

2016 Eastern Bering Sea Upper Continental Slope Bottom Trawl Survey

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Eastern Bering Sea slope survey -overview

Biennial survey beginning in 2002 (2002, 2004, 2008, 2010, 2012, 2016)

Random stratified survey with effort distributed based on estimated survey area

“Full” survey is 200 successful bottom trawls

6 sub-areas and 5 depth strata in each area (200 meter intervals from 200-1200 m)

Unique Features of EBS slope survey

- 30 minute tows

- 2.5 knot trawling speed

- PolyNor’Eastern net

- Autotrawl

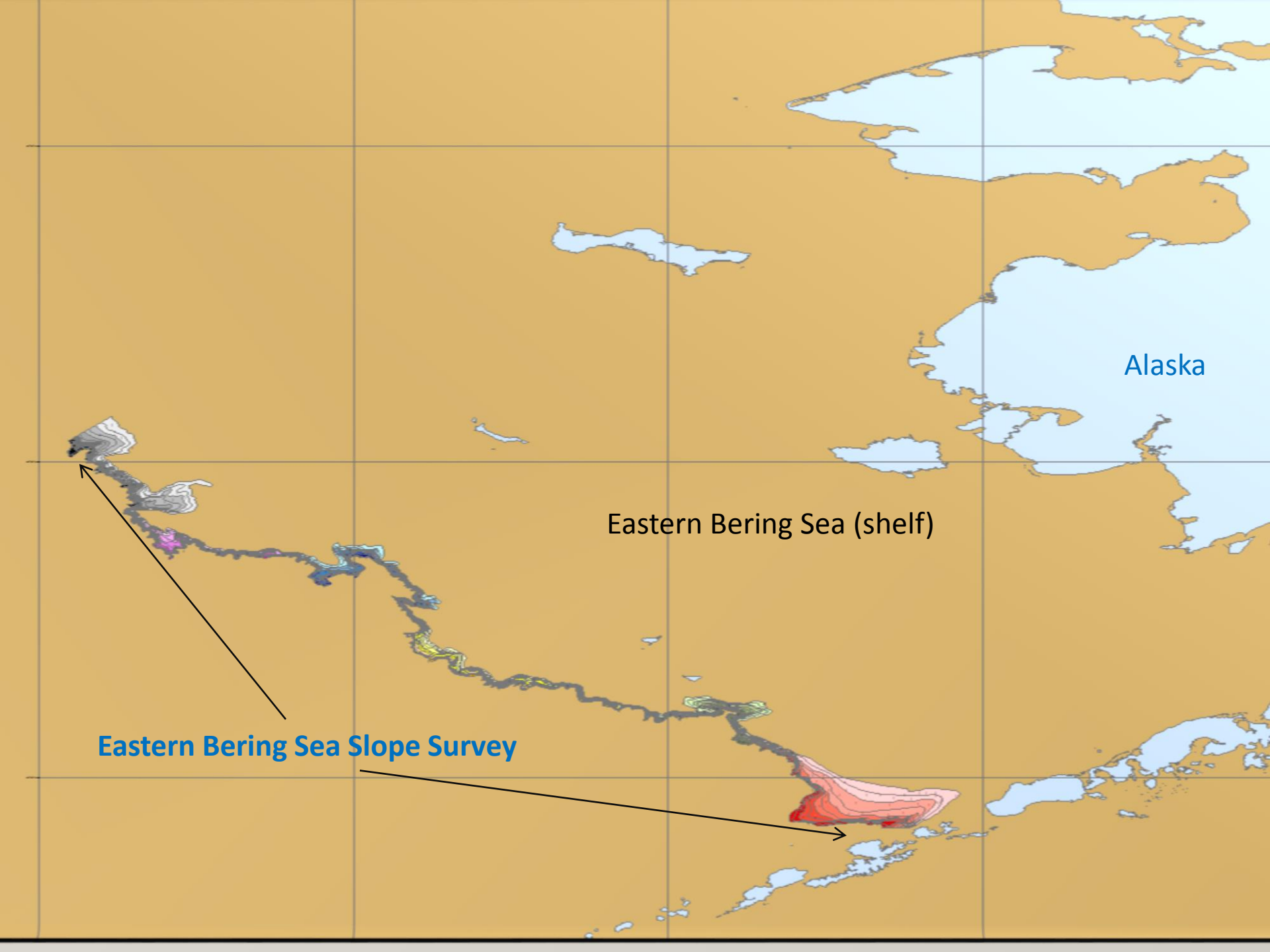
- 2MT doors

- 4 point door connection

- mud sweep gear footrope

- Entire Catch work –up (no subsampling)

- One Chief Scientist for 15 years (consistency)



Alaska

Eastern Bering Sea (shelf)

Eastern Bering Sea Slope Survey

Eastern Bering Sea slope survey -2016

- 6th survey in 15 years of EBS slope groundfish (2002, 2004, 2008, 2010, 2012, 2016)
- 58 meter FV/RV Cape Flattery
- 4 Legs from 10-22 day legs--Survey Dates from May 30-August 10
- Deployed 17 scientist
- ~ 25 additional scientific projects
- New vessel and skipper to survey
- New length and specimen applications for data acquisition-electronic android tablets
- Random otolith collections for most species (except Arrowtooth and Turbot)
- Environmental data: O2, pH, temperature, salinity, light, turbidity, depth

*Cape
Flattery*

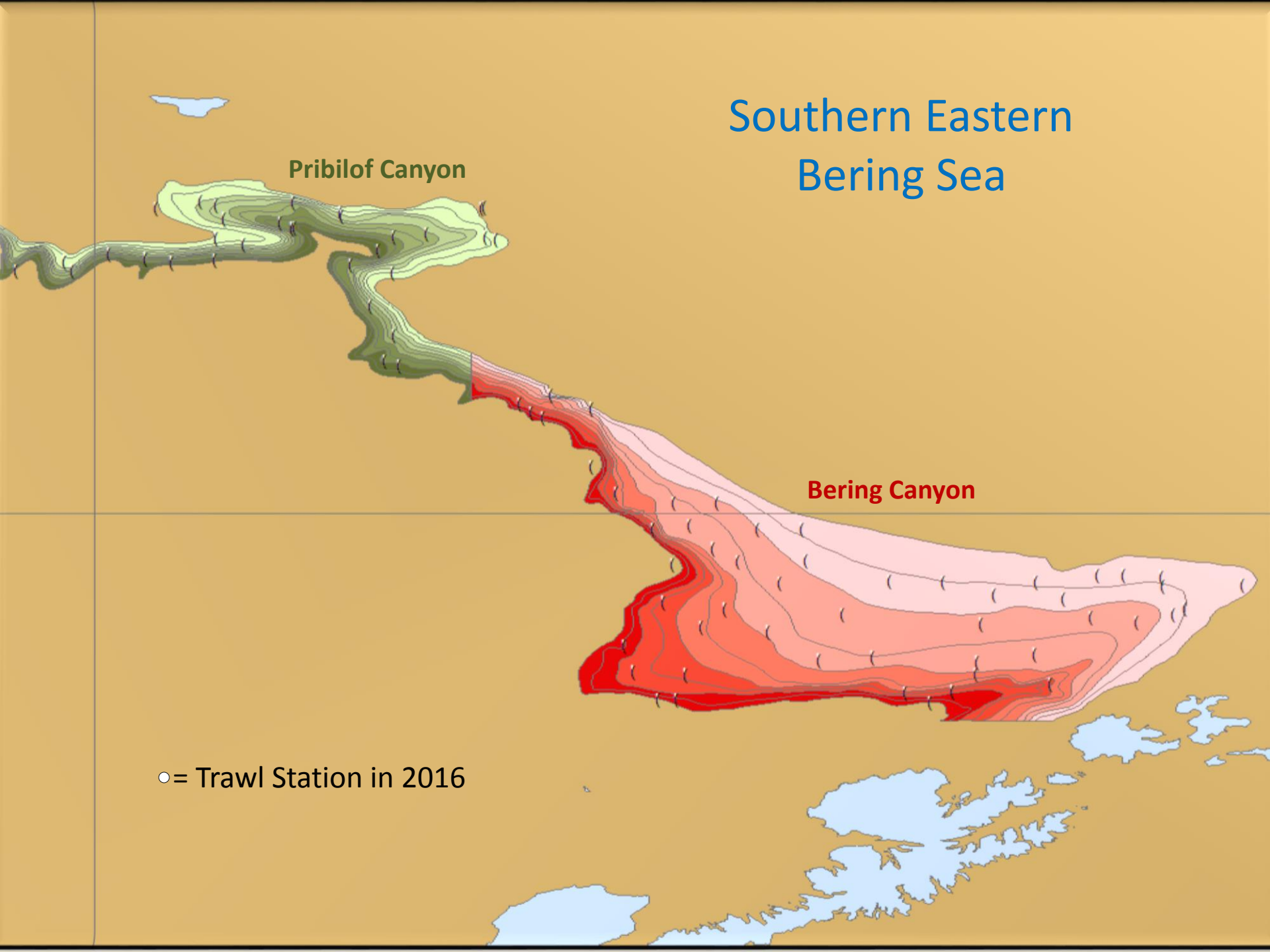


Southern Eastern Bering Sea

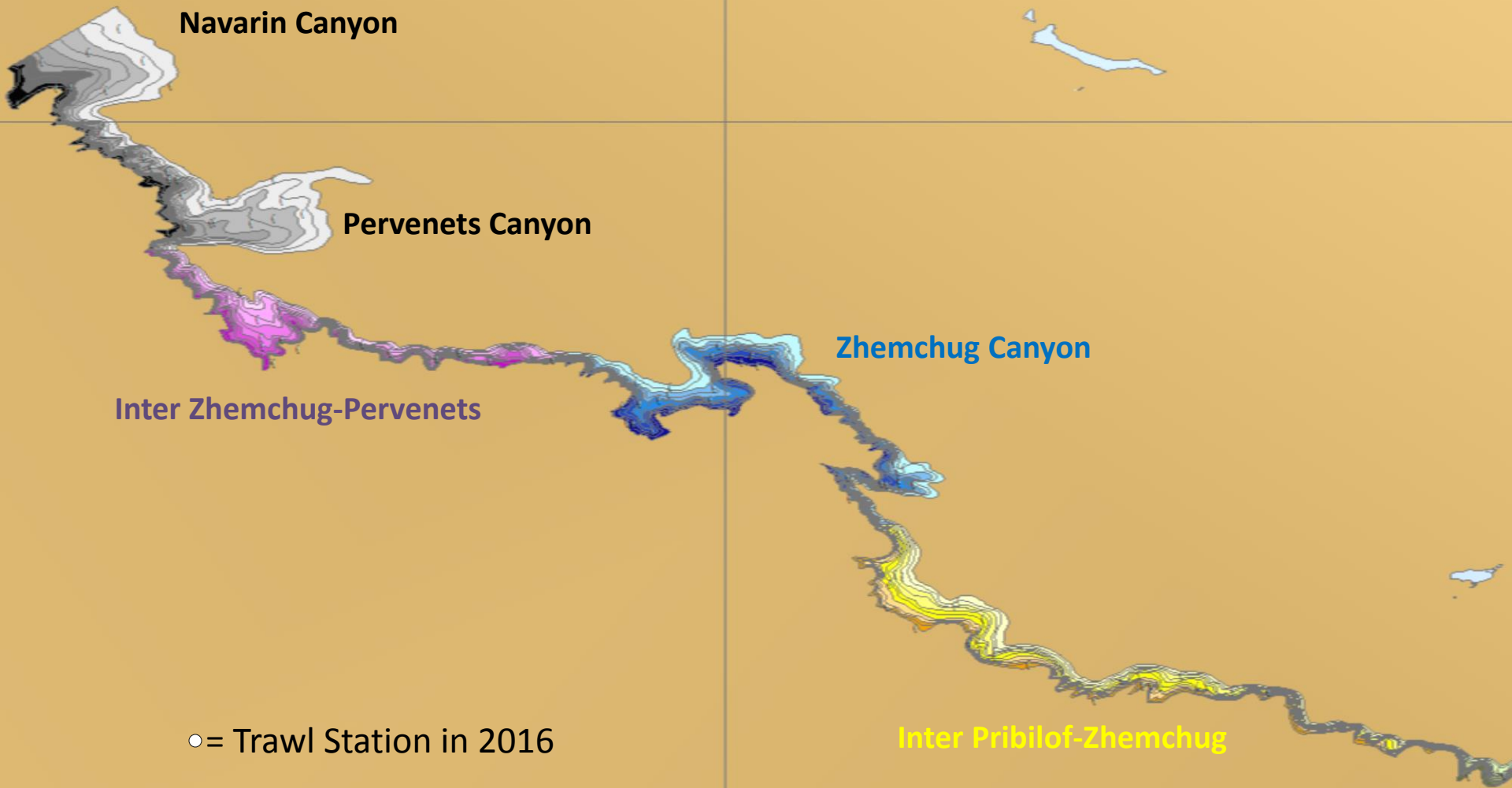
Pribilof Canyon

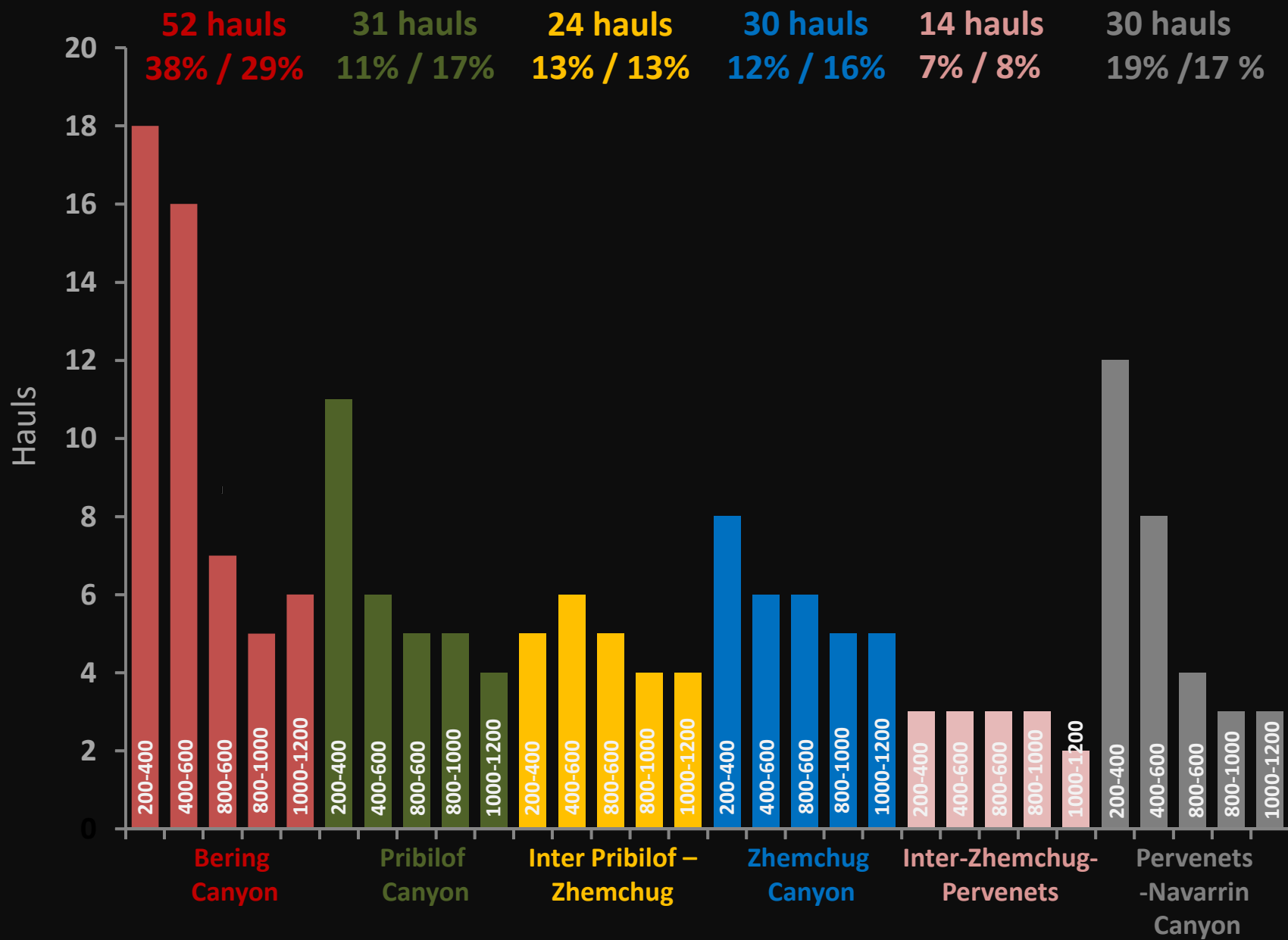
Bering Canyon

○ = Trawl Station in 2016

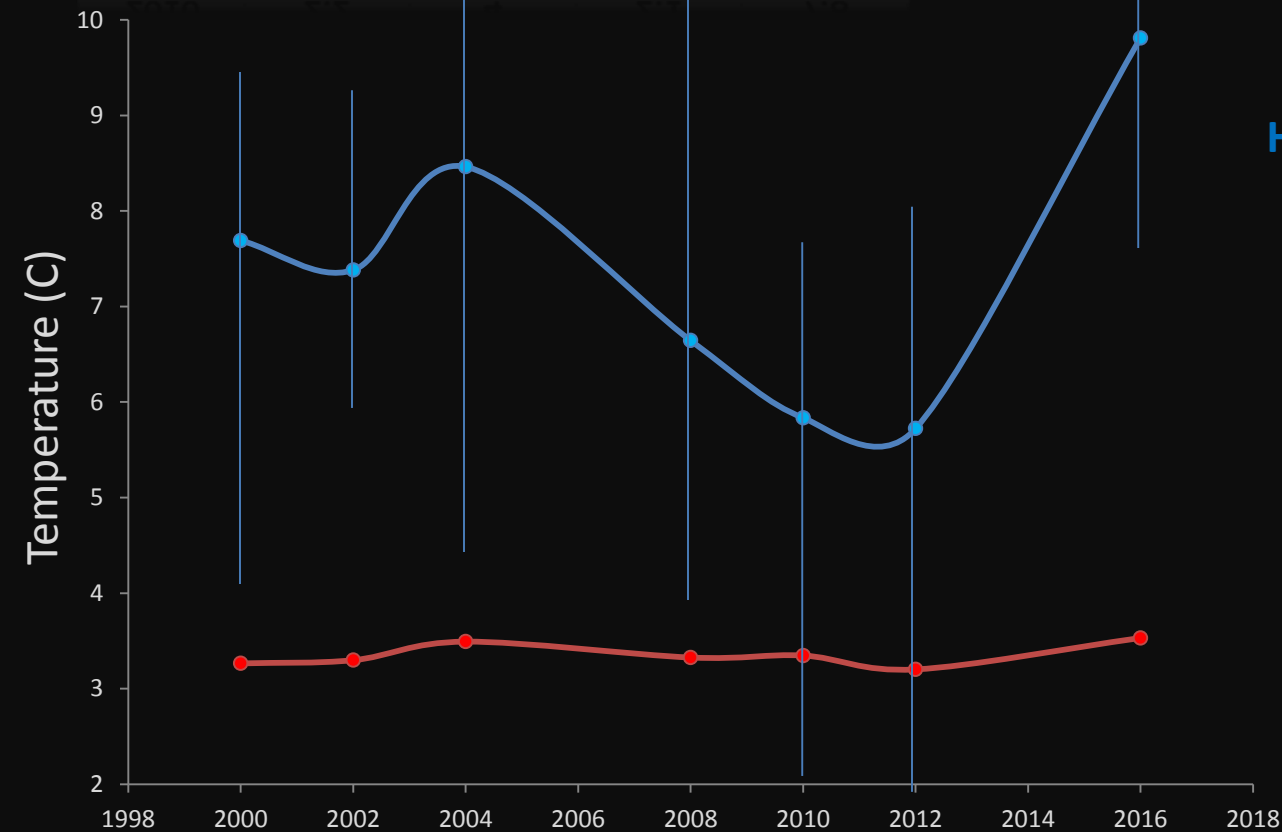


Northern Bering Sea





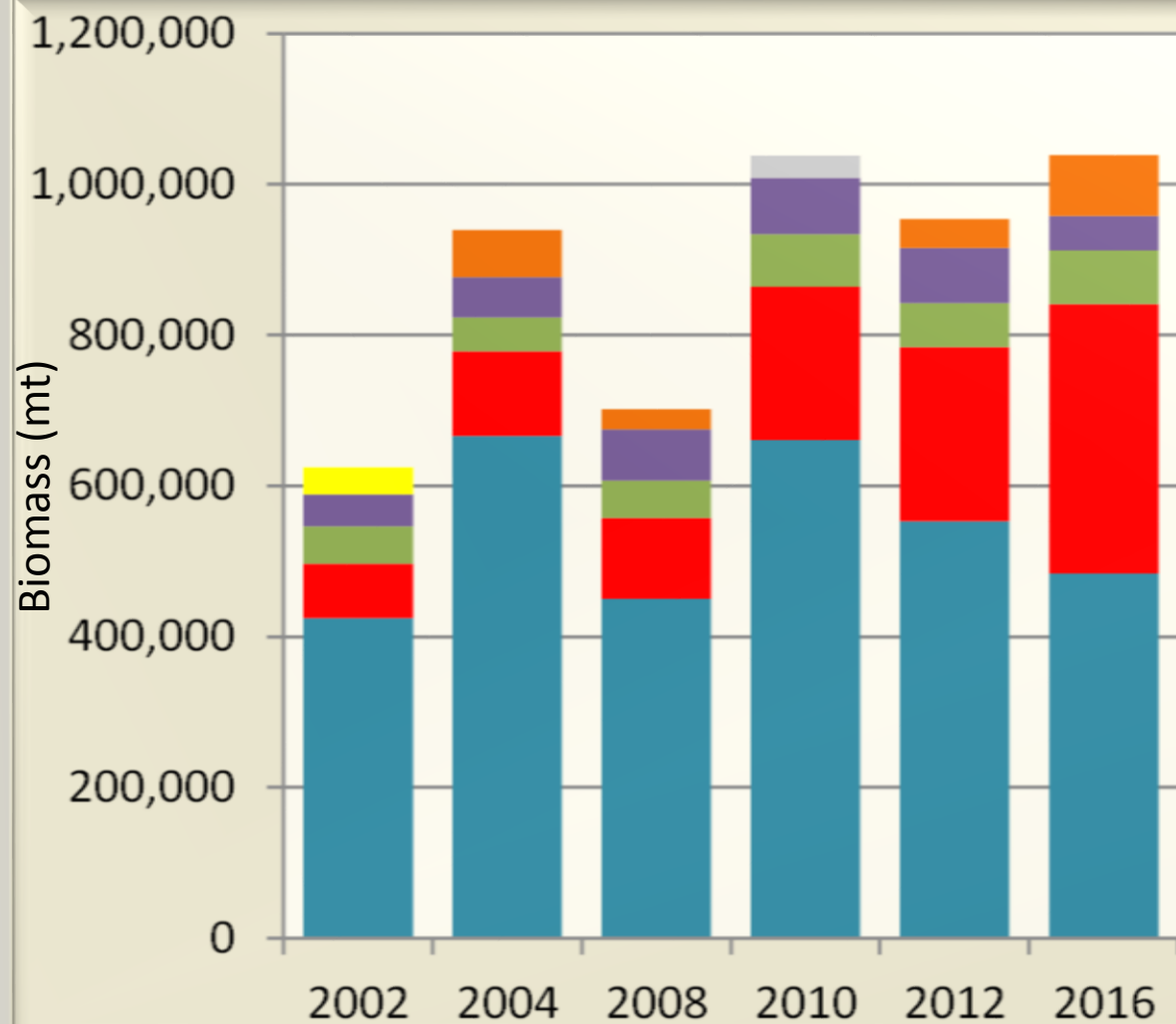
Year	Bottom		Surface	
	minimum	maximum	minimum	maximum
2000	2.4	3.7	4.1	9.6
2002	2.1	4.3	6	9.3
2004	2.3	4.6	4.5	10.9
2008	2.4	4.1	3.9	10.4
2010	2.2	4	2.1	7.8
2012	2	3.8	1.6	8
2016	2.3	4.6	7.7	12.8



**Surface temperatures
Highest for survey since 2000**

**Bottom temperatures
Nearly constant**

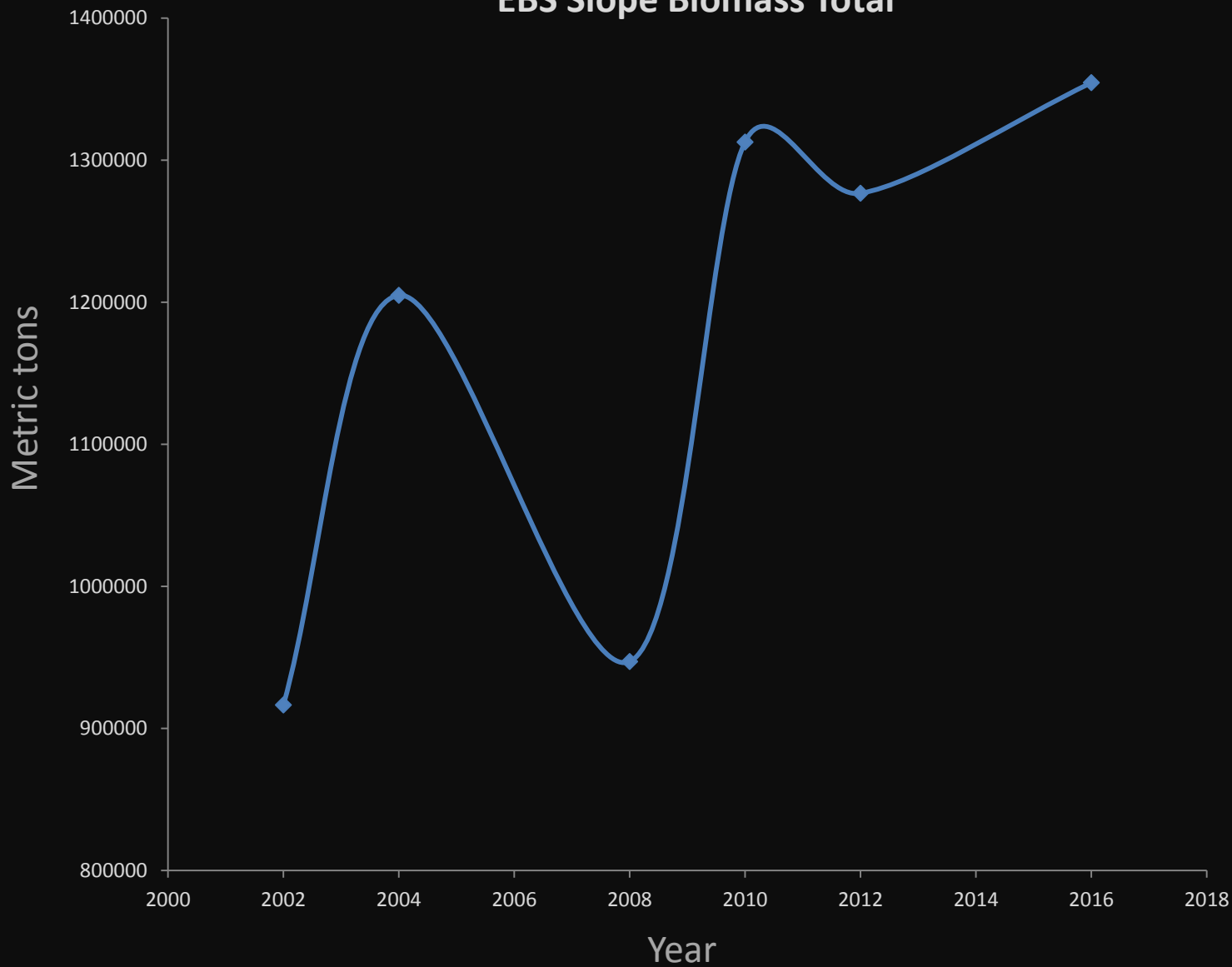
Common name	Scientific name	Age structures	Stomachs	Lengths
Arrowtooth Flounder	<i>Atheresthes stomias</i>	445	332	3483
Kamchatka Flounder	<i>Atheresthes evermanni</i>	744	334	2719
Greenland Turbot	<i>Reinhardtius hippoglossoides</i>	652	131	1763
Sablefish	<i>Anoplopoma fimbria</i>	455		577
Rougheye Rockfish	<i>Sebastes aleutianus</i>	24		25
Blackspotted Rockfish	<i>Sebastes melanostictus</i>	143		137
Pacific Ocean Perch	<i>Sebastes alutus</i>	404	249	3398
Shortraker Rockfish	<i>Sebastes borealis</i>	349	46	346

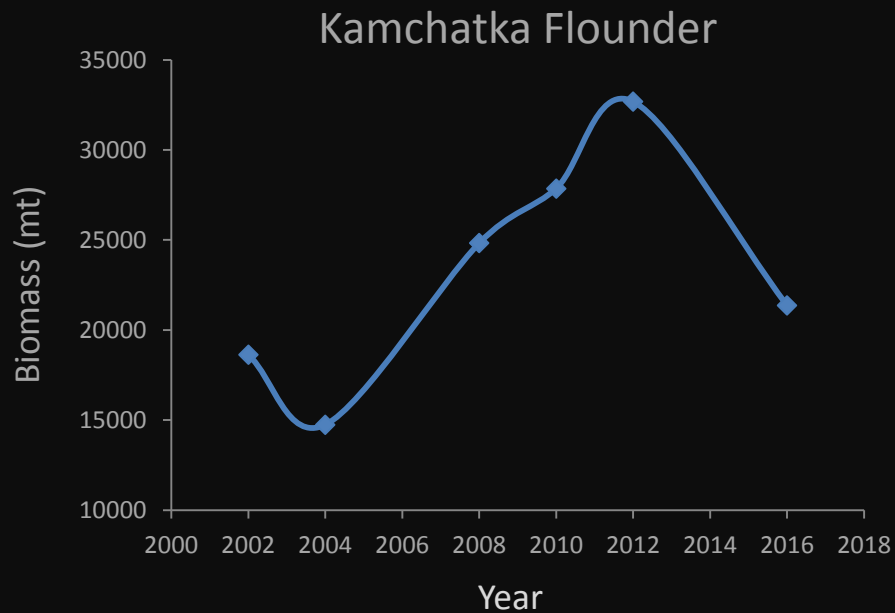
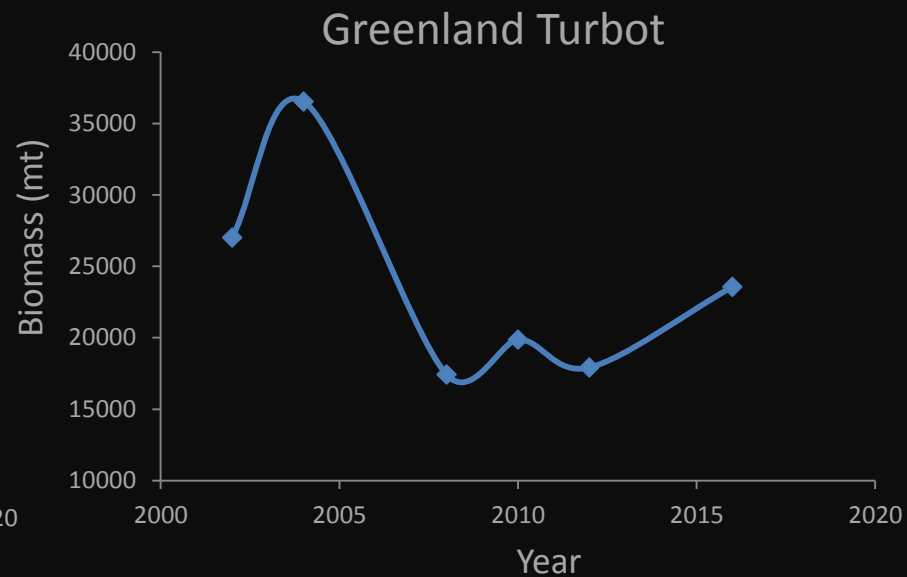
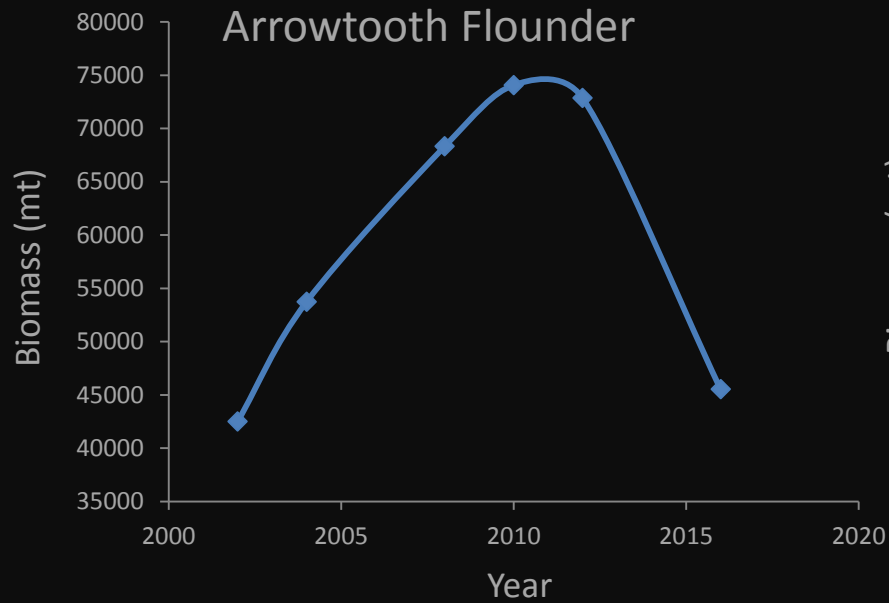


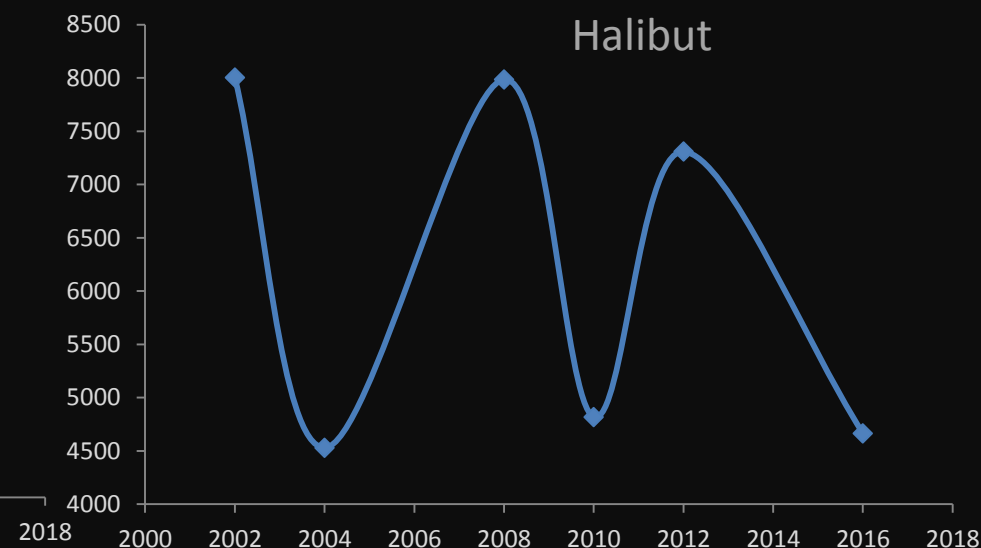
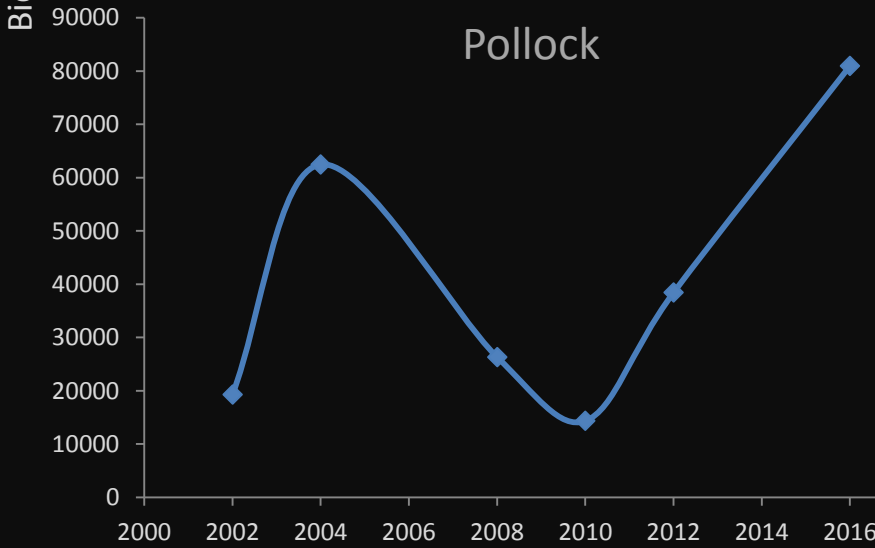
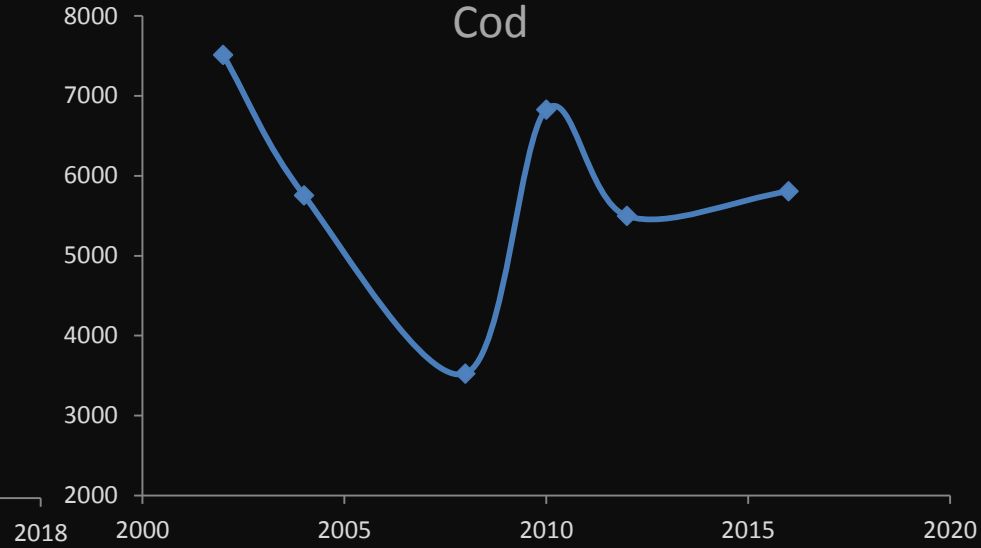
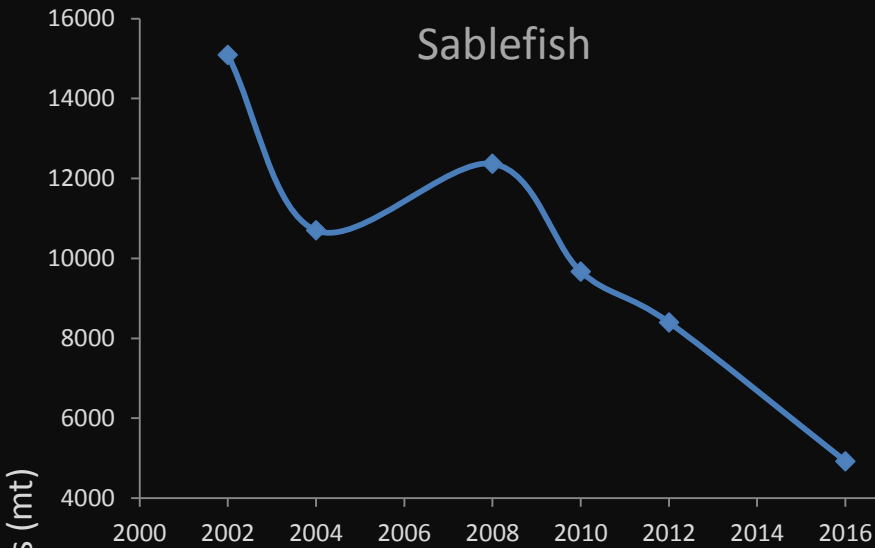
~70% of Total Biomass

- Shortspine Thornyhead
- Walleye Pollock
- Alaska Skate
- Arrowtooth Flounder
- Popeye Grenadier
- Pacific Ocean Perch
- Giant Grenadier

EBS Slope Biomass Total





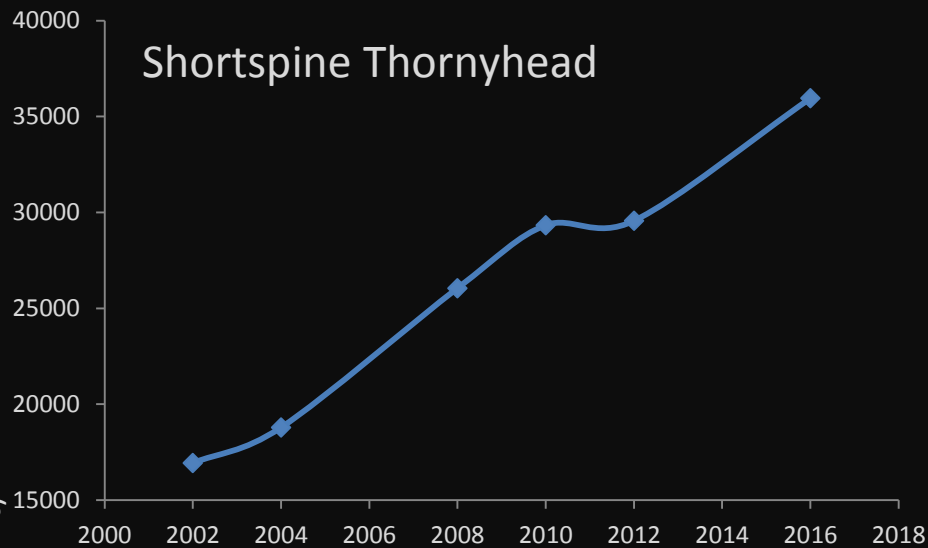


Year

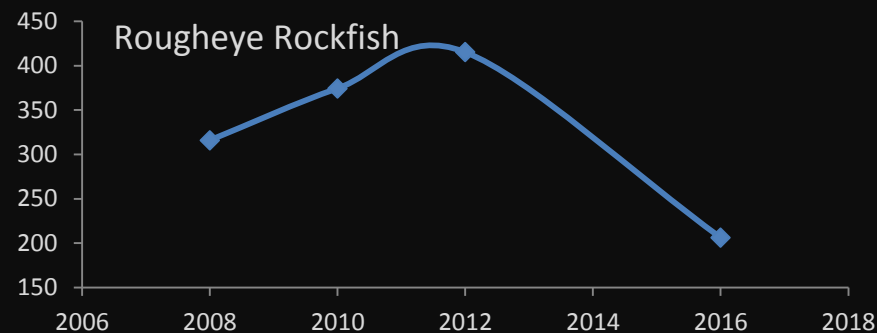
Year

Biomass (mt)

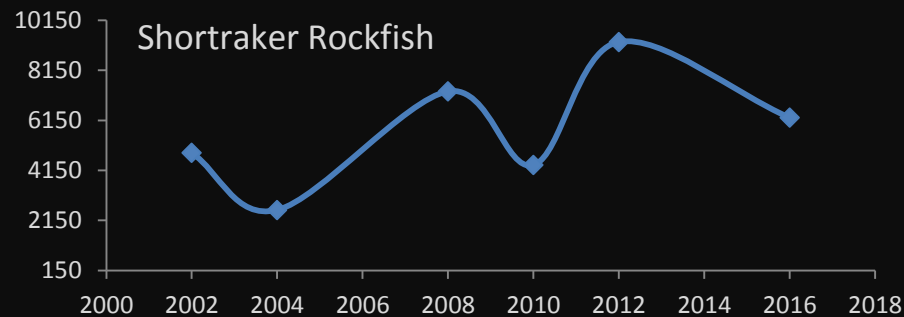
Shortspine Thornyhead



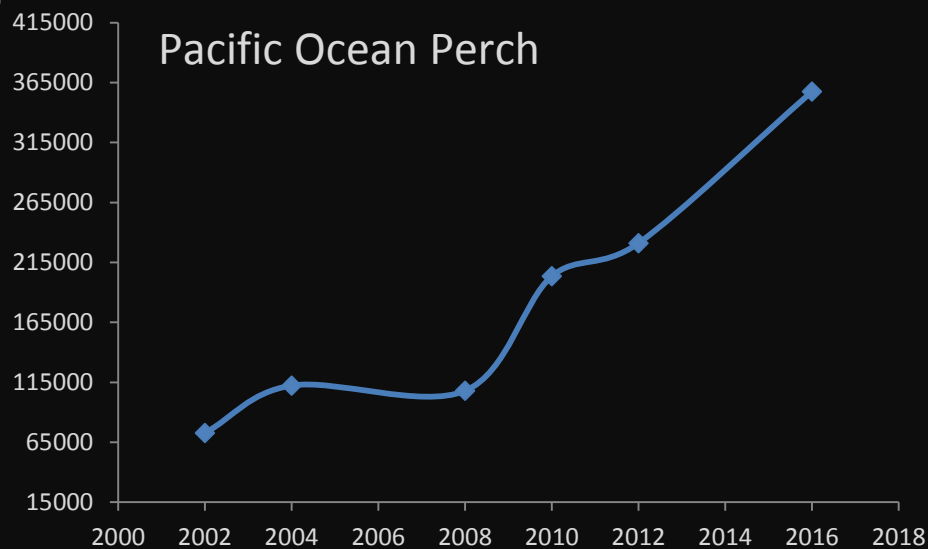
Rougheye Rockfish



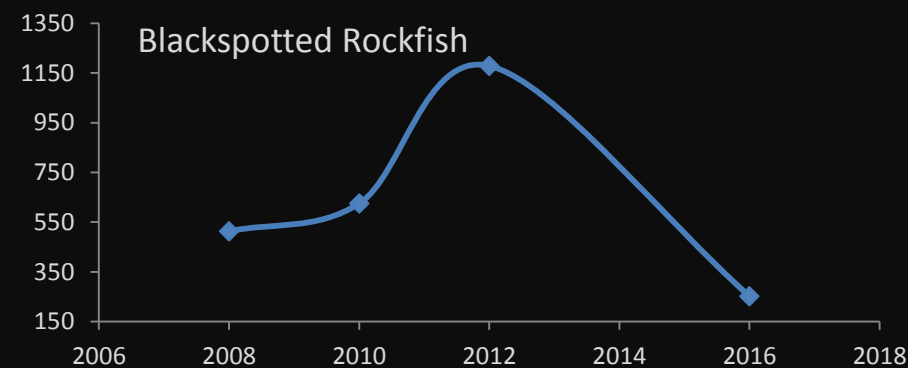
Shortraker Rockfish



Pacific Ocean Perch

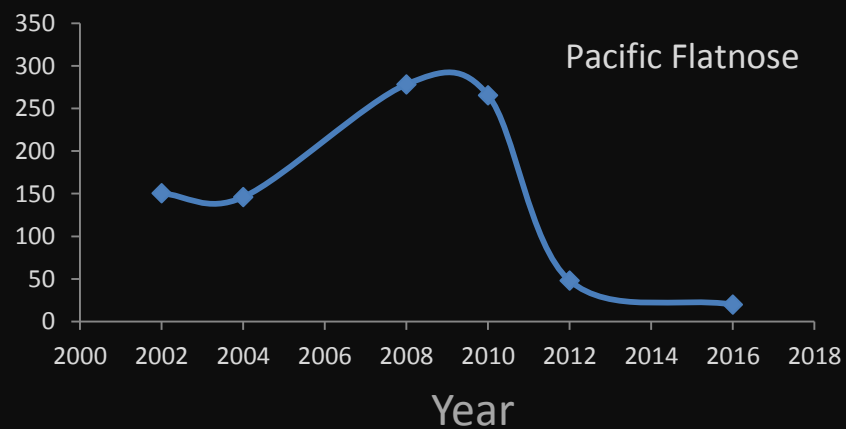
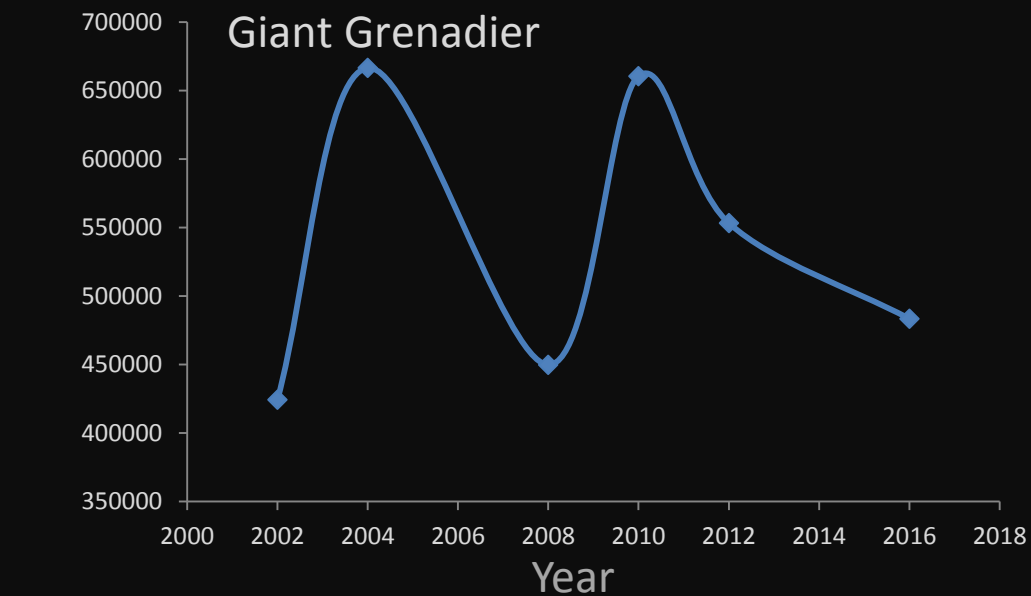
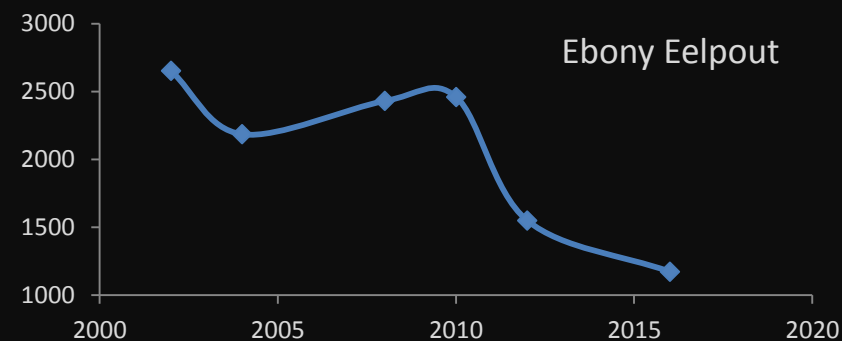
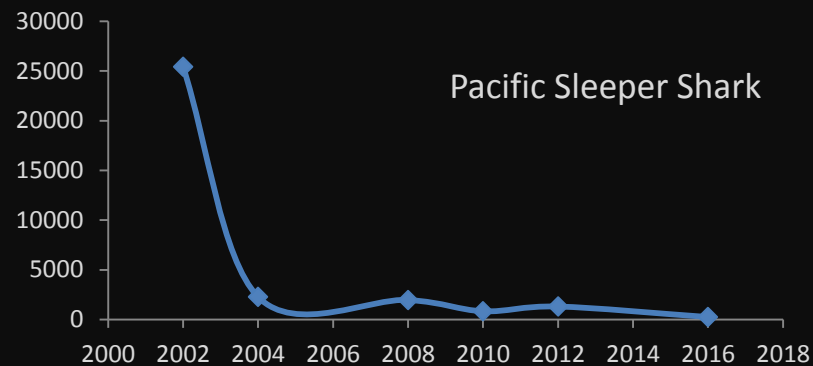
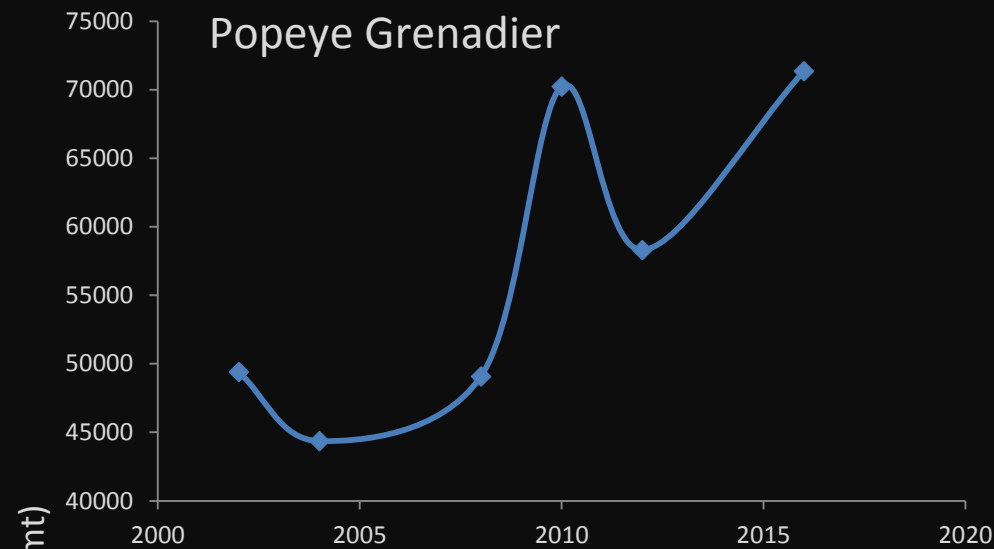


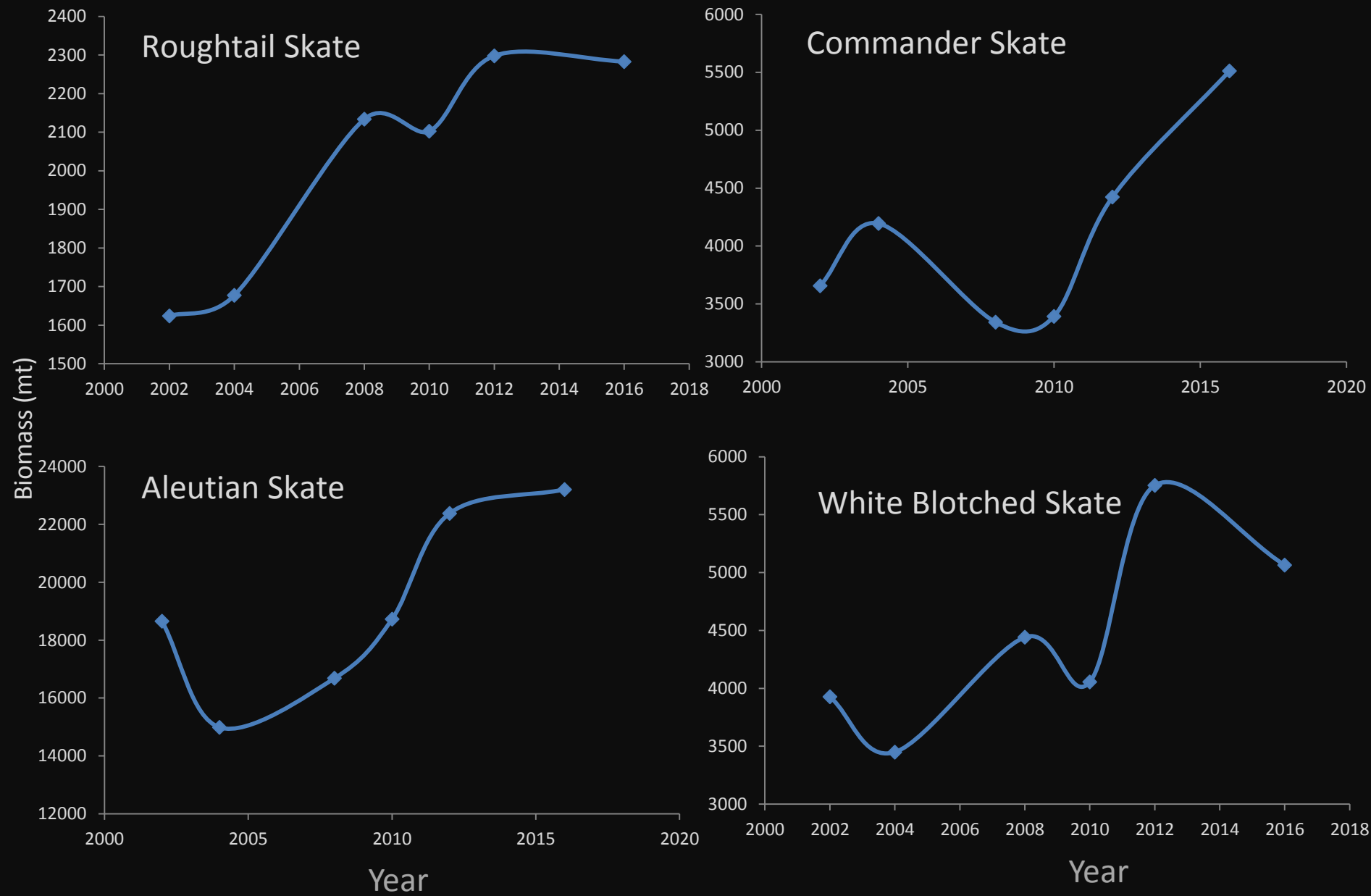
Blackspotted Rockfish

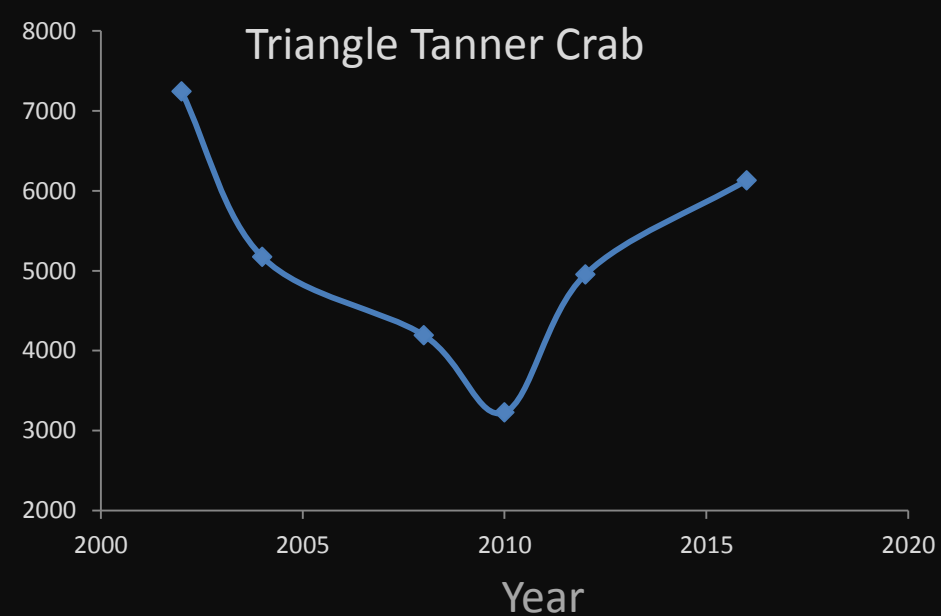
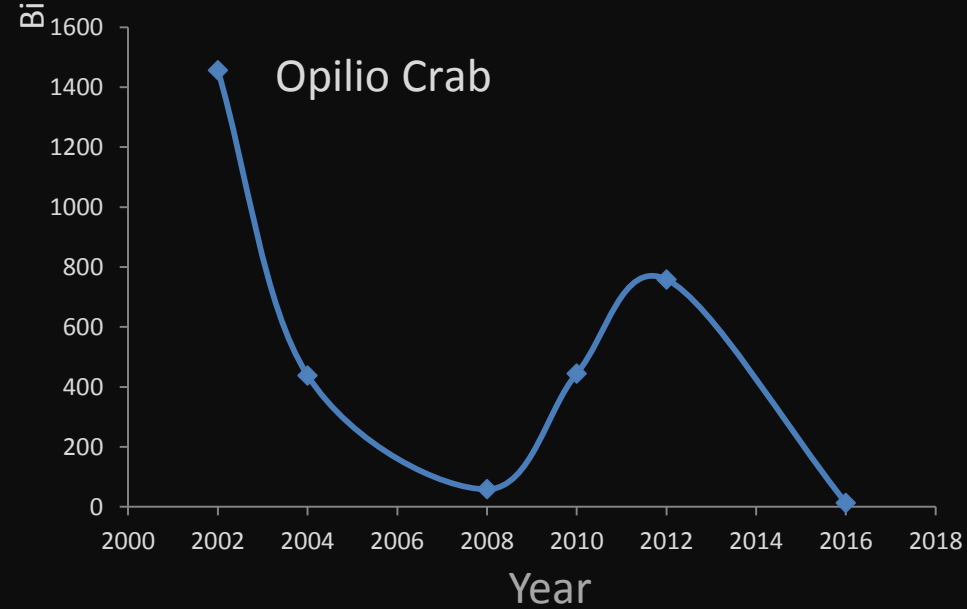
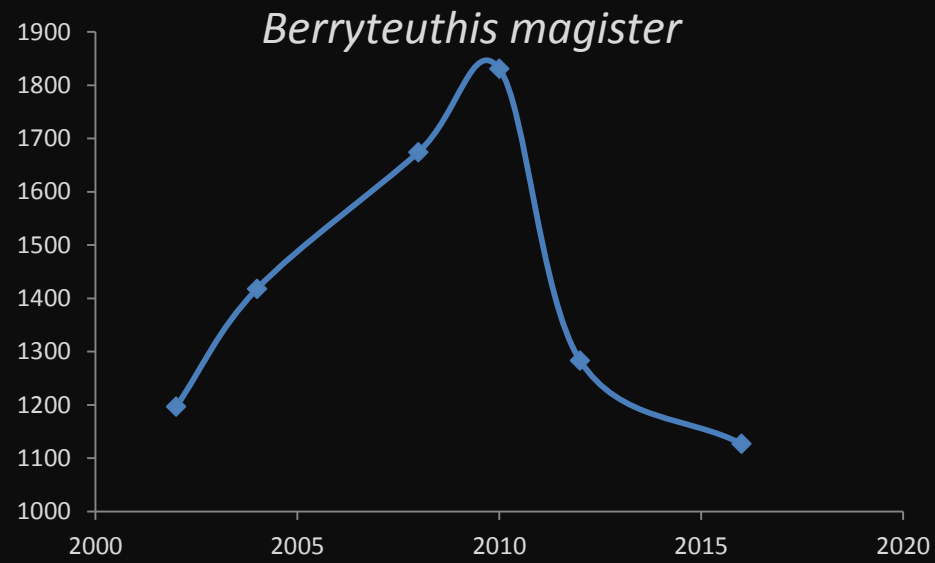
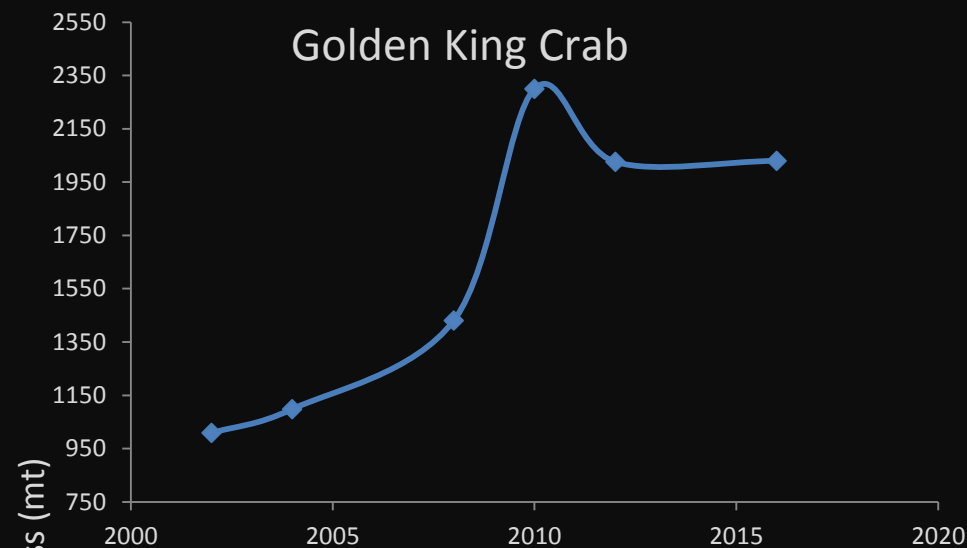


Year

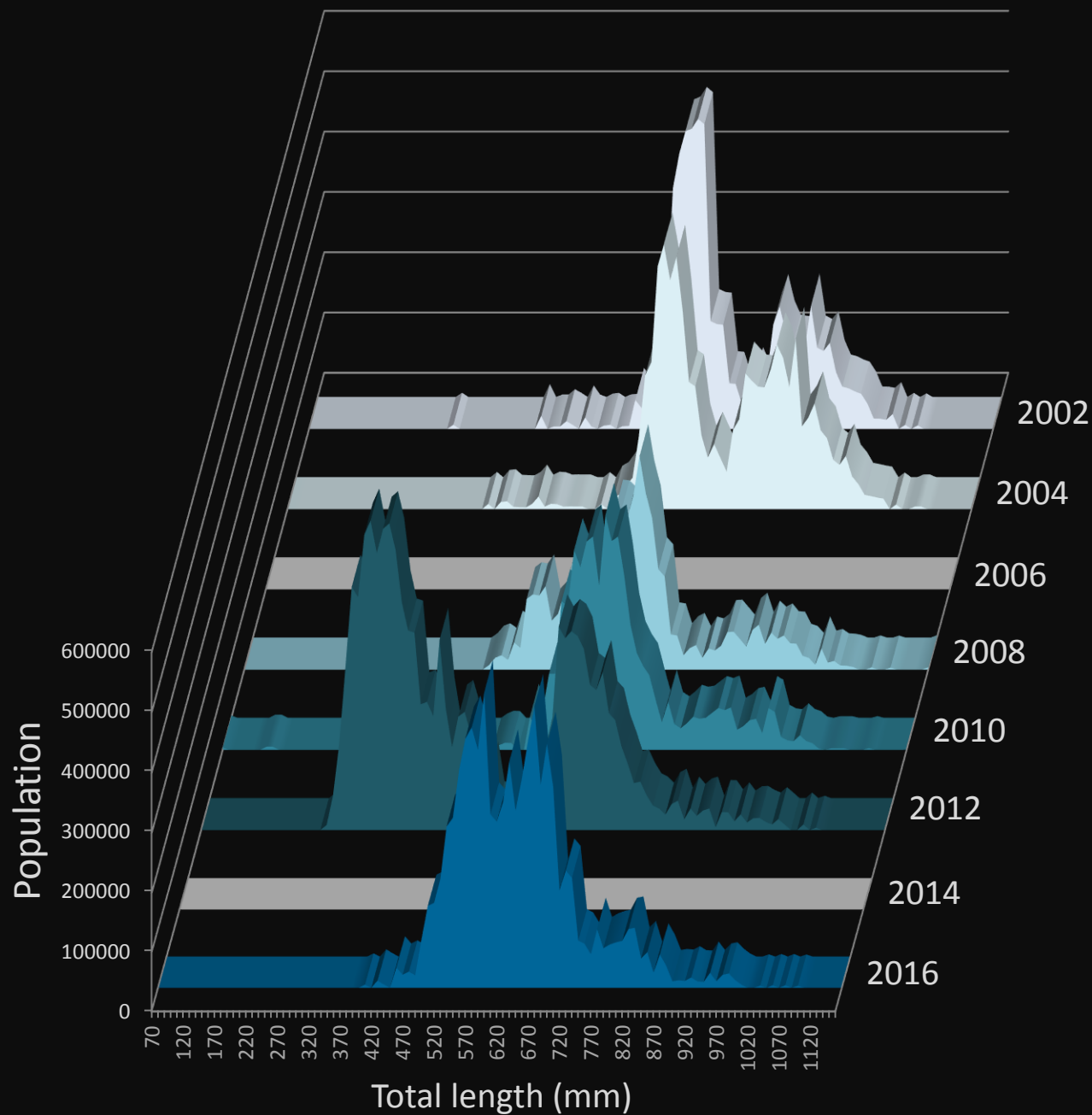
Year







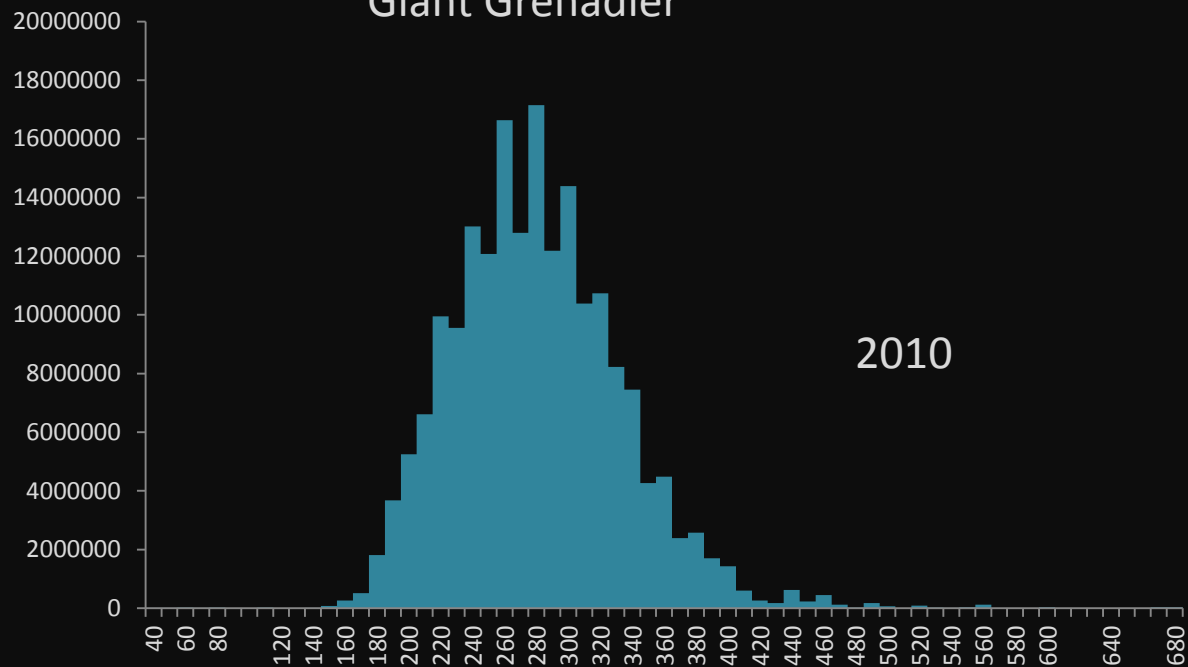
Greenland Turbot



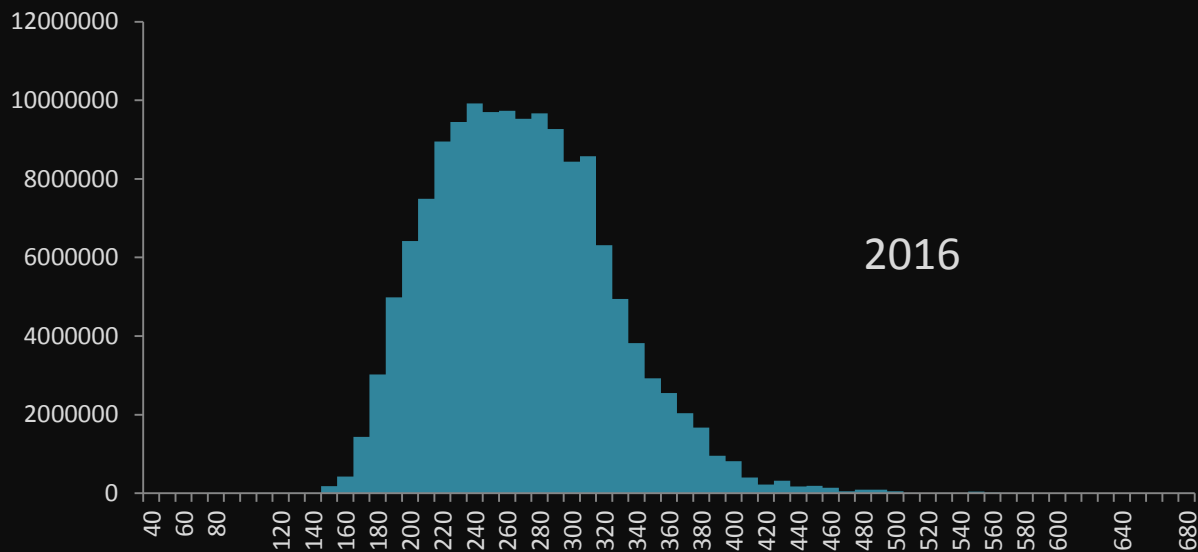


Population

Giant Grenadier



2010



2016

PAFL length (mm)