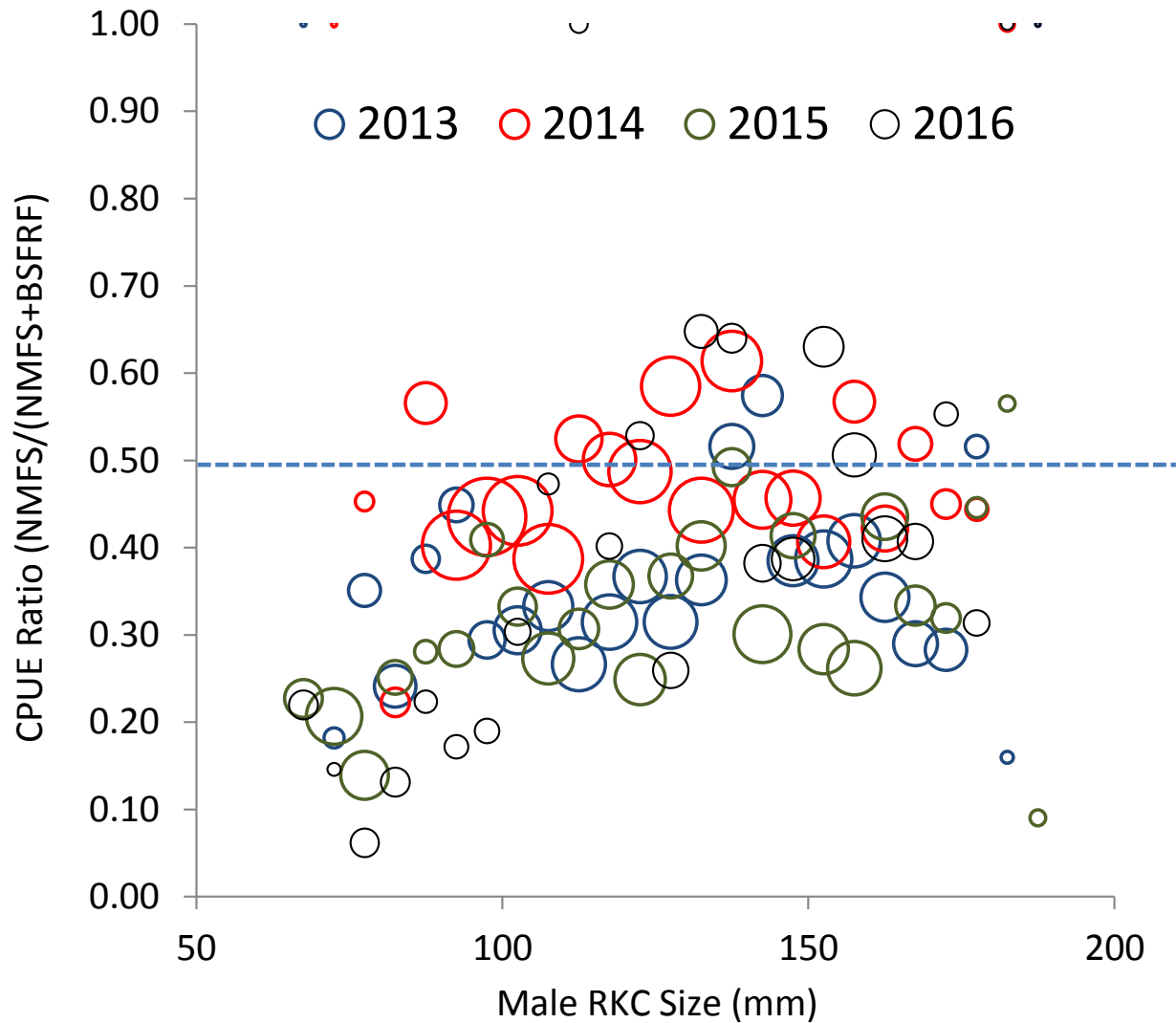
2016 Planned Sampling



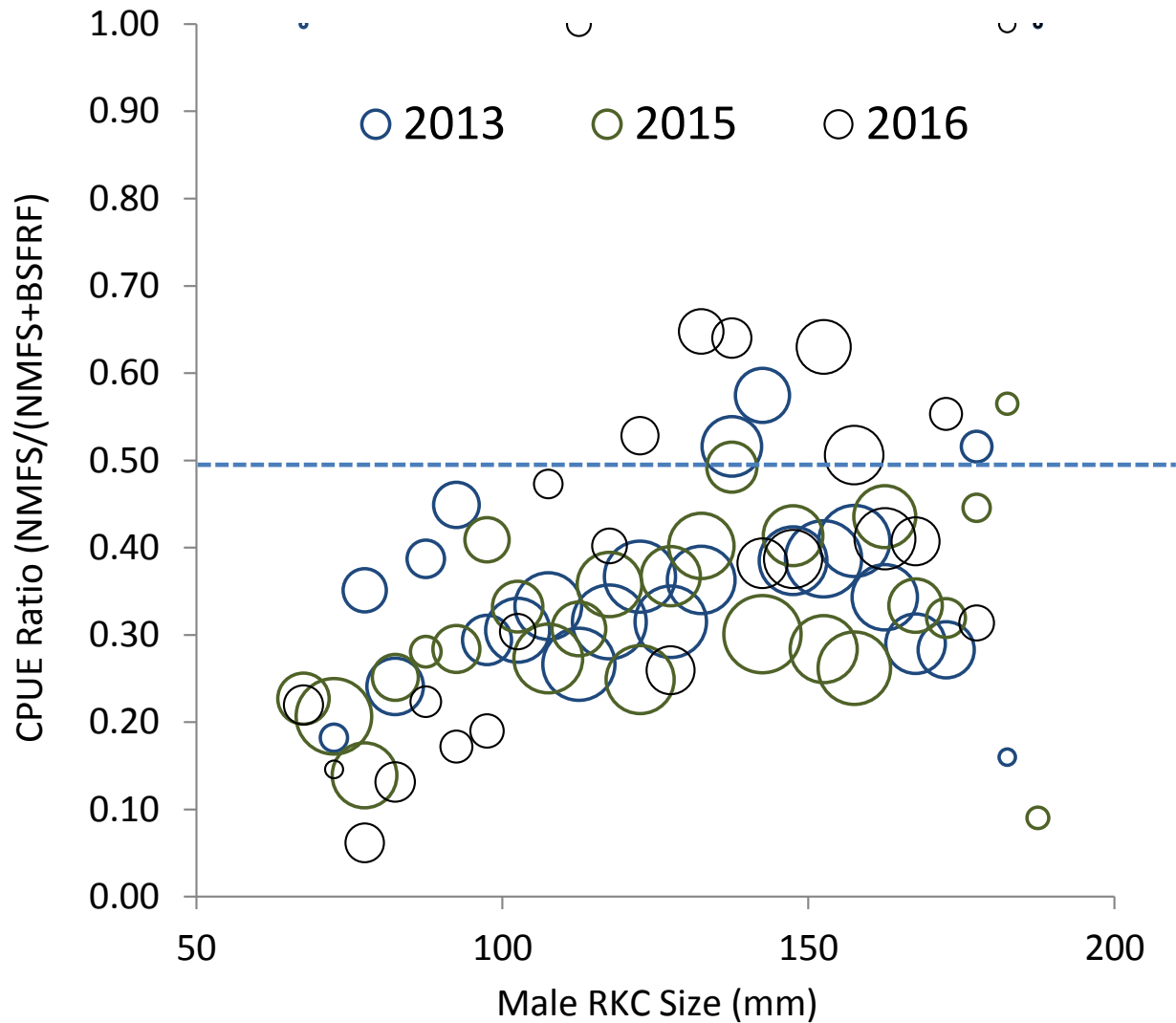
2016 Actual Sampling



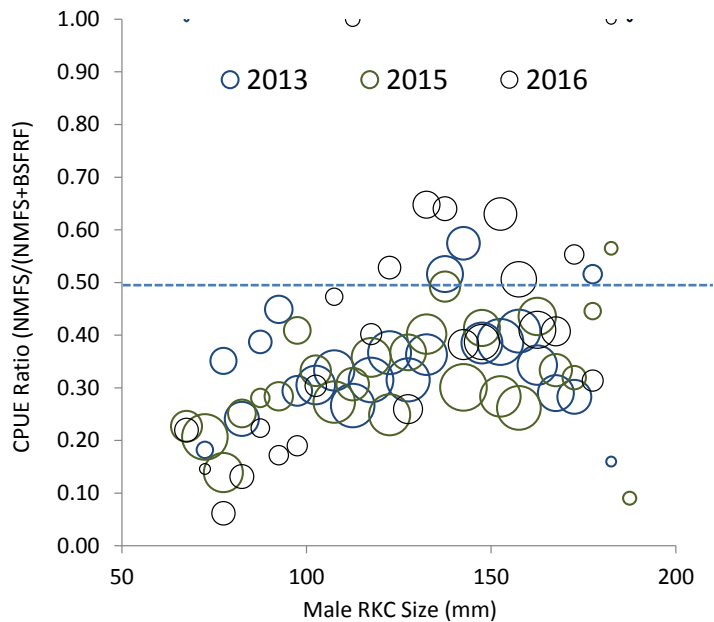
BBRKC Trawl Selectivity 2013-2016



BBRKC Trawl Selectivity 2013-2016



Estimating Trawl Selectivity Accurately



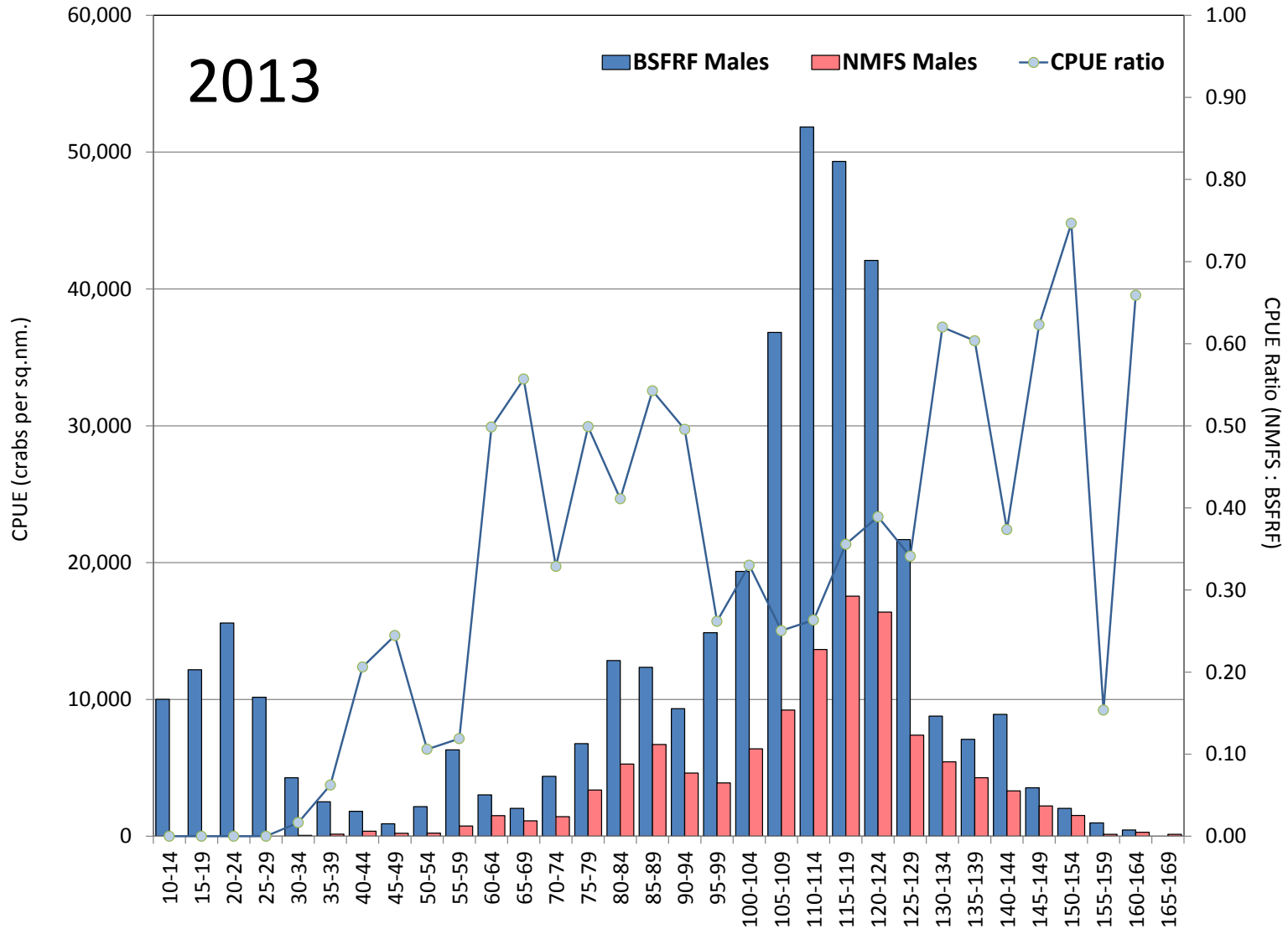
- Updating temporal/spatial trends
- Revising methods per model/species
- Addressing variability in data
- NMFS survey availability
- Other survey availability
- Model scenario selection
- Current models v. GMACs
- Spatial modeling
- Incorporating new data
- Consistent methods across models
- Reviewing influence of herding

Bairdi Trawl Selectivity

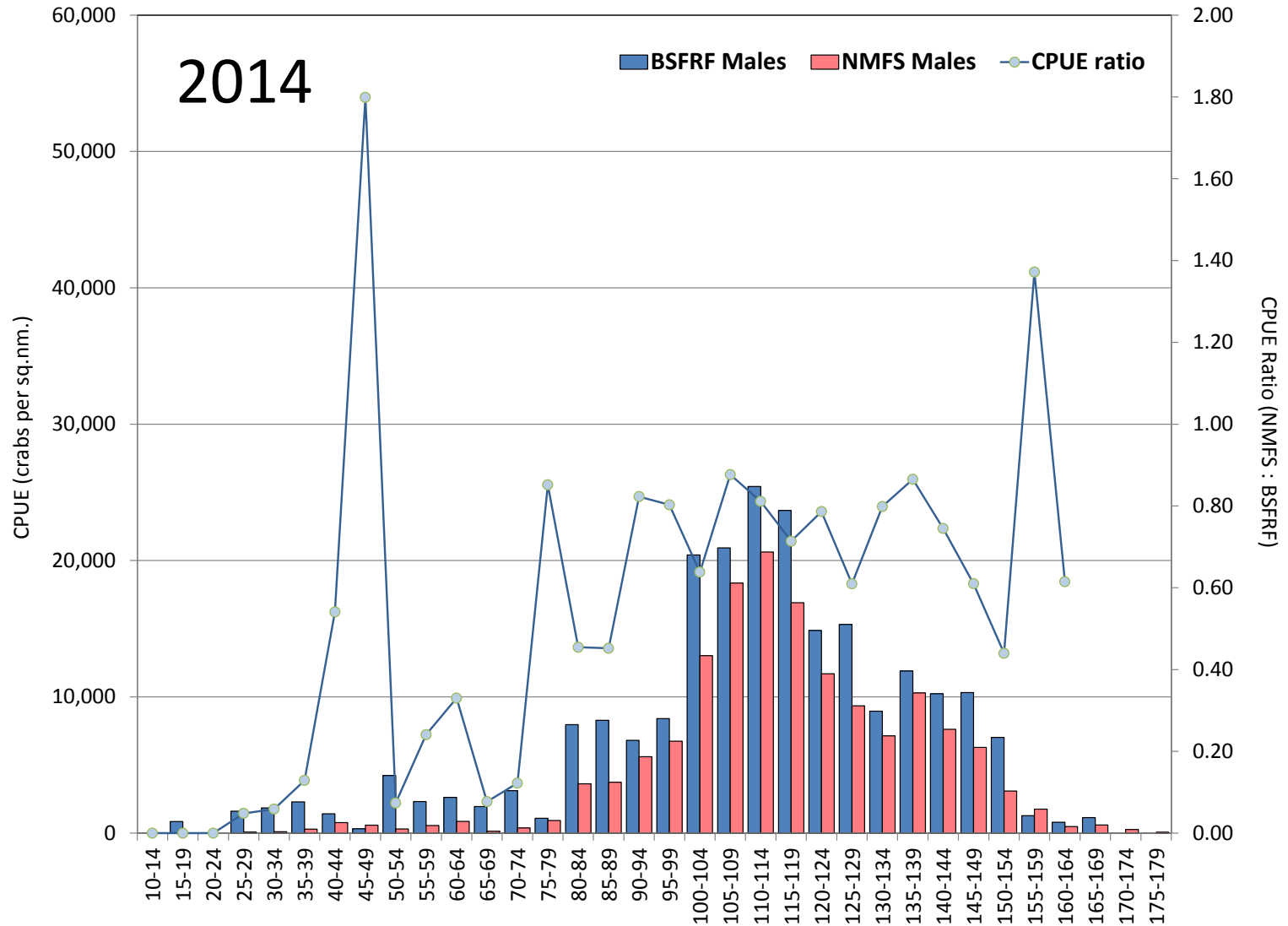
- What we have already? [variability/coverage]
- What is the strategy? [snow/king/Tanner]
- What we are doing this year? [mostly east]
- What's on the horizon – next year? [more west]



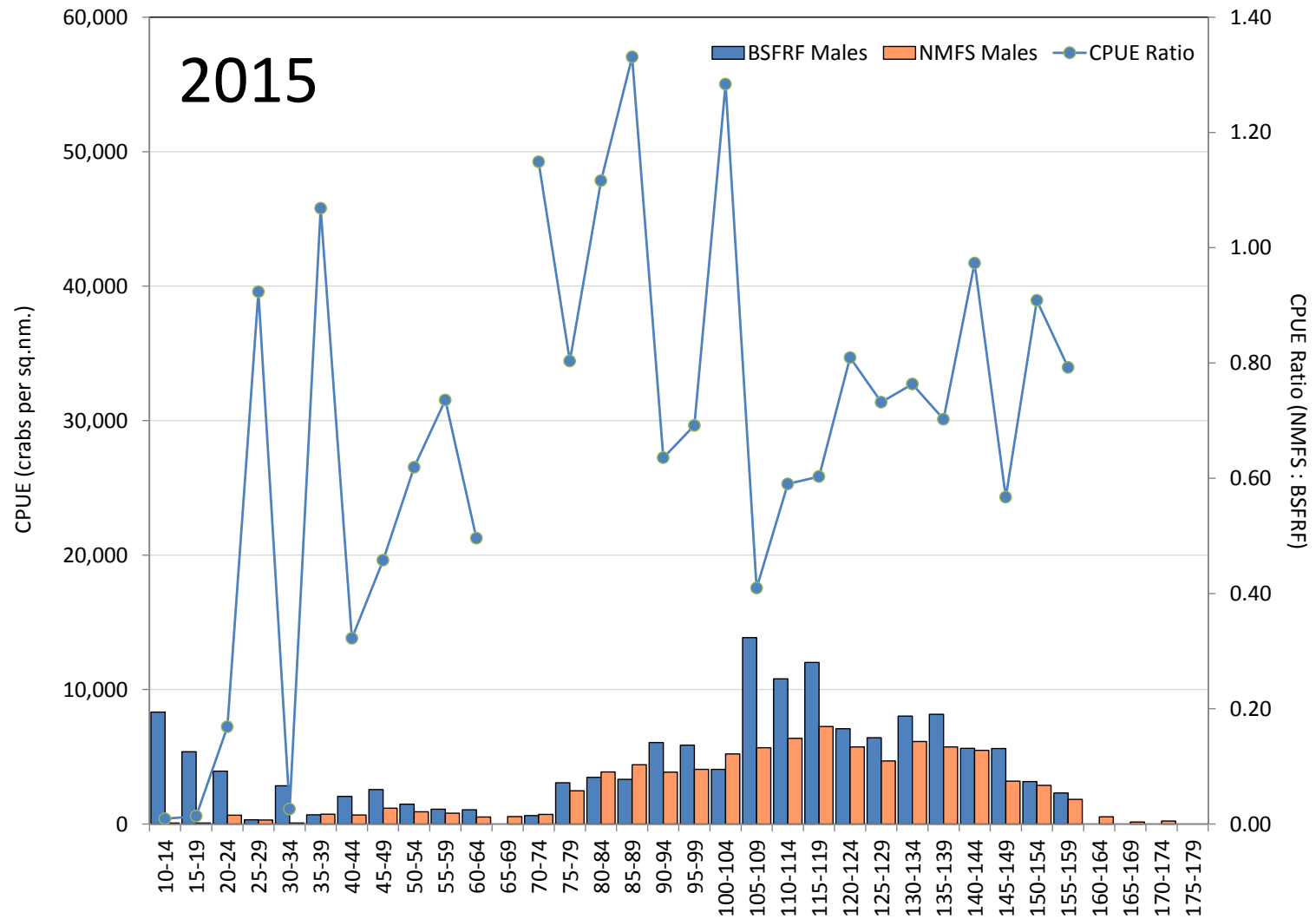
Bairdi Trawl Selectivity – BSFRF data



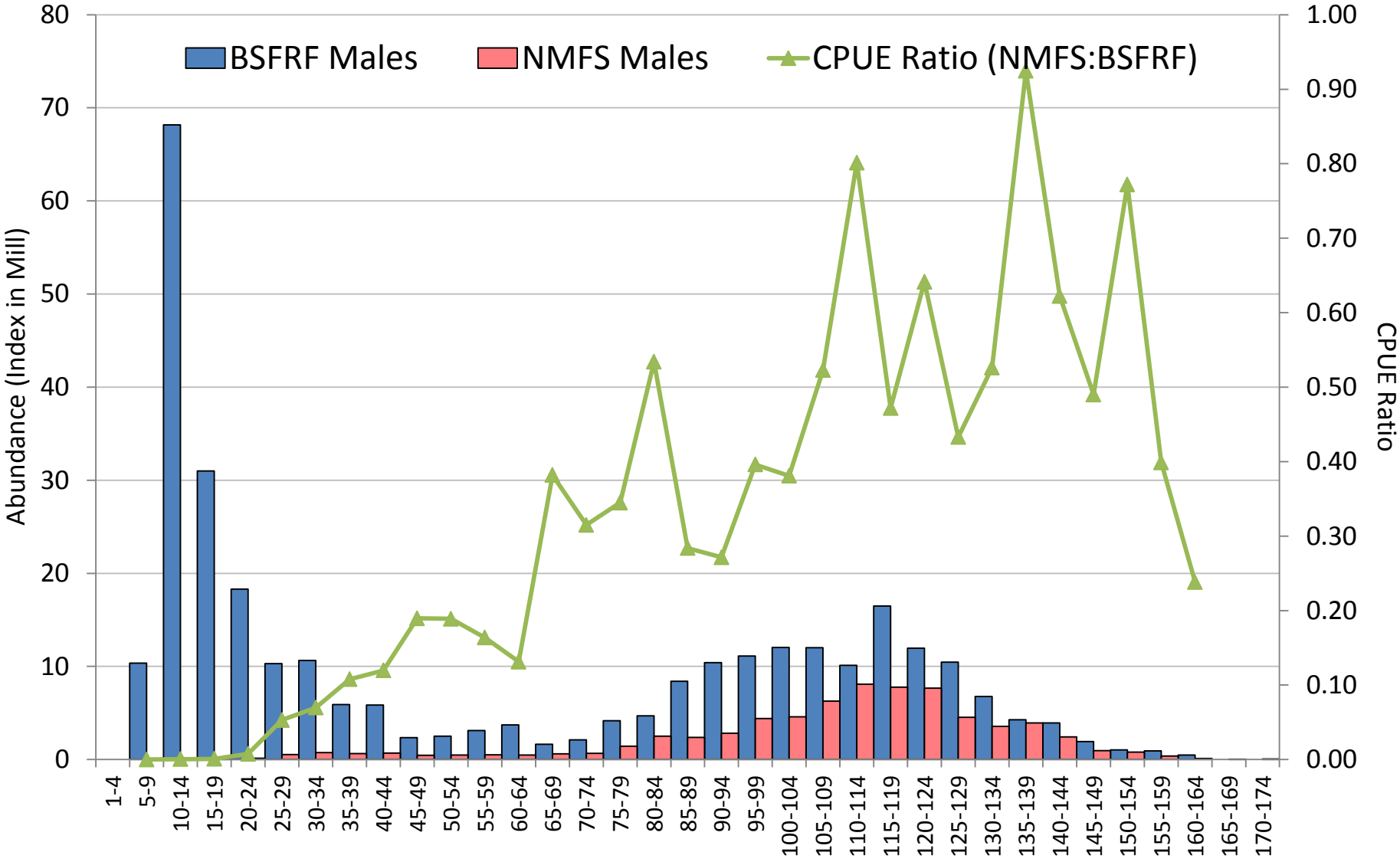
Bairdi Trawl Selectivity – BSFRF data



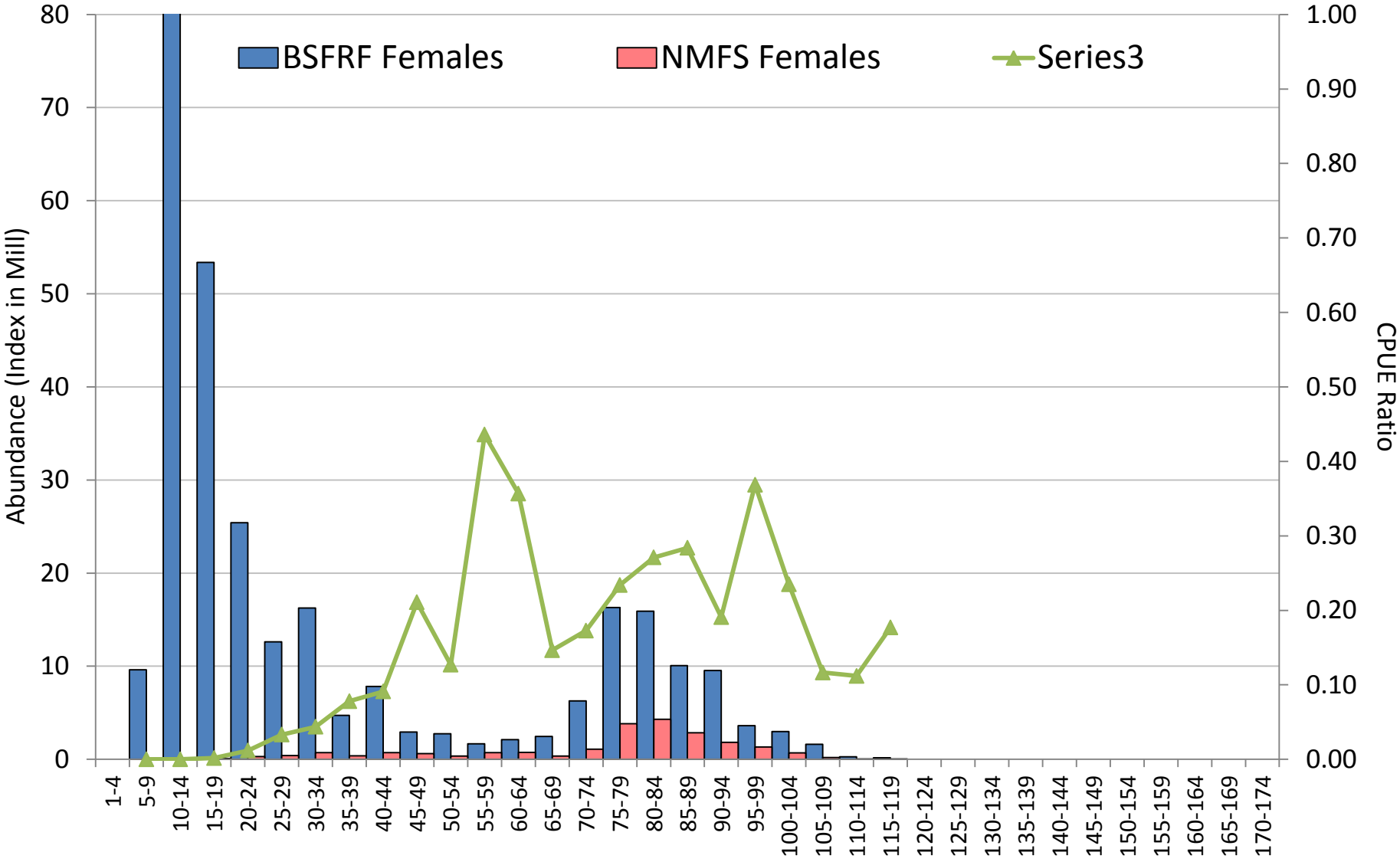
Bairdi Trawl Selectivity – BSFRF data



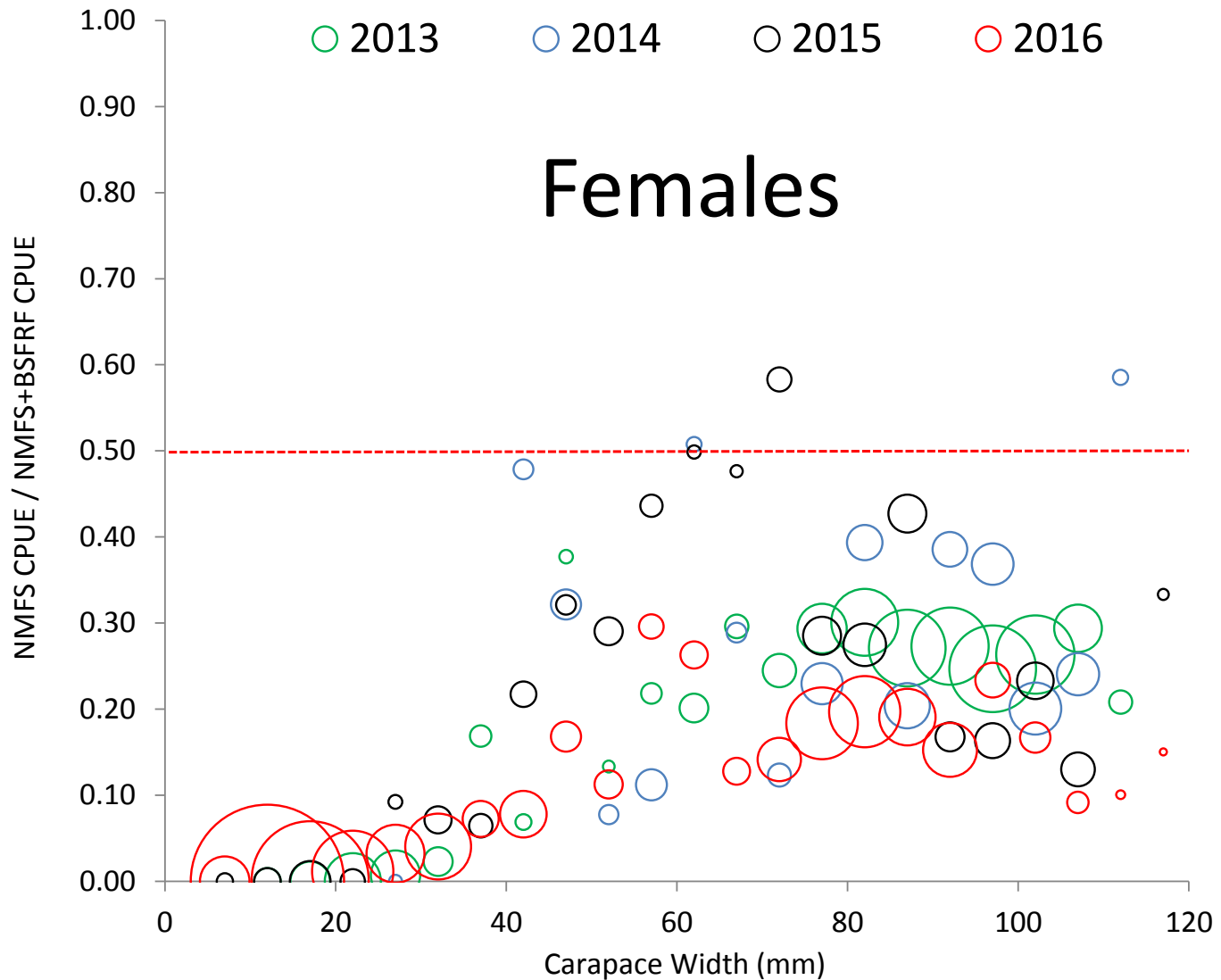
Bairdi Trawl Selectivity 2016 – Expanded Side by Side



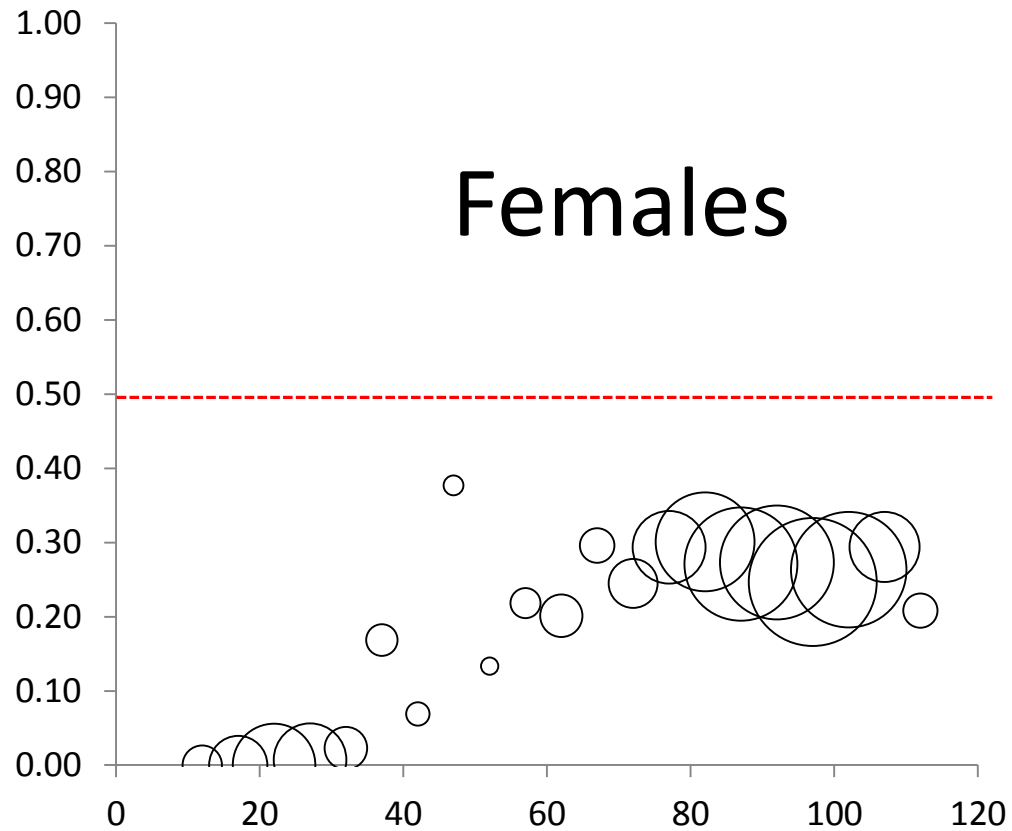
Bairdi Trawl Selectivity 2016 – Expanded Side by Side



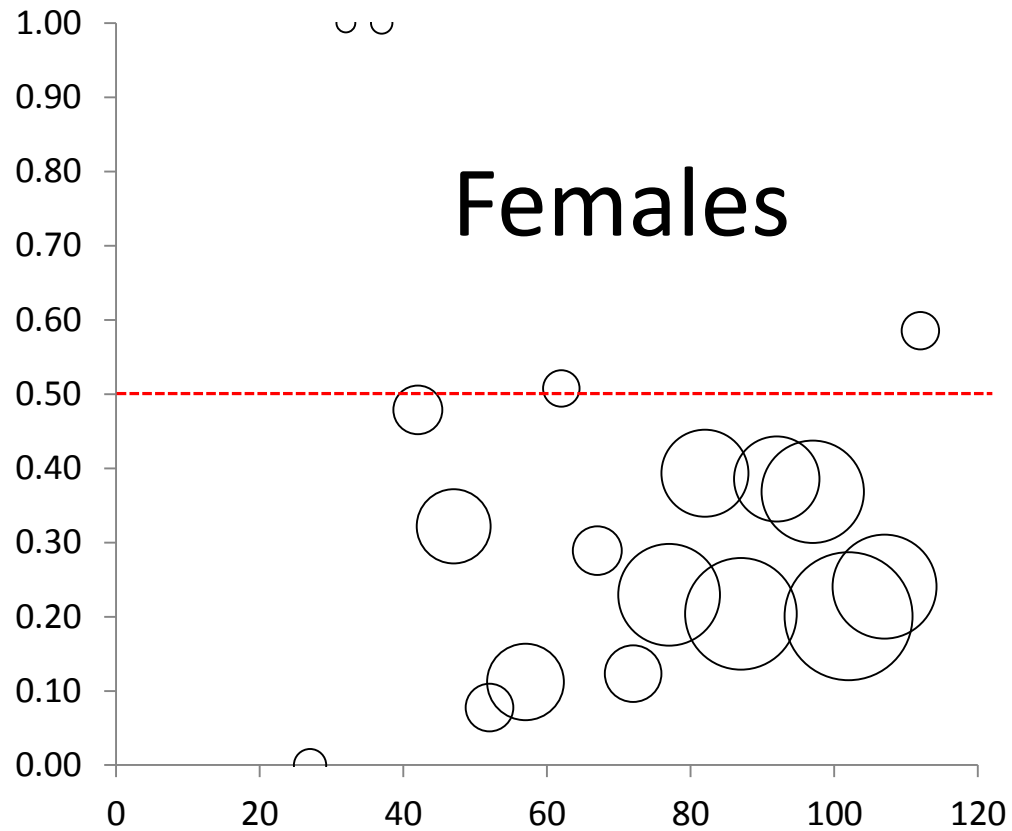
Bairdi Trawl Selectivity 2013-2016



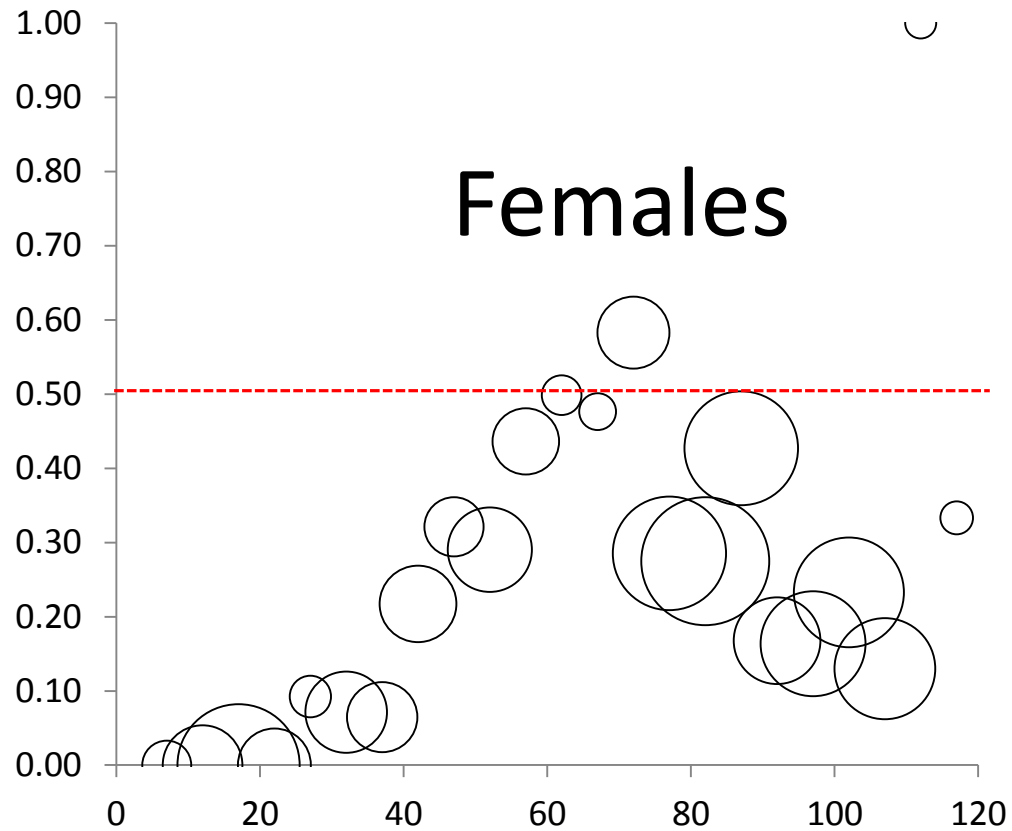
Bairdi Trawl Selectivity 2013



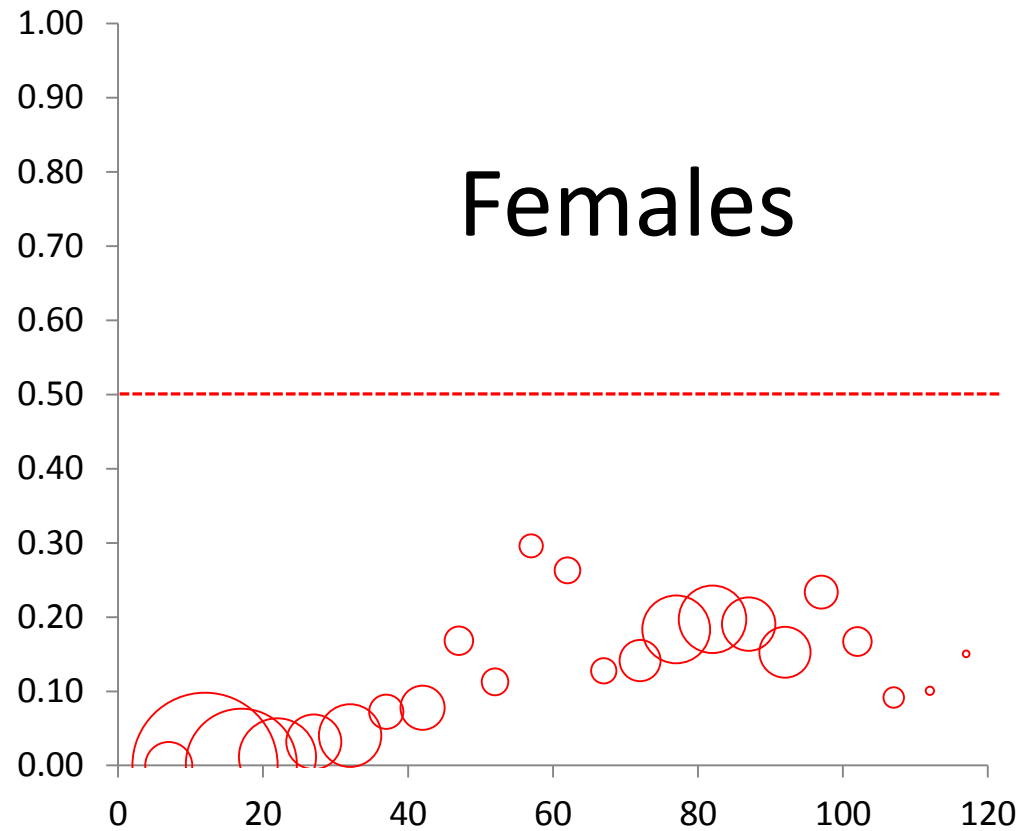
Bairdi Trawl Selectivity 2014



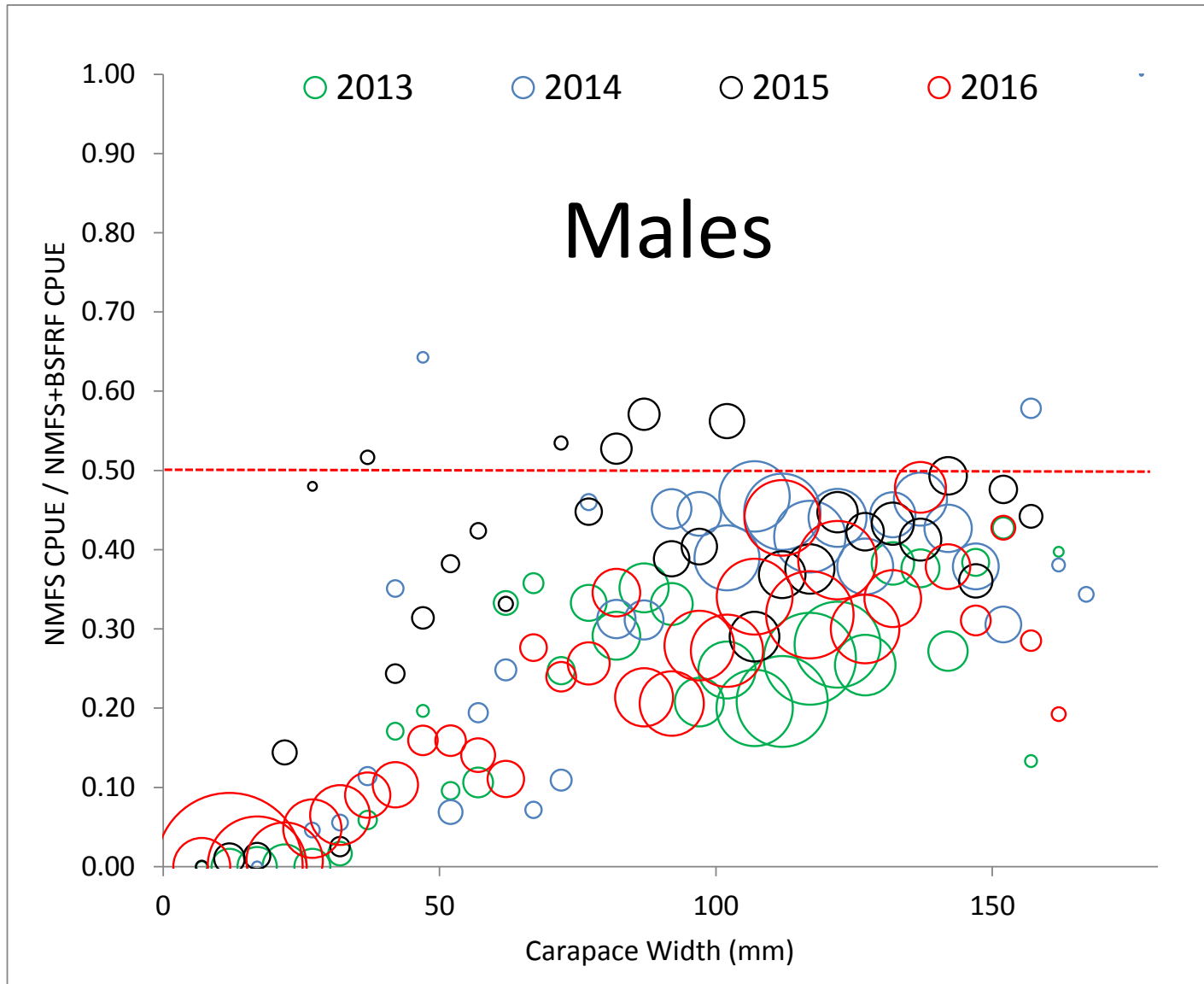
Bairdi Trawl Selectivity 2015



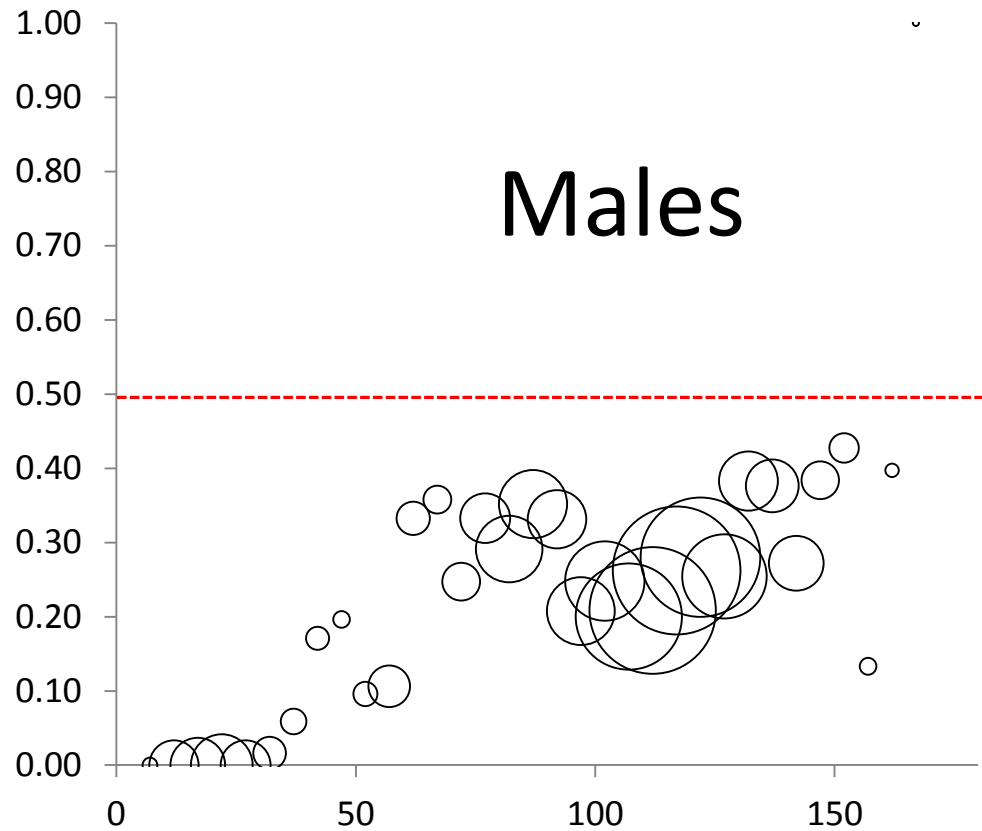
Bairdi Trawl Selectivity 2016



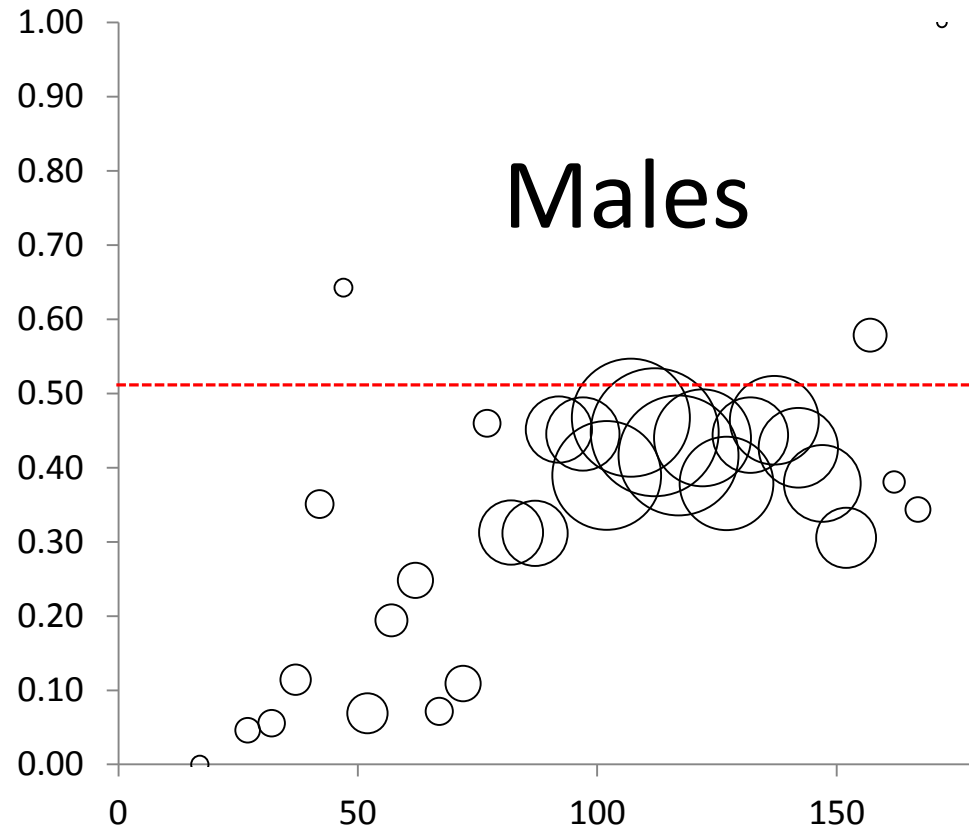
Bairdi Trawl Selectivity 2013-2016



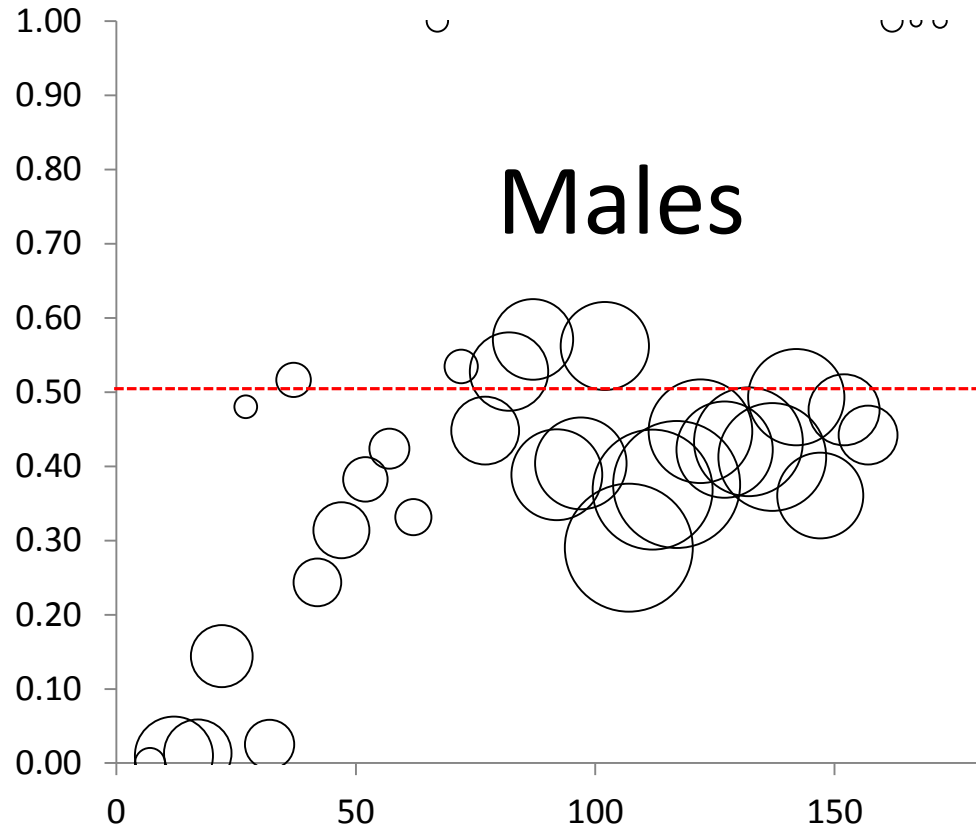
Bairdi Trawl Selectivity 2013



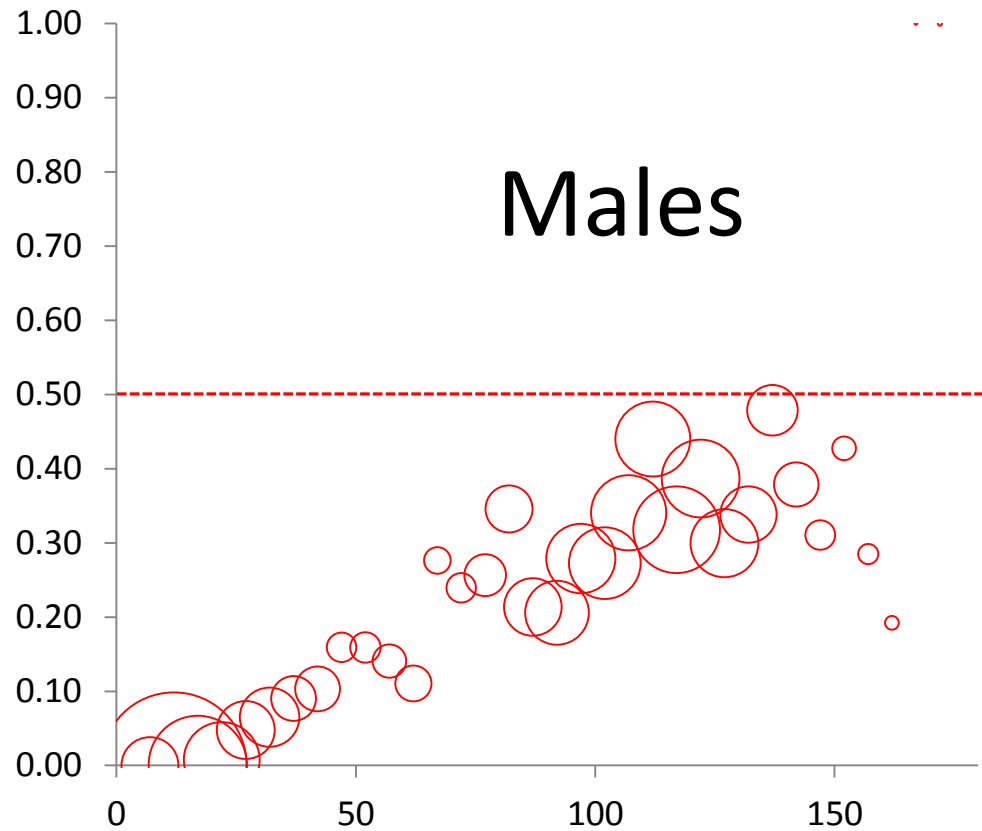
Bairdi Trawl Selectivity 2014

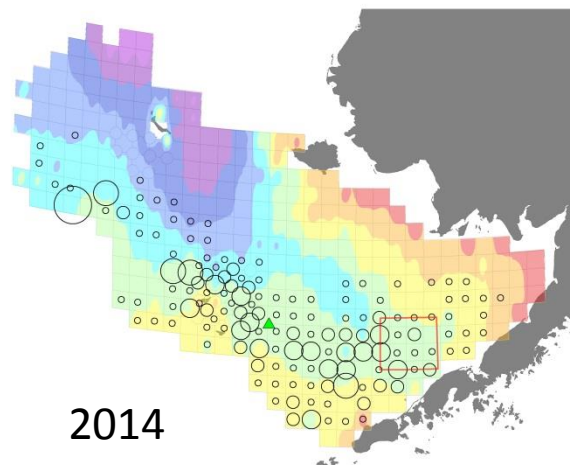
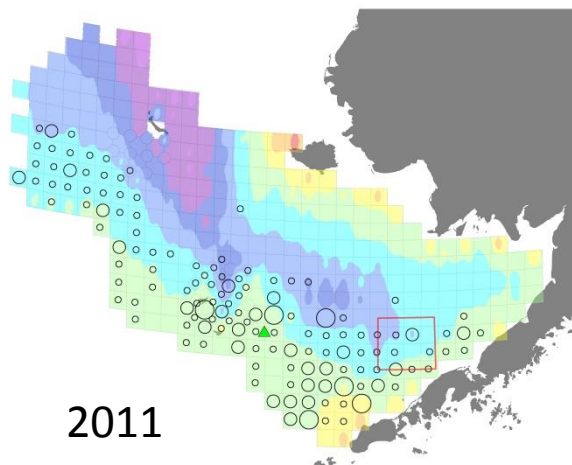
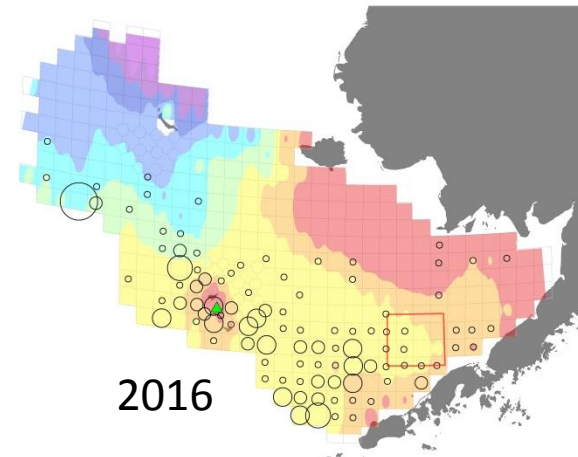
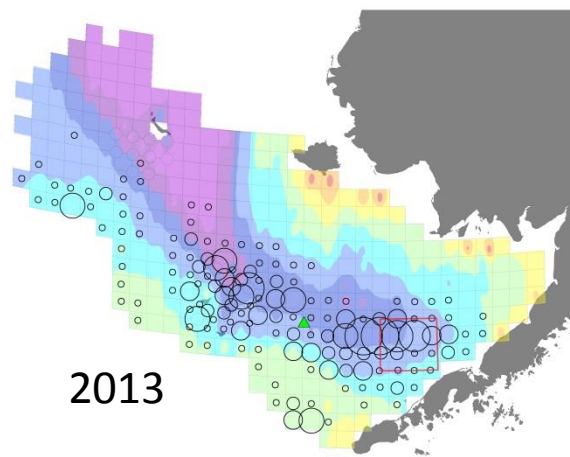
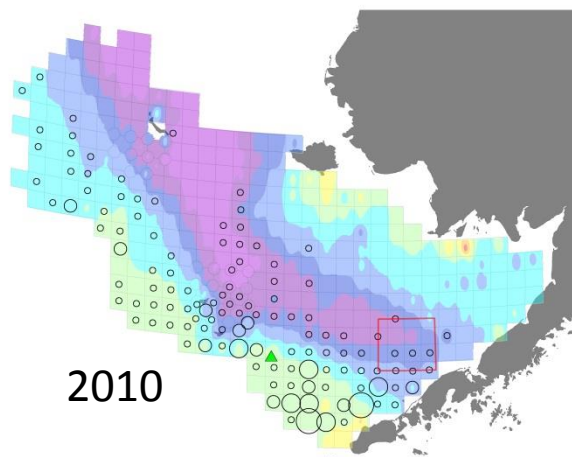
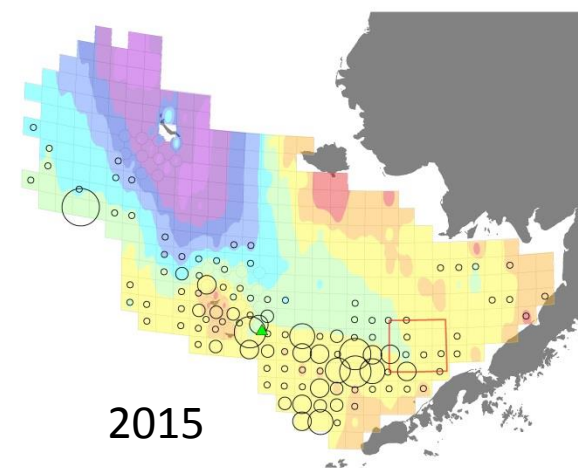
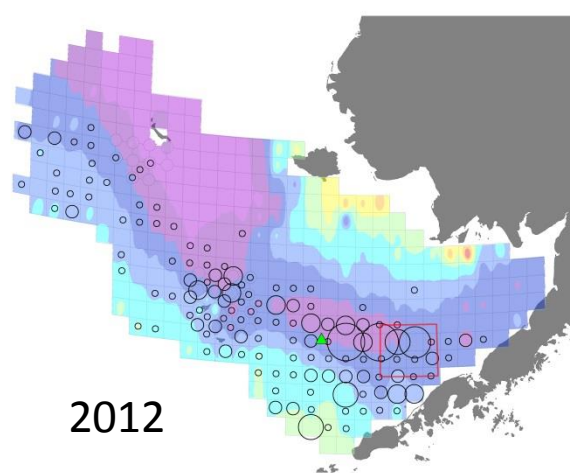
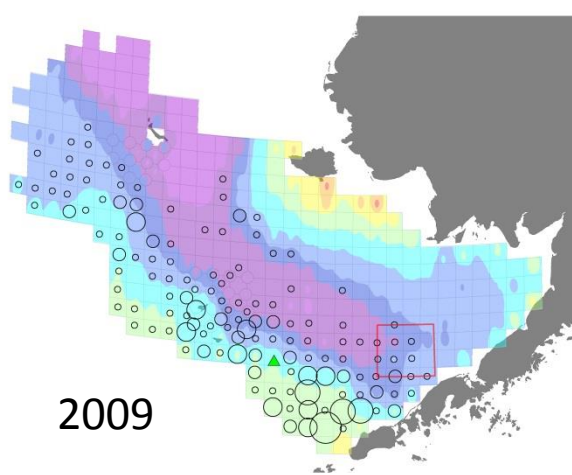


Bairdi Trawl Selectivity 2015

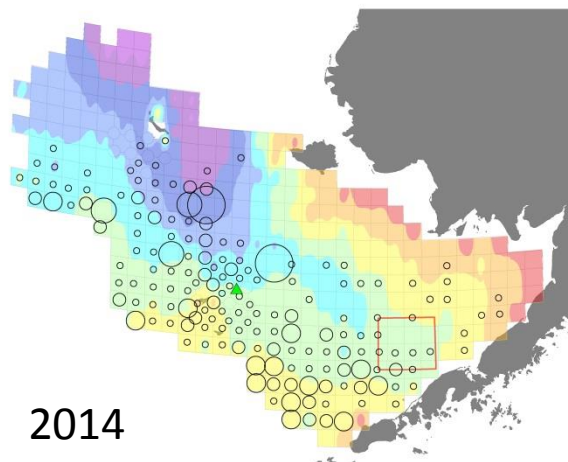
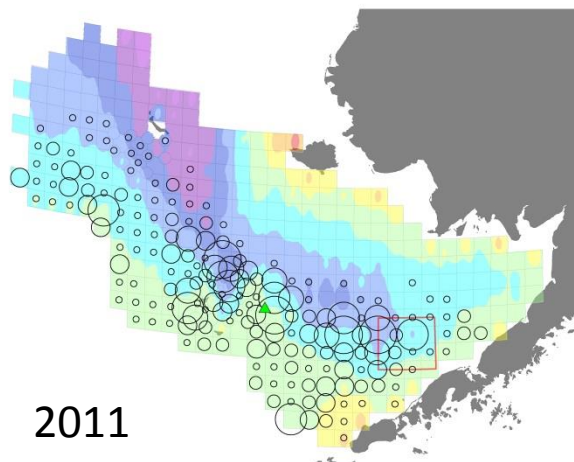
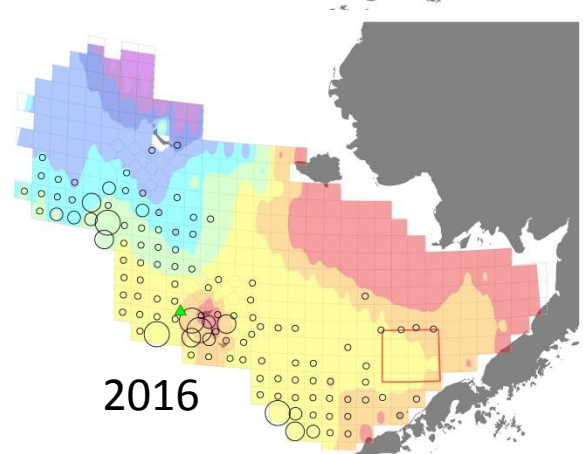
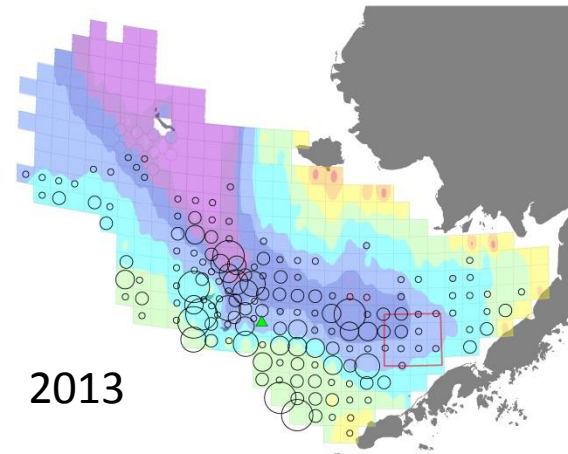
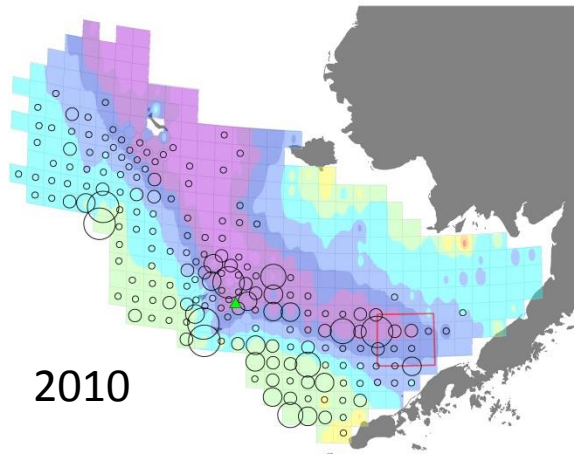
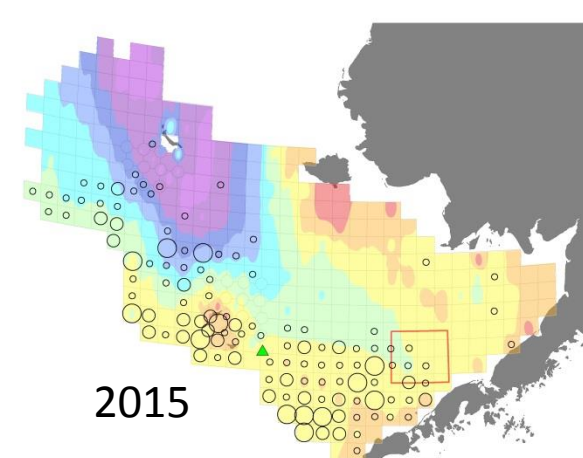
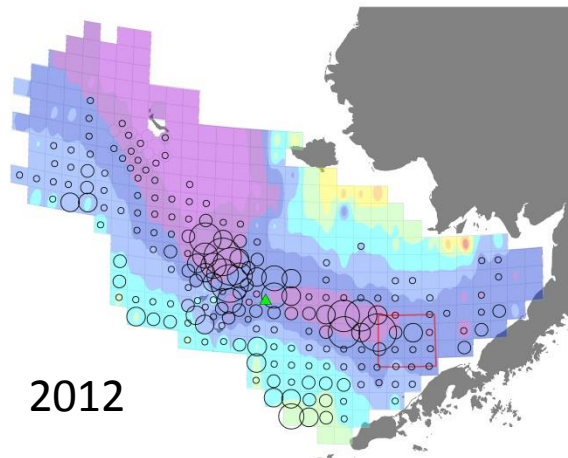
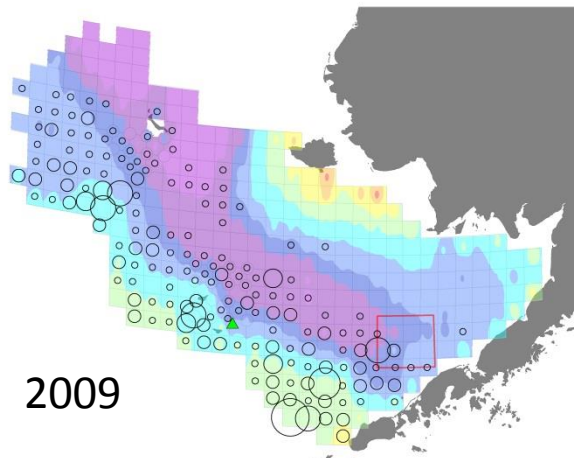


Bairdi Trawl Selectivity 2016

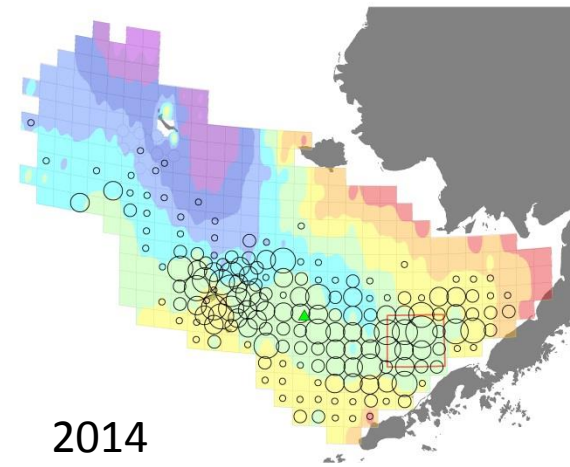
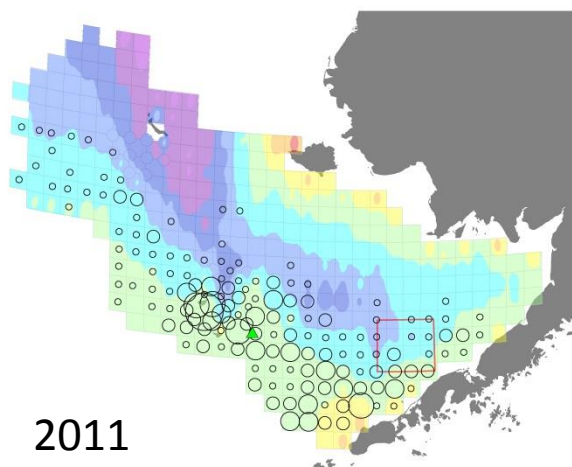
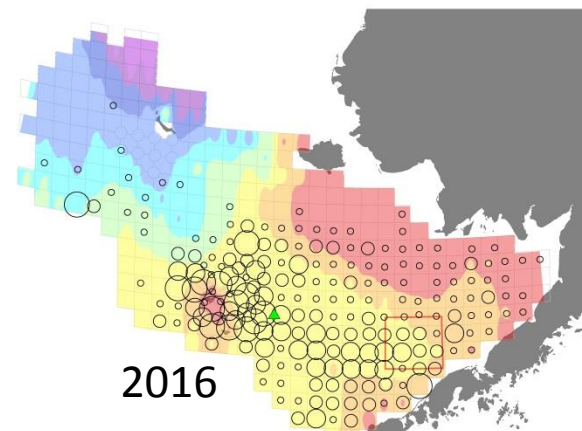
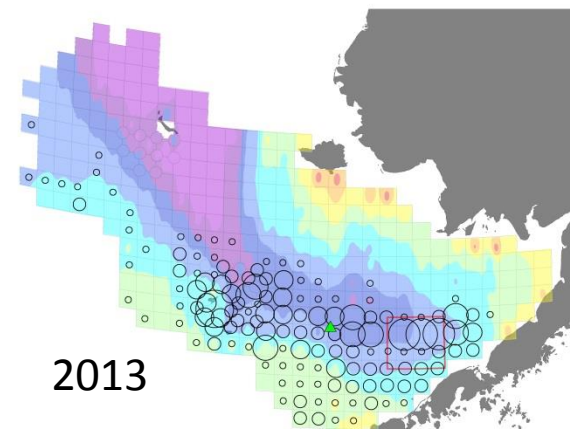
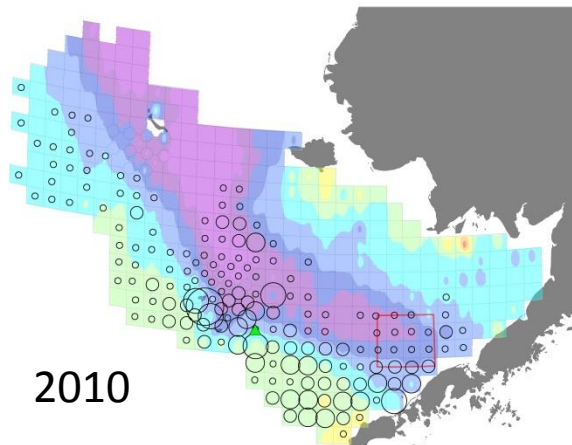
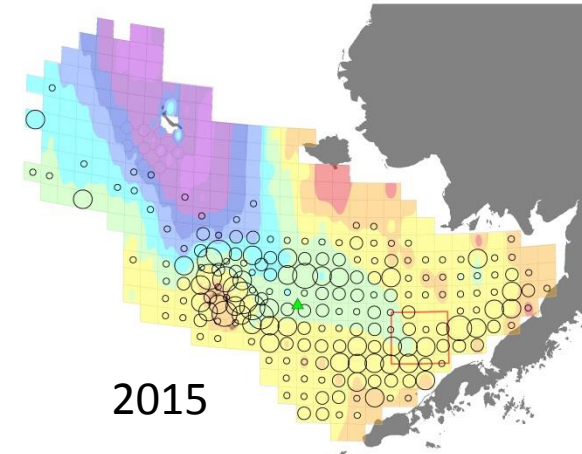
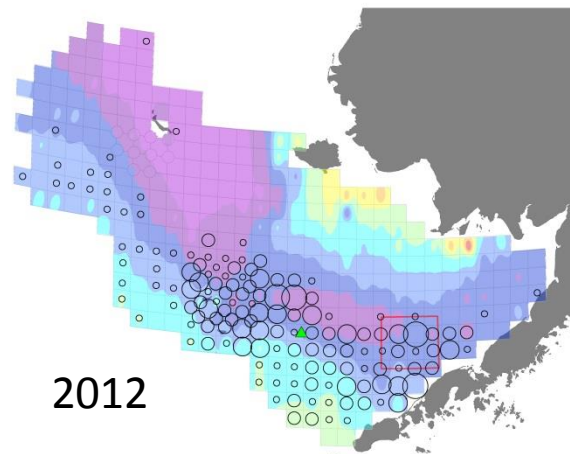
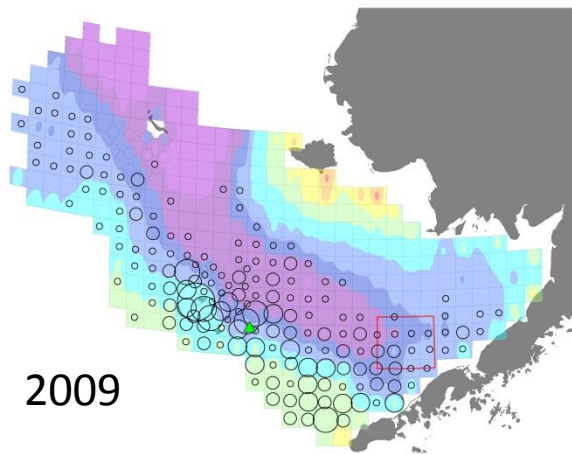




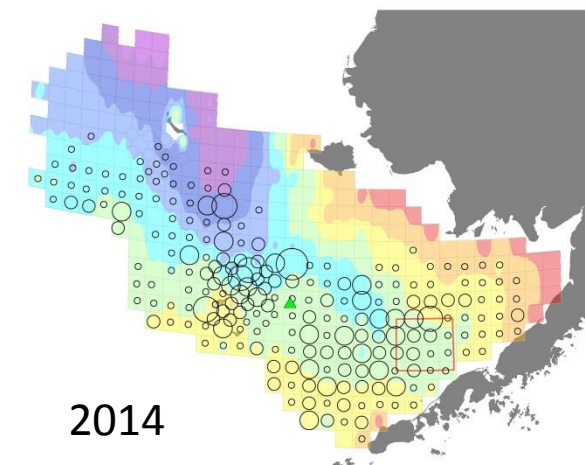
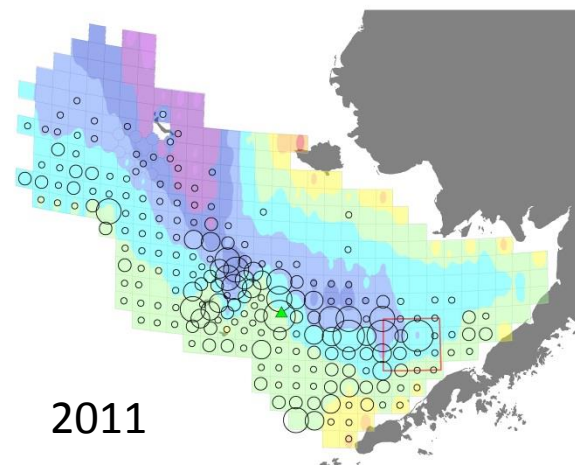
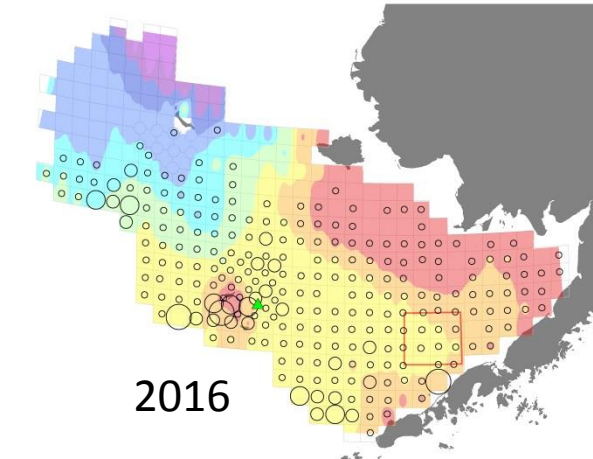
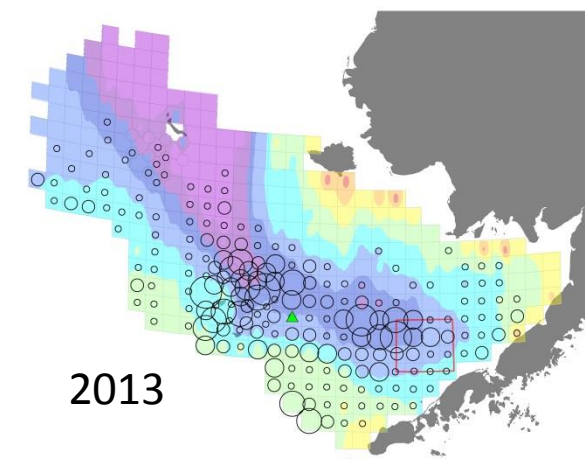
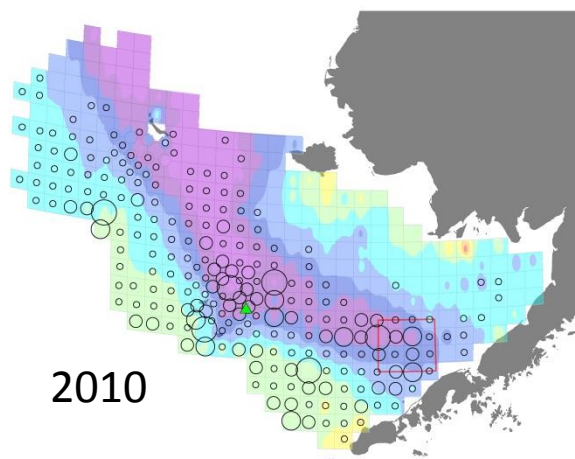
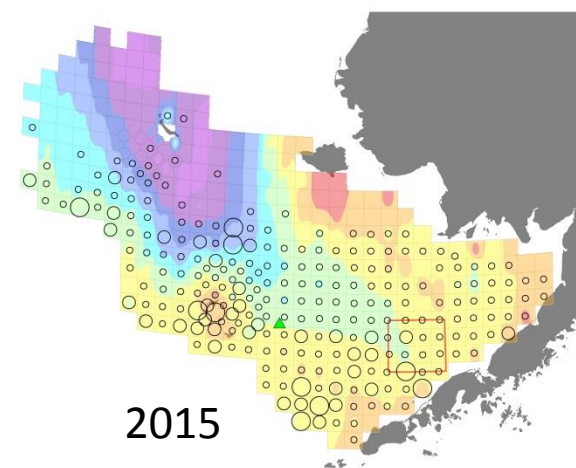
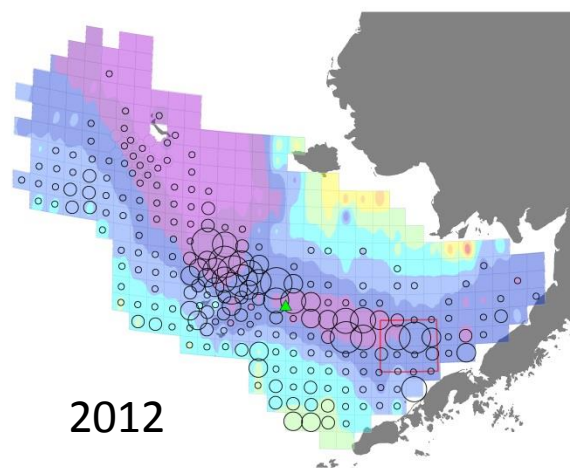
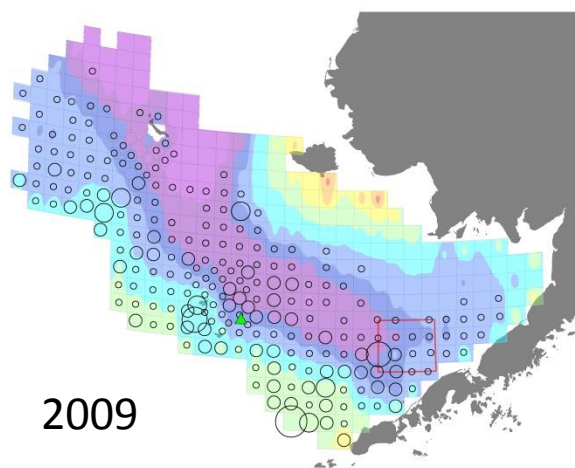
Mature Female Bairdi
[observed]
(NMFS Survey Data)



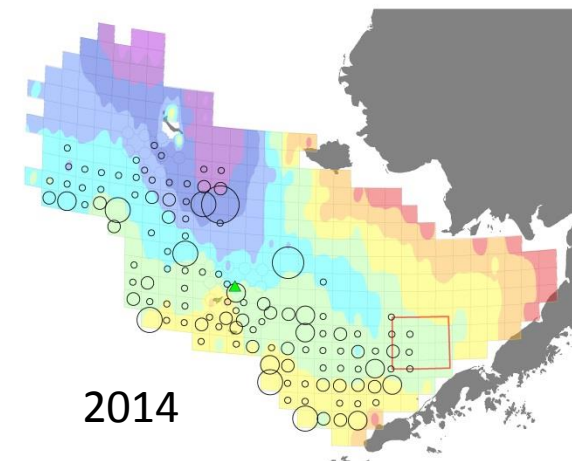
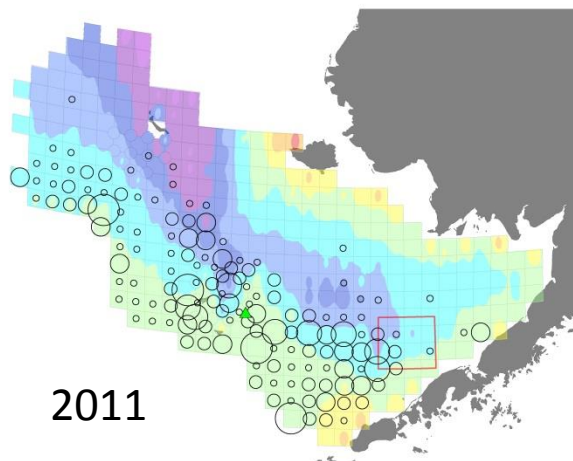
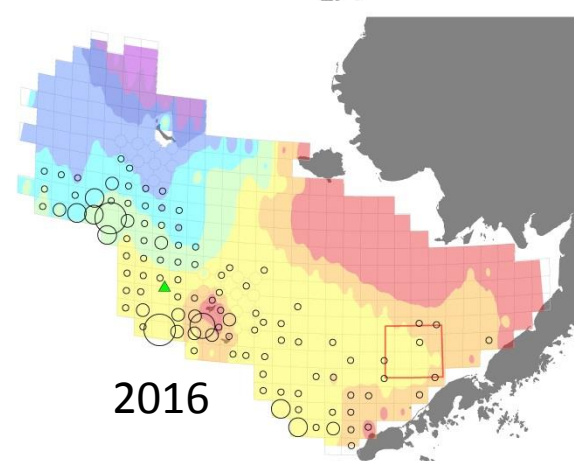
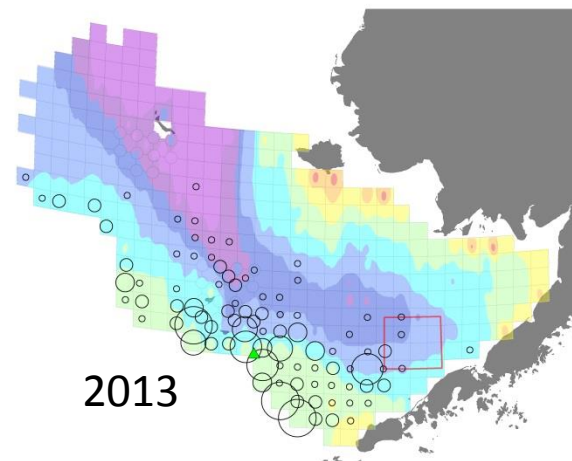
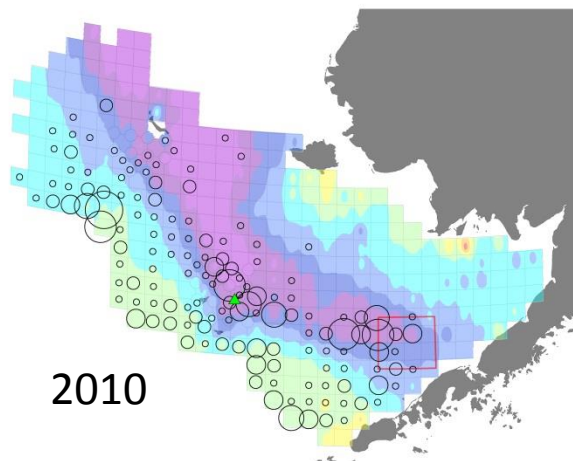
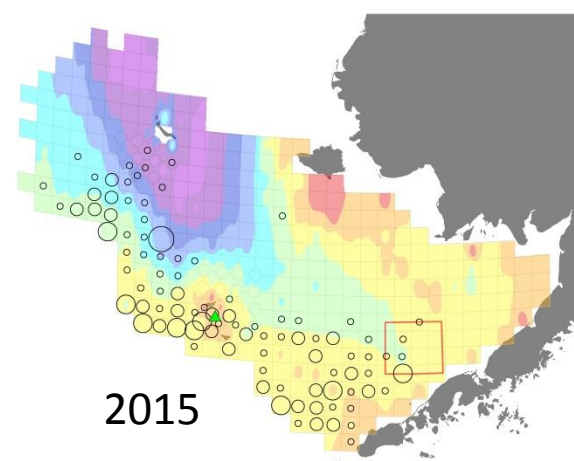
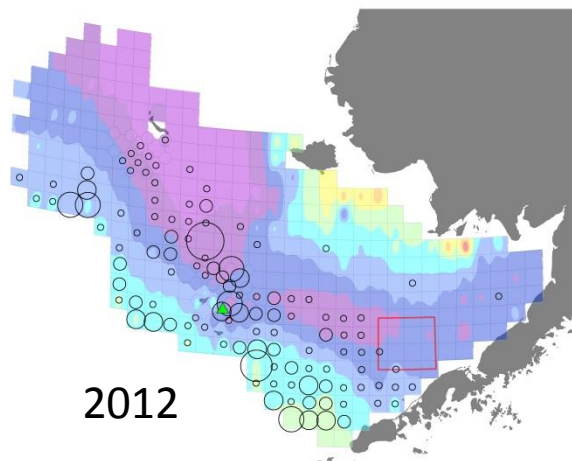
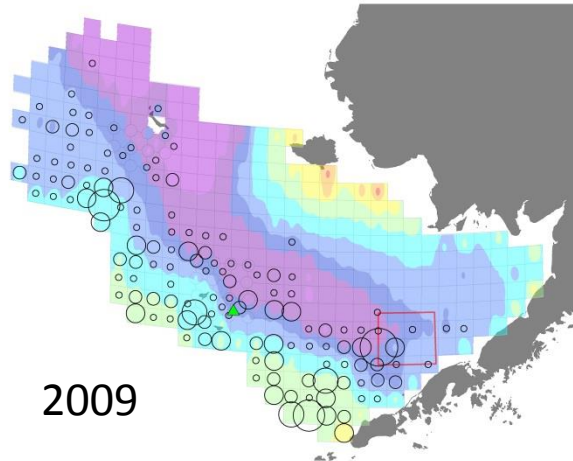
Immature Female Bairdi
[observed]
(NMFS Survey Data)



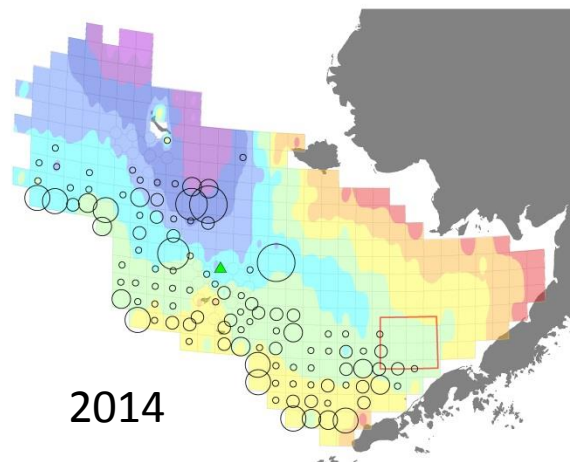
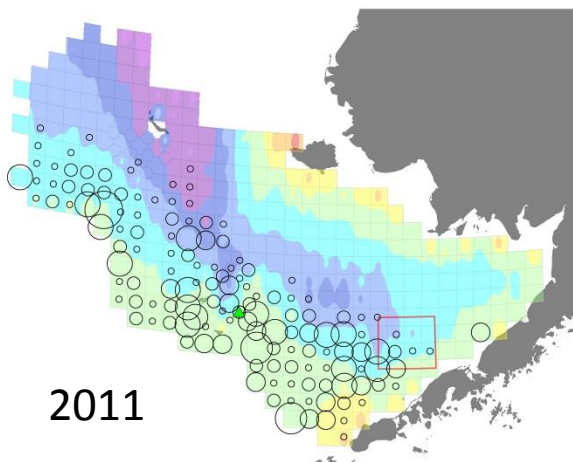
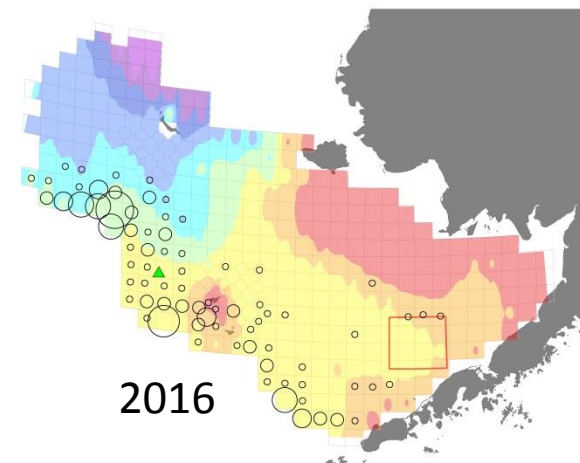
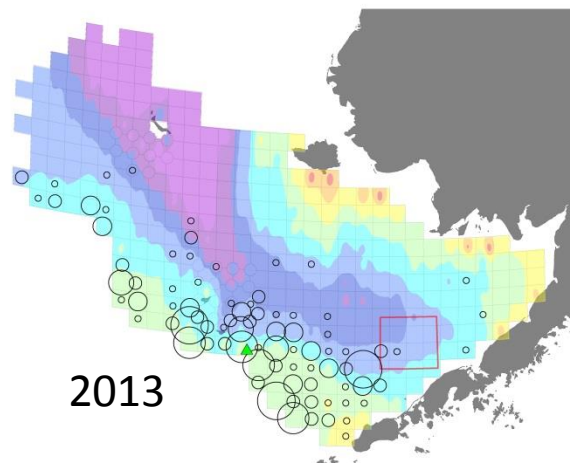
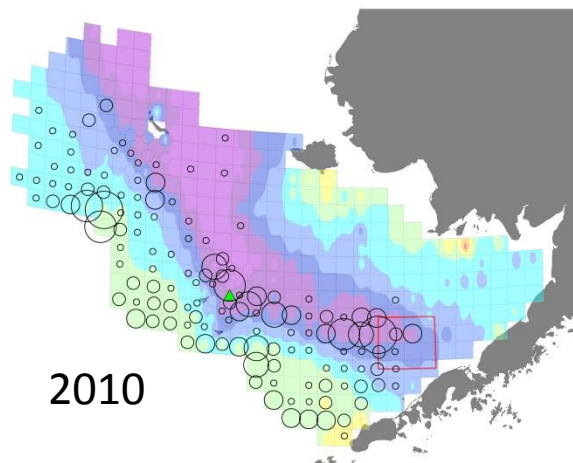
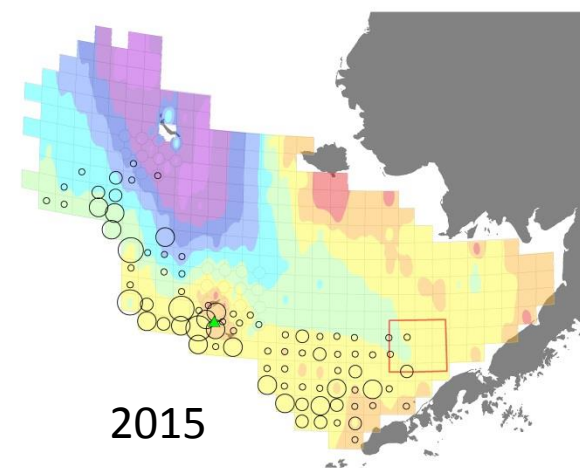
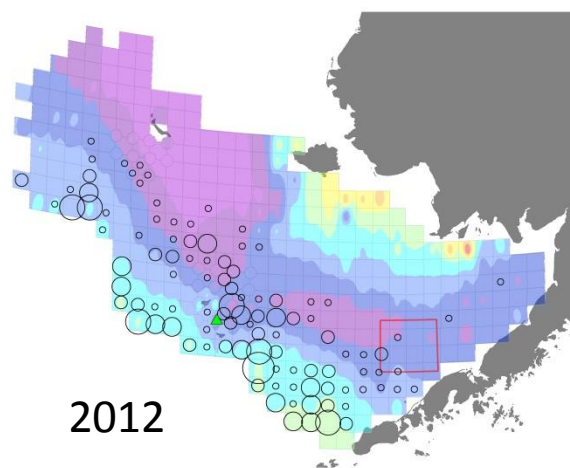
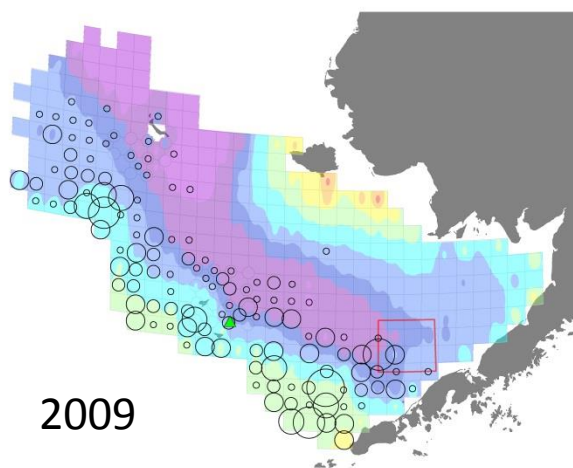
Mature Male Bairdi
[observed]
(NMFS Survey Data)



Immature Male Bairdi
[observed]
(NMFS Survey Data)

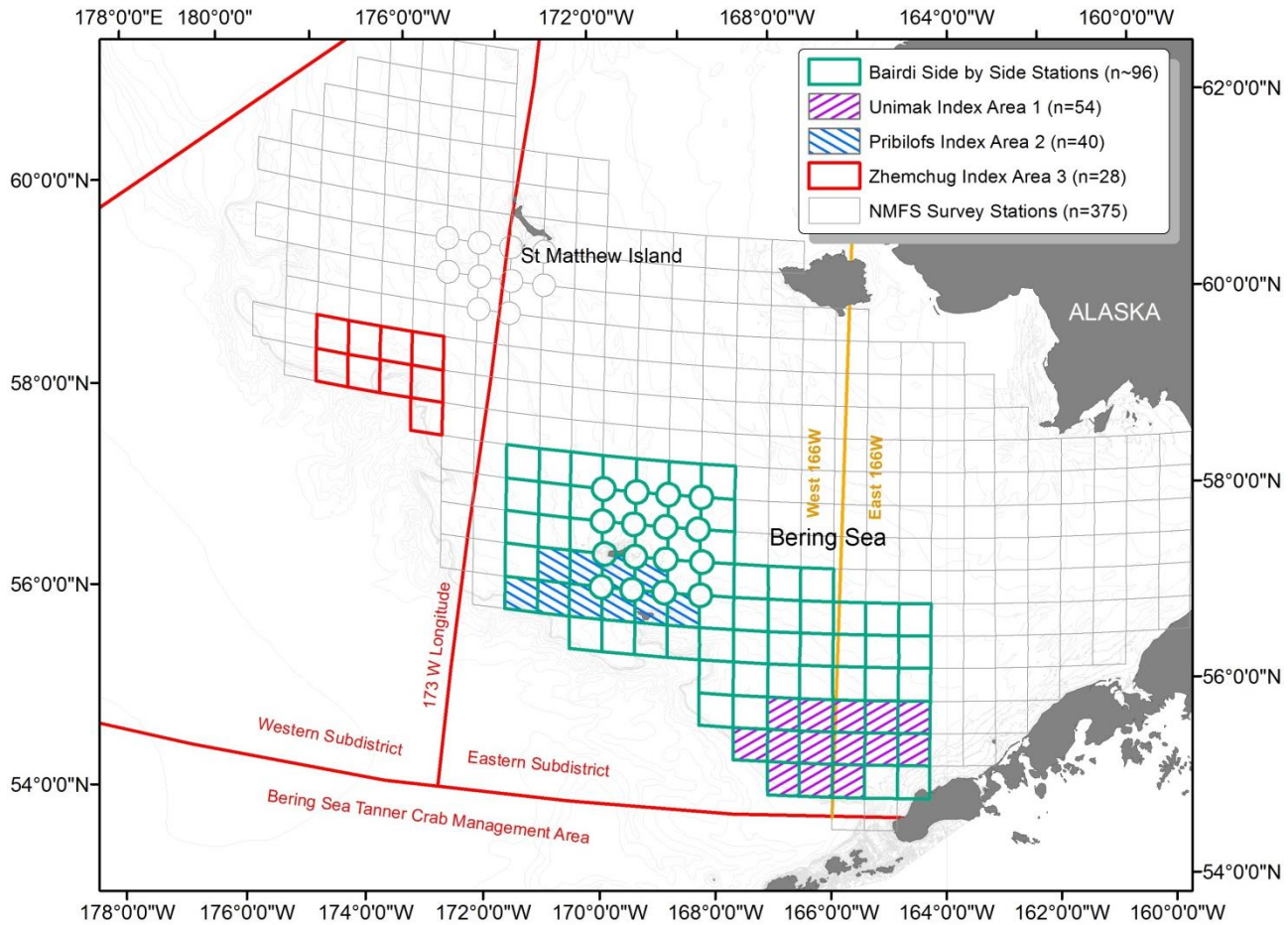


Sub 41 mm Male Bairdi
(NMFS Survey Data)

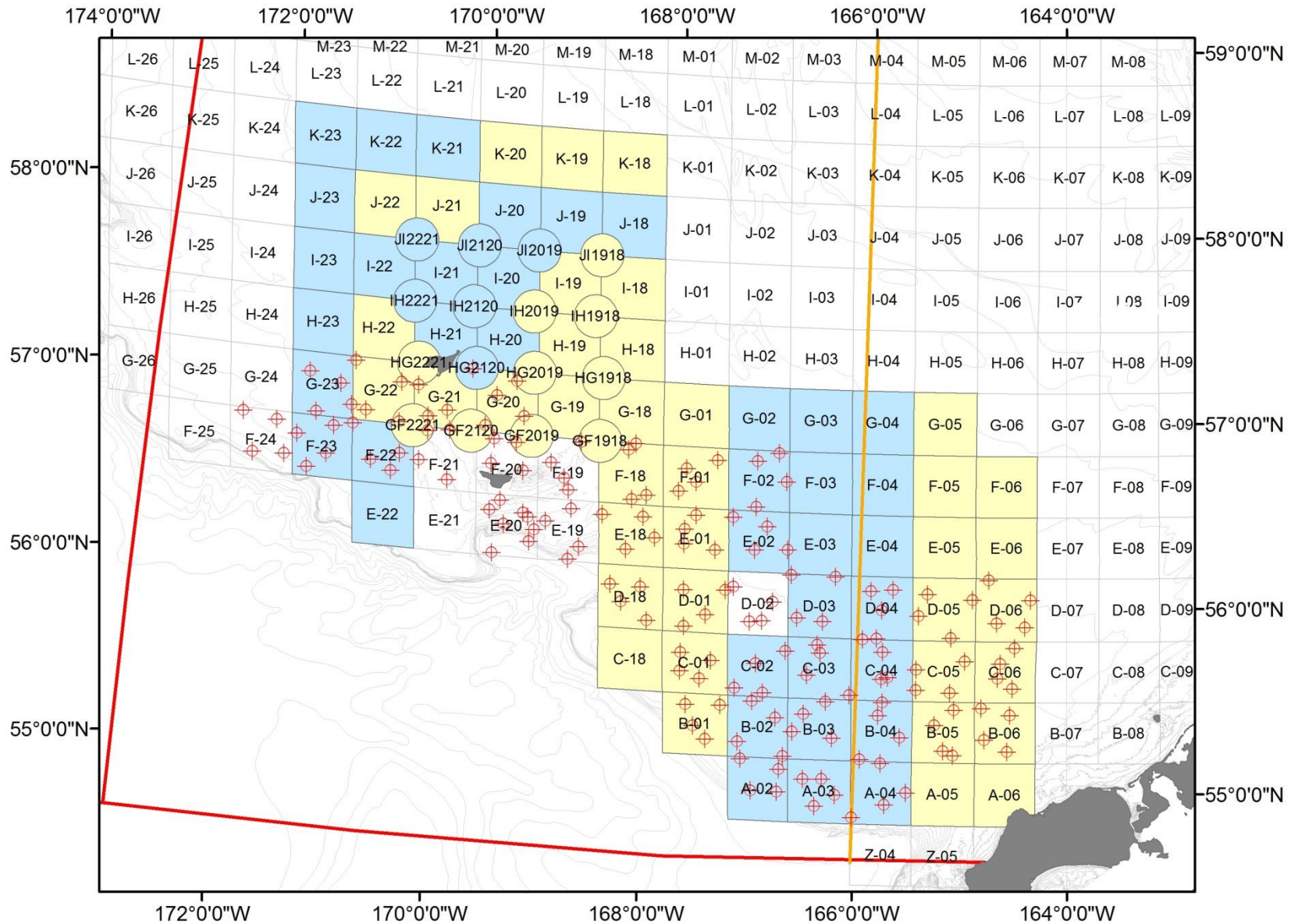


Sub 41 mm Female Bairdi
(NMFS Survey Data)

Bairdi Projects – Planned



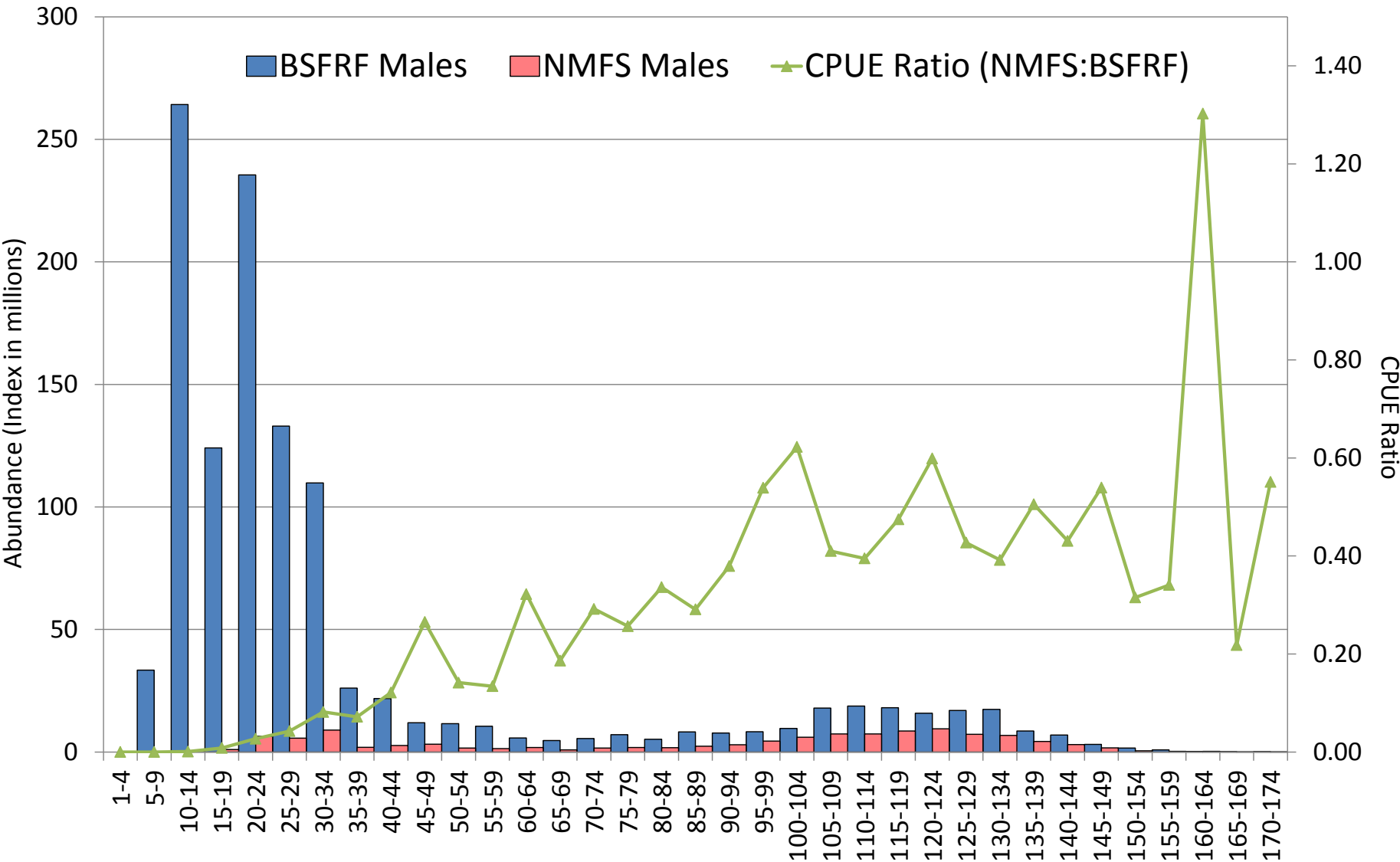
Bairdi Projects – Actual 2017



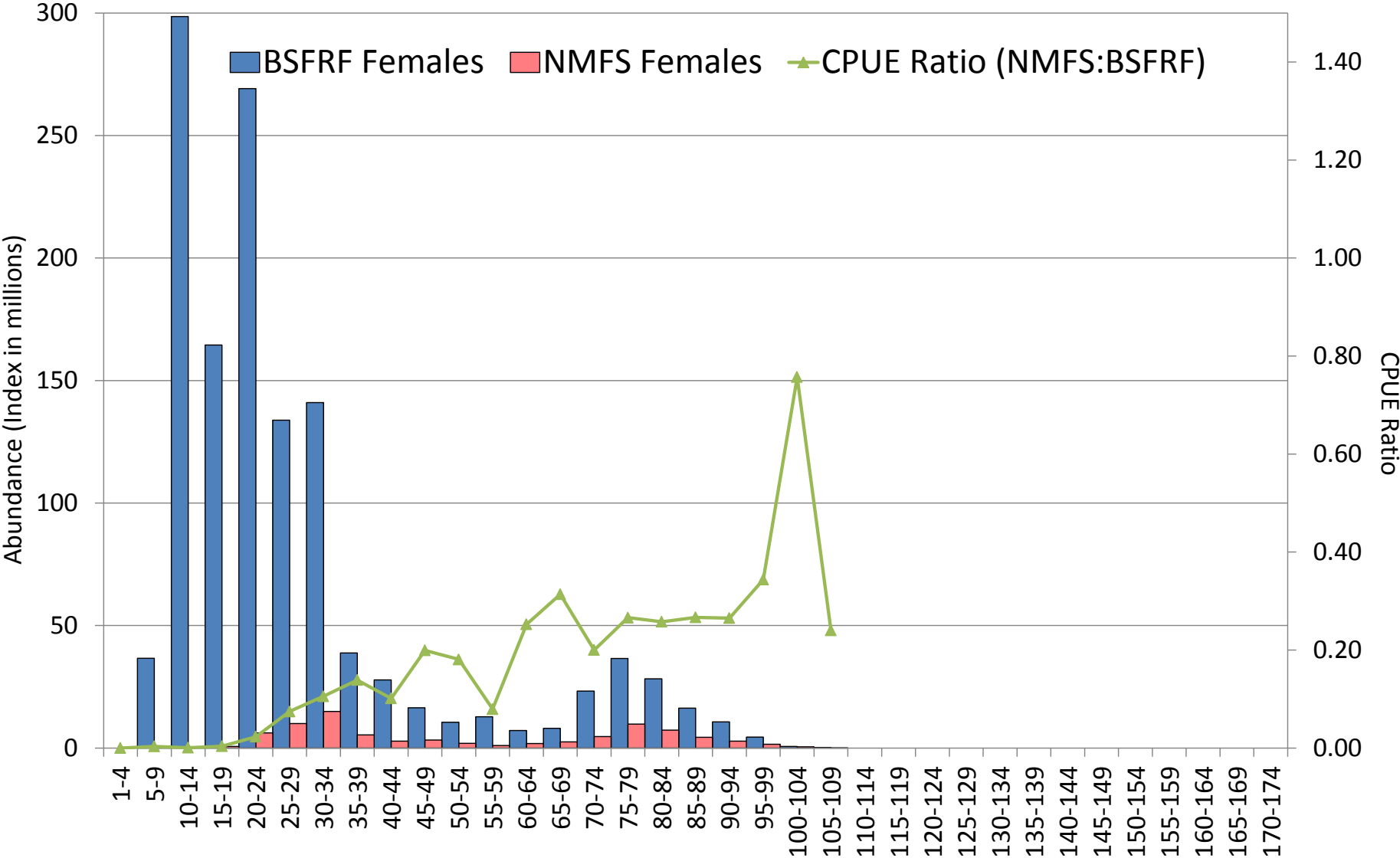
Bairdi Projects – Actual 2017

- NMFS Survey 209 + Bairdi Stations Total
- 95 side by side stations [53% of catch]
- From NMFS cpue data:
 - 132 stations account for 95% [72 sbs]
 - Top 20 stations acct. for 52% [11 sbs]
- In 95 sbs NMFS 12,600/BSFRF 22,400 catch
- In 95 sbs CPUE NMFS 921k/BSFRF 6,149k
- 156 BSFRF index area tows in 101 stations
 - Presented FRI and w/ Final data

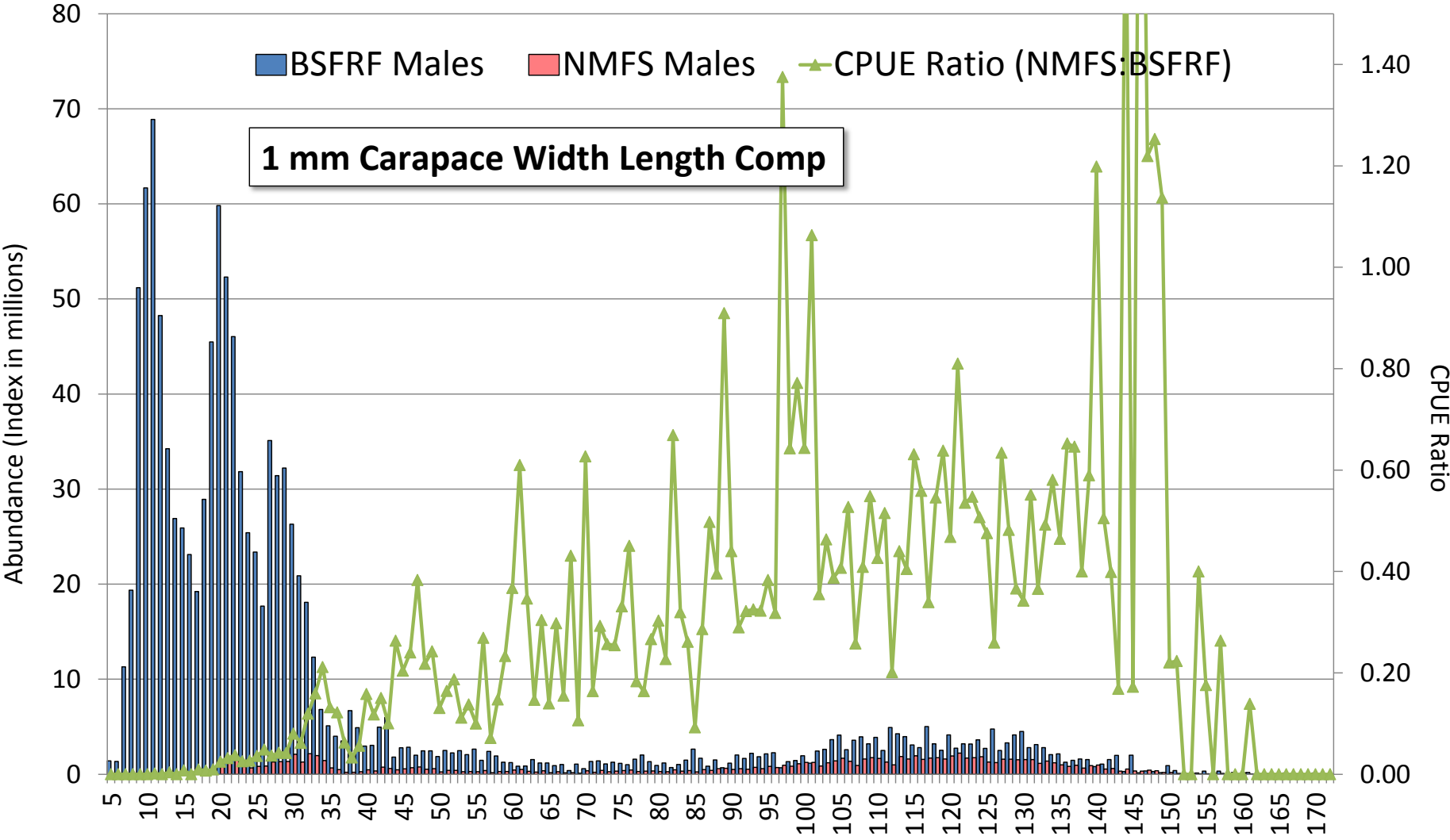
Bairdi Trawl Selectivity 2017 – Expanded Side by Side



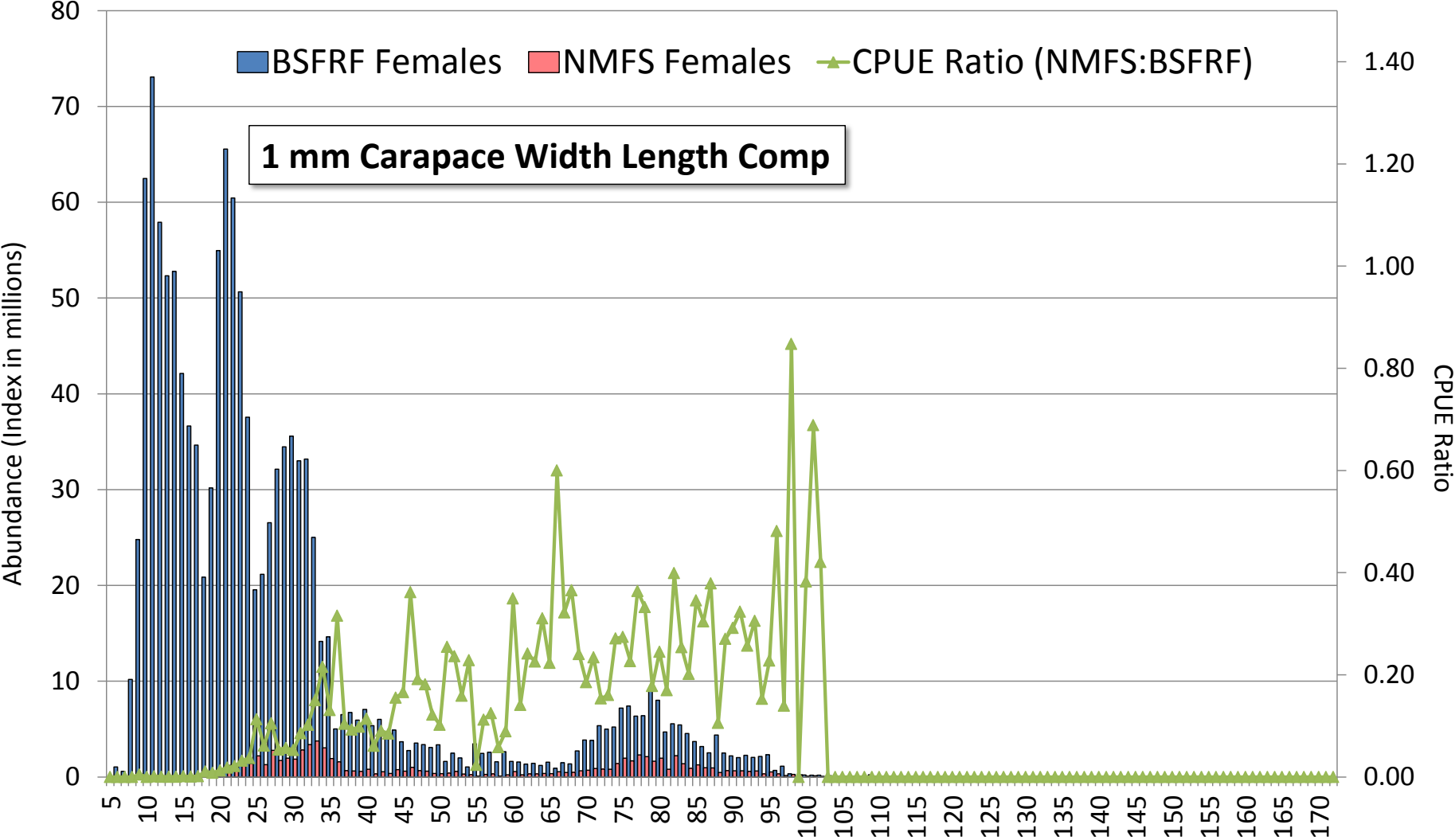
Bairdi Trawl Selectivity 2017 – Expanded Side by Side



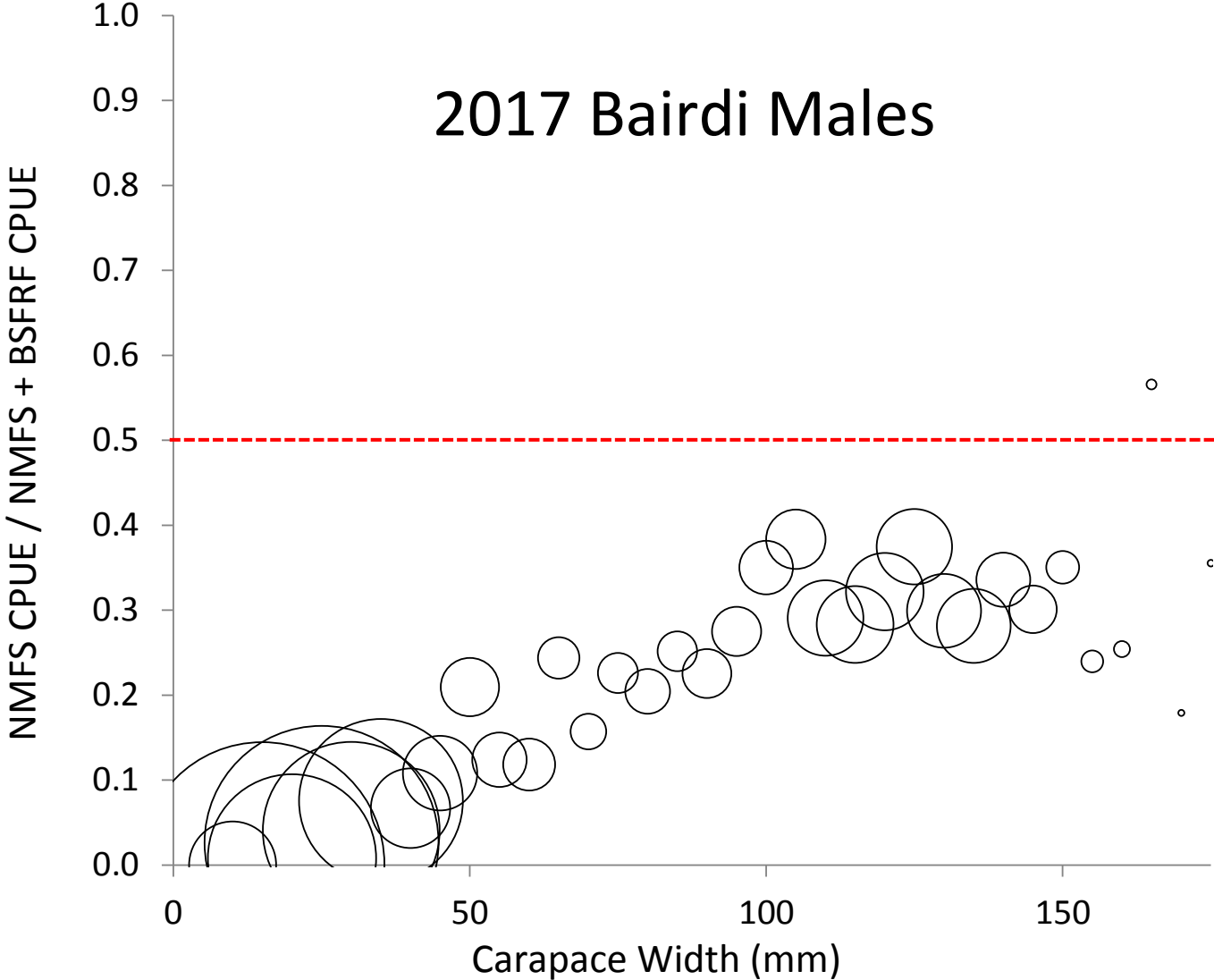
Bairdi Trawl Selectivity 2017 – Expanded Side by Side



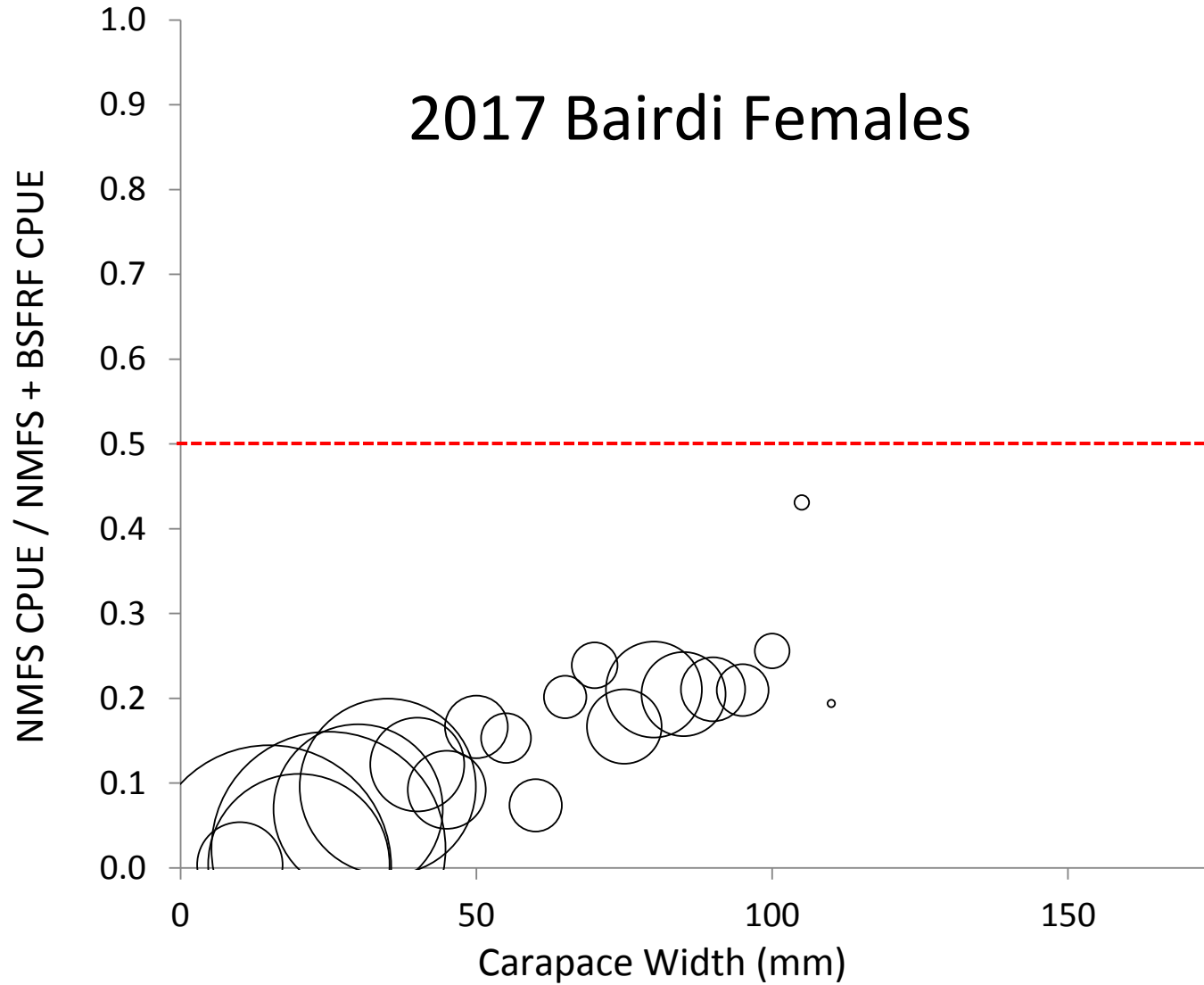
Bairdi Trawl Selectivity 2017 – Expanded Side by Side



Bairdi Trawl Selectivity 2017 – Expanded Side by Side



Bairdi Trawl Selectivity 2017 – Expanded Side by Side

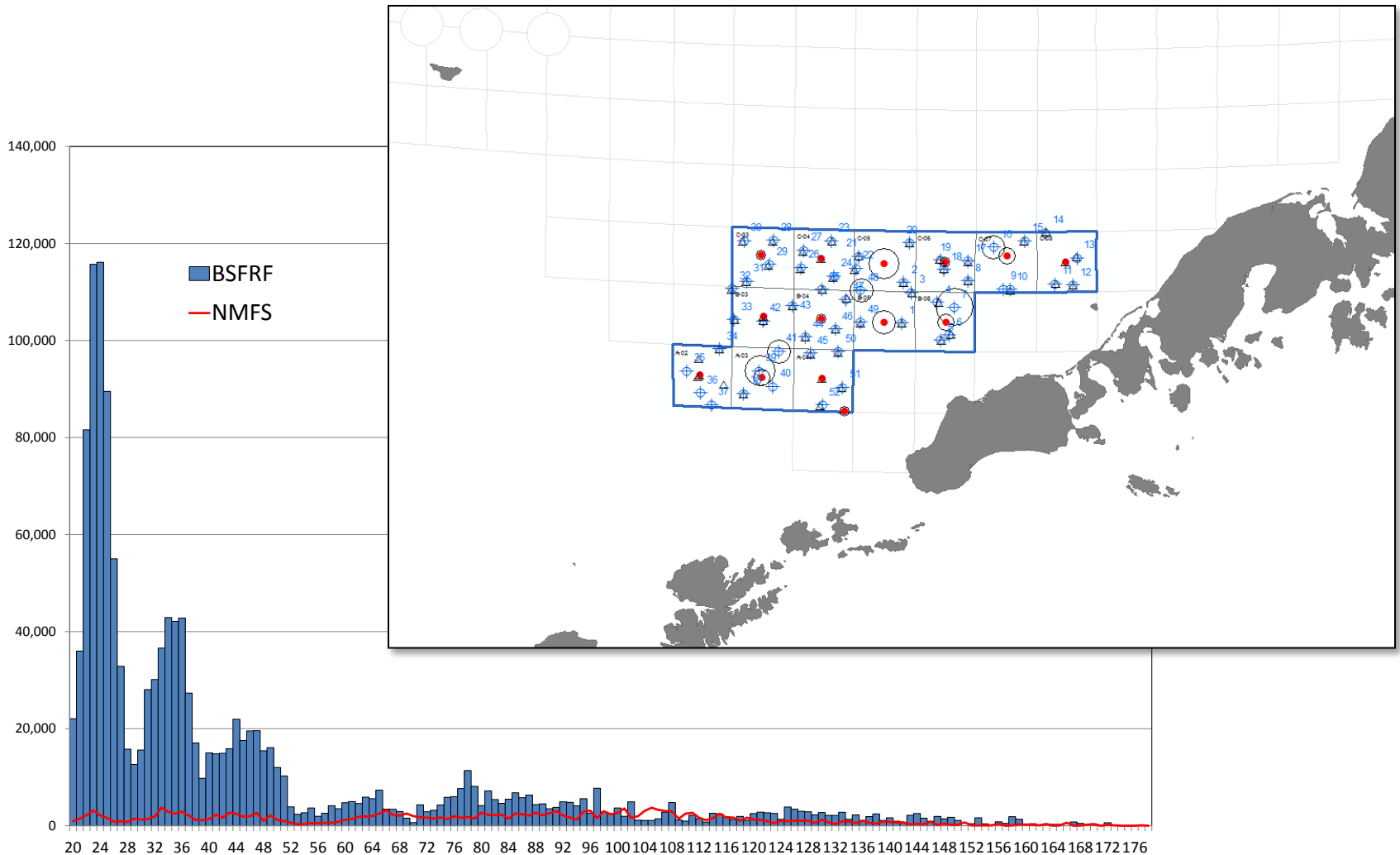


Bairdi Trawl Selectivity – Next Steps

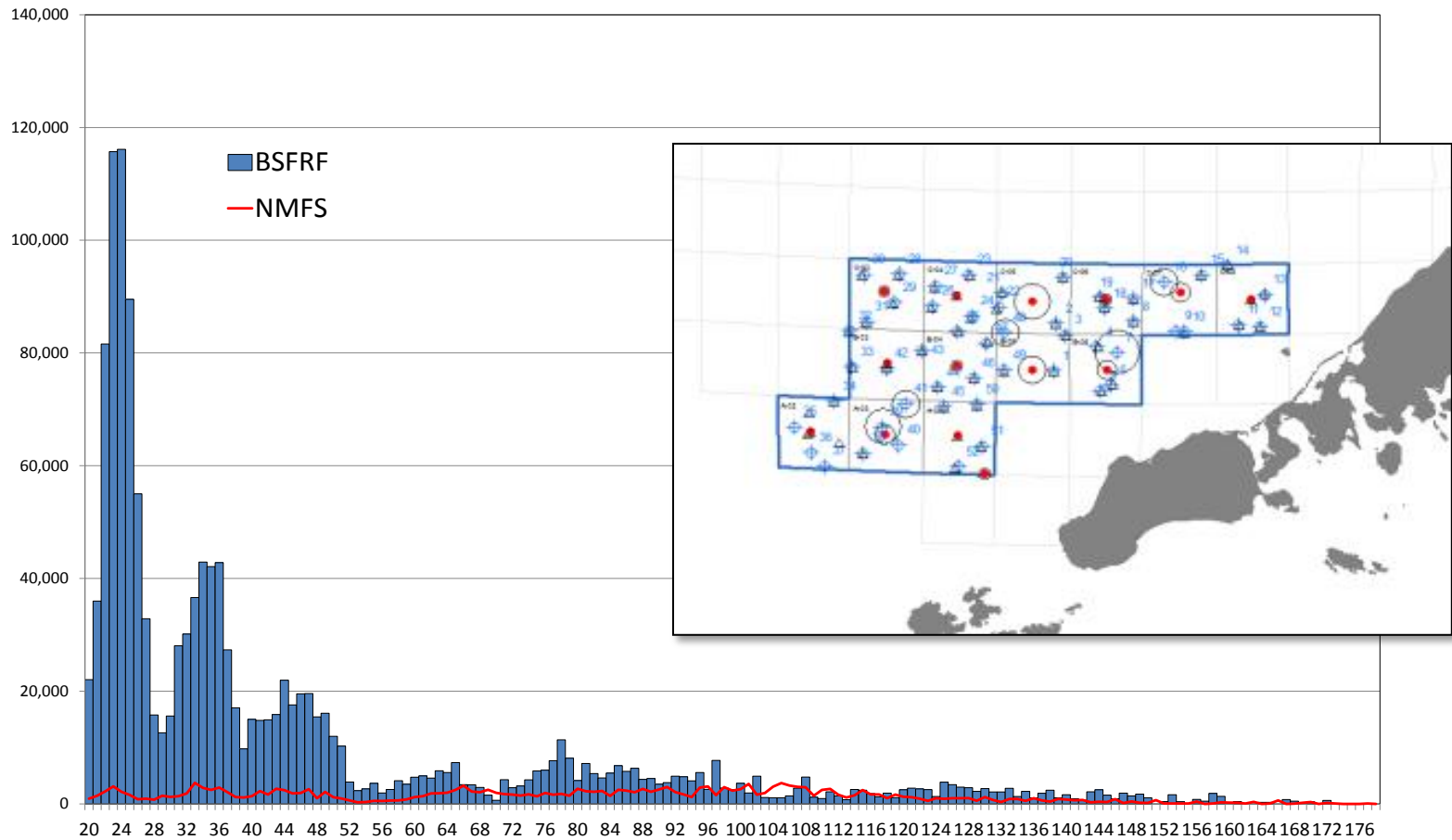
- Incorporating data into model
- Choosing modeling methods
- Increasing samples - survey data from western stock areas
- Reviewing other information from current data

Bairdi Trawl Selectivity 2016/17

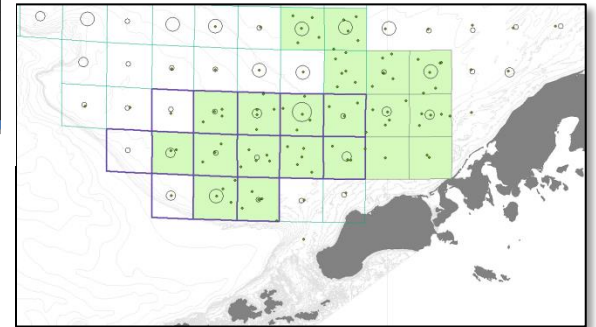
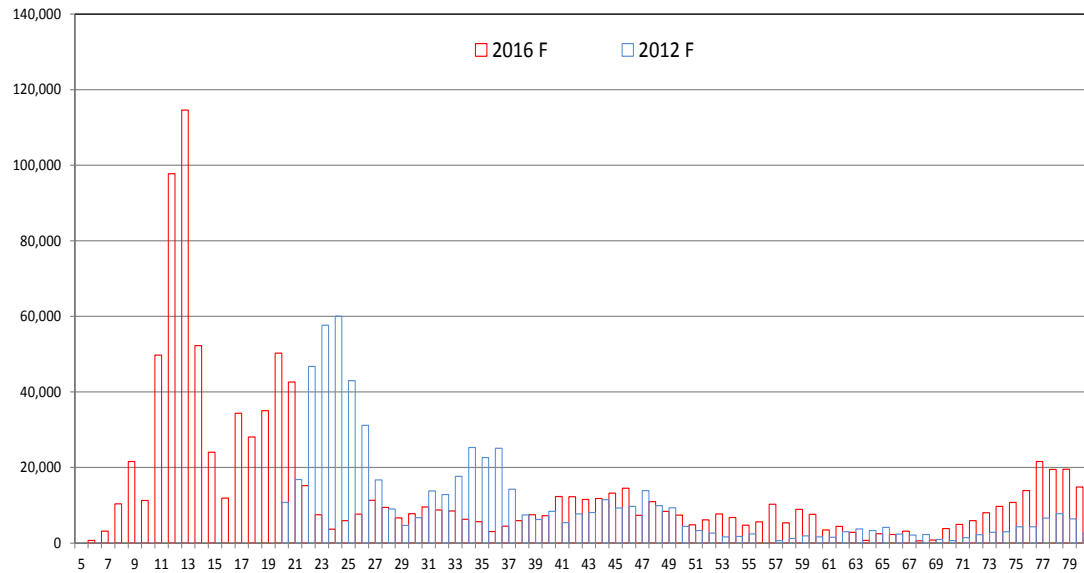
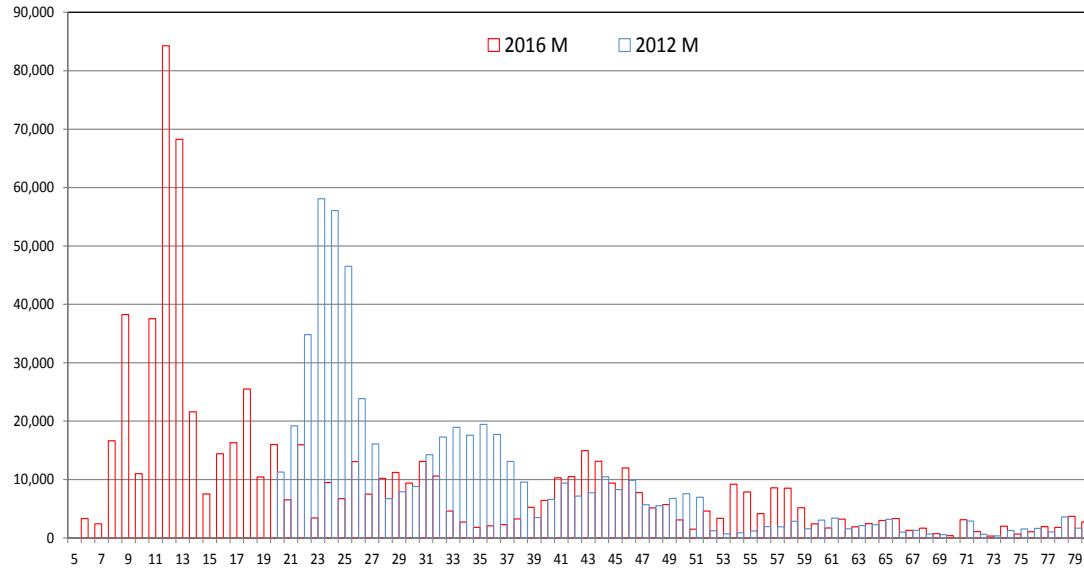
Two Surveys – Selectivity & Index Areas



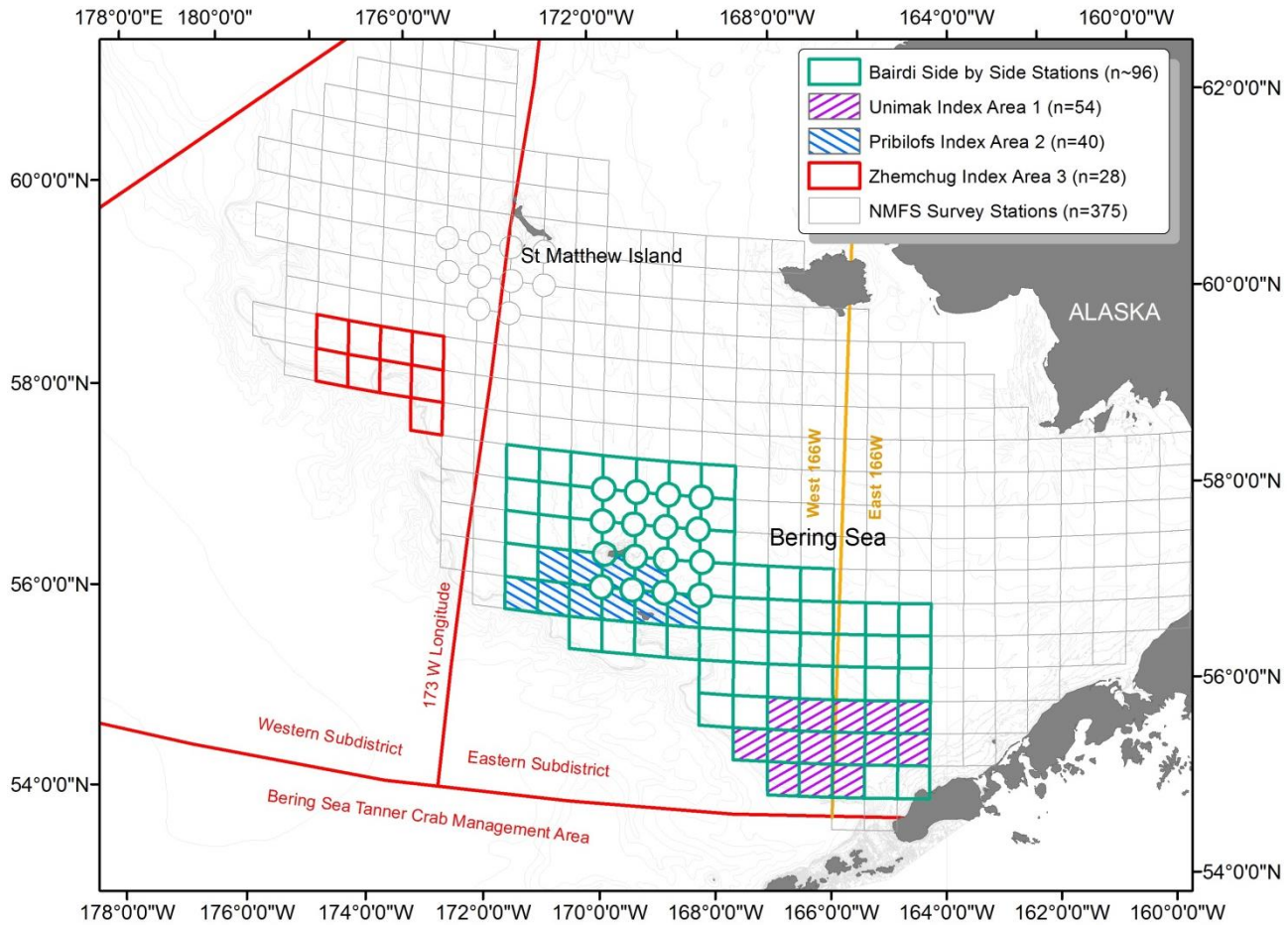
Bairdi Trawl Selectivity 2012-16



Bairdi Trawl Selectivity 2012-16



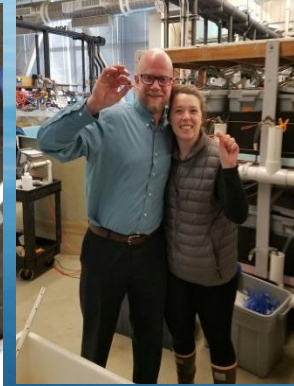
Bairdi Projects – On the Horizon



Ongoing Crab Growth Research, 2012-17



- BSFRF chartered F/V Sunset Bay for 10 day charter, April – (2012, '15, '16, '17)
- Live collection of Snow & Tanner crabmales and females with Nephrops trawl
- Pre-molt crabs retained for transport to Dutch Harbor for holding during molting
- Methods; crab onshore at Westward tanks, crab in water @ harbor, crab -> Kodiak
- Currently ongoing monitoring – about 150 cumulative growth points to date



- Warm water in Spring 2016 allowed for collection in area usually under ice
- Cold water in Spring 2017 kept collection charter in search mode in/out of ice



Cooperative Research



Questions