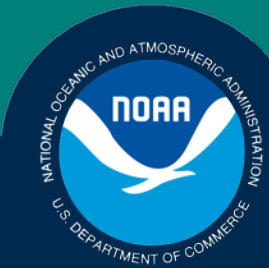


*Science, Service, Stewardship*

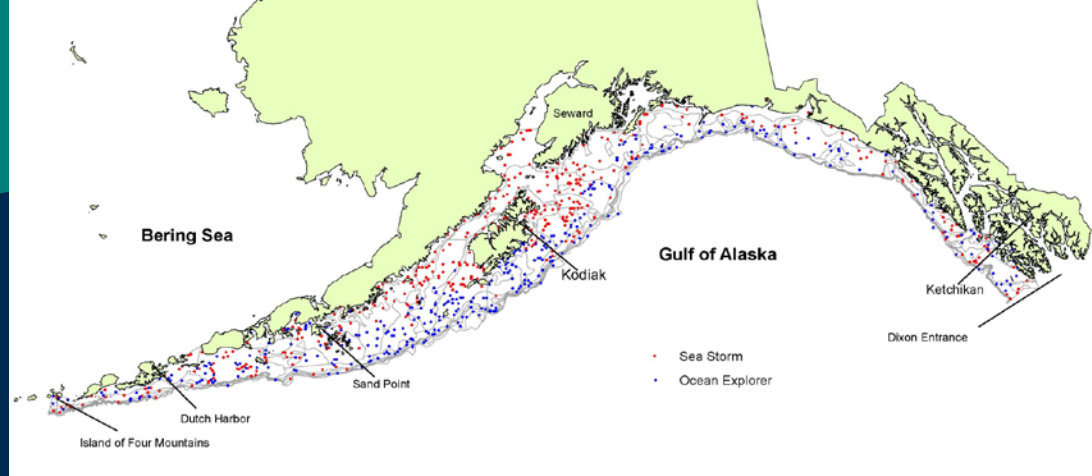


# 2021 Gulf of Alaska Bottom Trawl Survey Metadata and Preliminary Results

Wayne Palsson  
GOA/AI Survey Leader

September 21, 2021

**NOAA  
FISHERIES  
SERVICE**



- Stratified-random survey
- 45-59 Strata based on geography, habitat, and depth
- Station allocation based upon abundance, variance, survey area, and economic value
- 15 minute trawl, usually 1.5 km distance
- Poly Nor 'Eastern net with rollers & bobbins
- 2 -3 vessels in GOA
- Estimate catch per unit effort (kg/km<sup>2</sup>)
- Length, age, and other biological samples



## 2021 Survey Notes



*F/V Alaska Provider*

- 75 days, F/Vs *Ocean Explorer* and *Alaska Provider*
- Pandemic year, survey optional for staff, planned to go slow
- 540 stations, not 550, at start
- 10 stations dropped during survey, pre-planned & most from western and central GOA.
- Two vessels were offset in timing by 17 days
- Only one crew change, normally four
- Today's data are PRELIMINARY



*F/V Ocean Explorer*

# GOA Survey Characteristics

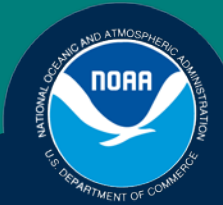


Year	Stations	Max Depth (m)	Comment
1984	929	1000	Duration 30 min
1987	783	1000	
1990	708	500	
1993	775	500	
1996	807	500	15 min duration
1999	764	1000	
2001	489	500	Not in SE AK
2003	809	700	
2005	835	1000	
2007	820	1000	
2009	823	1000	
2011	670	700	
2013	548	700	
2015	772	1000	
2017	536	700	
2019	541	700	
2021	529	700	Vessel start offset

# GOA Survey 1<sup>st</sup> Set Dates



<b>Year</b>	<b>Date</b>	<b>Trawl-Days</b>	<b>Boats</b>
1984	3 June	235	4
1987	22 May	252	3
1990	4 June	204	3
1993	5 June	202	4
1996	22 May	210	3
1999	16 May	209	3
2001	20 May	129	2
2003	24 May	202	3
2005	21 May	210	3
2007	28 May	202	3
2009	21 May	212	3
2011	22 May	162	2
2013	29 May	132	2
2015	26 May	192	3
2017	27 May	138	2
2019	23 May	138	2
2021	23 May, 7 Jun	136	2



## Depth Allocation

<u>Stratum Depth (m)</u>	<u>2021 Tows</u>	<u>2021 %</u>	<u>Mean %</u>
1-100	196	37.1	40.2
101-200	221	41.7	38.3
201-300	74	14.0	13.3
301-500	28	5.3	5.3
501-700	10	1.9	2.2
701-1000			0.7



## Area Allocation

<u>Survey Area</u>	<u>2021 Tows</u>	<u>2021%</u>	<u>Mean%</u>
Shumagin	114	21.6	24.3
Chirikof	115	21.7	22.6
Kodiak	177	33.5	33.3
Yakutat	70	13.2	10.5
Southeastern	53	10.0	9.3



# Special Projects

## Voucher Requests

Sleeper and Salmon sharks

Snailfish

Sculpins

Gastropods

Sponges

Corals

## Assorted

ES 60 Acoustics

Light intensity

Lampreys

Observer training

Outreach

Rockfish genomics

NWFSC Forensic genetics

Cod genetics

HAB Toxins in clams

Sand Lance

MML Food Habits





# Length Collections



<u>Species</u>	<u>Number</u>
Arrowtooth flounder	36,444
Flathead sole	15,321
Dover sole	3,289
Rex sole	15,054
Northern rock sole	2,960
Southern rock sole	8,661
Atka mackerel	194
Walleye pollock	23,218
Pacific cod	3,999
Sablefish	9,173
Shortspine thornyhead	10,269
Rougheye rockfish	1,172
Blackspotted rockfish	618
Pacific Ocean Perch	22,802
Northern rockfish	2,088
Shorthead rockfish	470
Dusky rockfish	1,503
Sharpchin rockfish	969
Harlequin rockfish	368
Other	37,659
<b>Total</b>	<b>185,962</b>

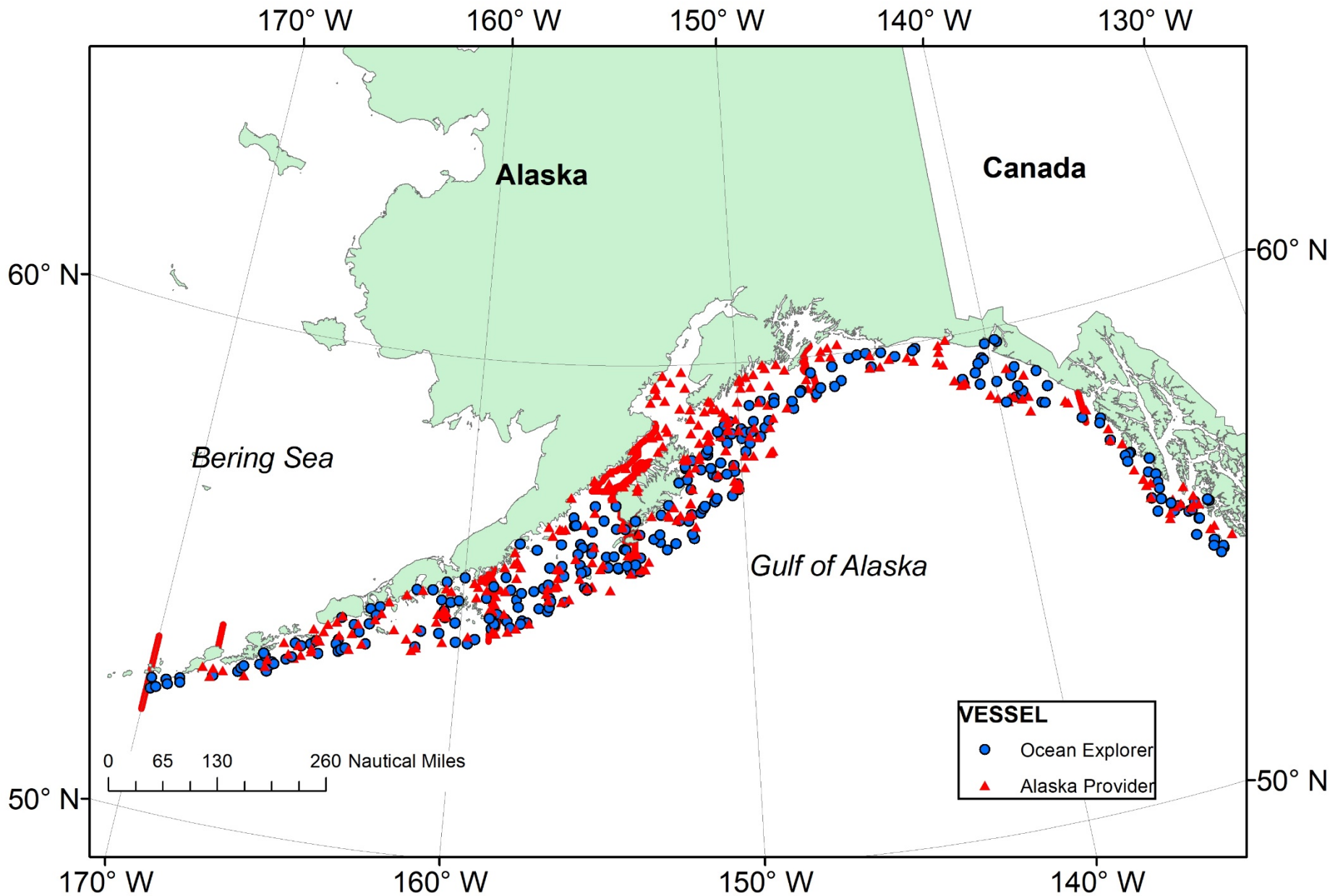
**NOAA  
FISHERIES  
SERVICE**



**Otolith  
Collections**

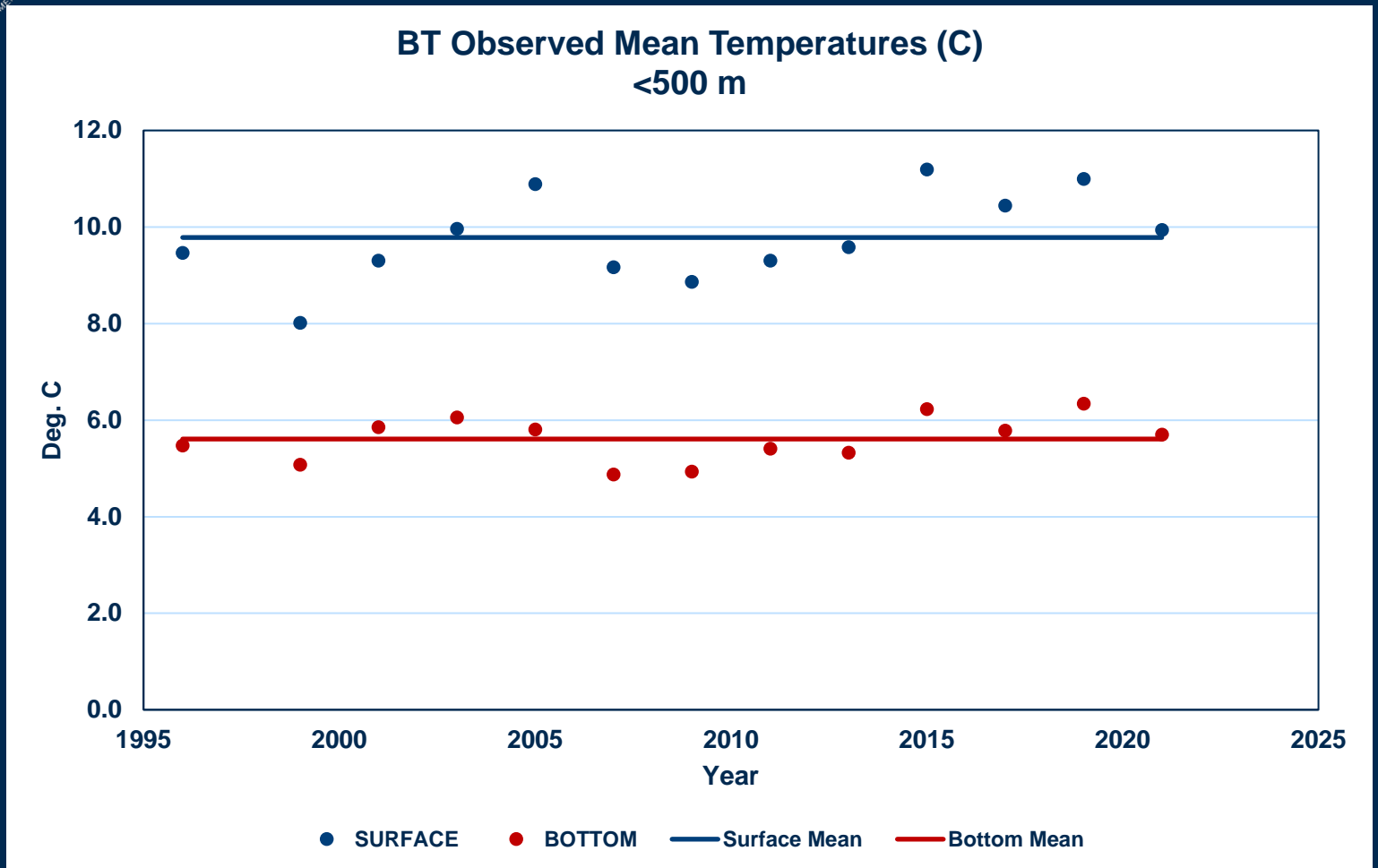
<u>Species</u>	<u>Collection Type</u>	<u>2021</u>	<u>Target</u>	<u>2019</u>
Arrowtooth flounder	Random	939	900	898
Flathead sole	Random	712	500	686
Dover sole	Random	779	500	336
Rex sole	Random	762	500	684
Northern rock sole	Random	268	500	329
Southern rock sole	Random	805	500	674
Atka mackerel	Random	68	100	42
Walleye pollock	Random	1353	1,500	995
Pacific cod	Random	587	1,000	500
Shortspine thornyhead	Random	422	350	411
Sablefish	Random	1189	600	1770
Rougheye rockfish	Random	789	400	666
Blackspotted rockfish	Random	413	500	451
Pacific Ocean Perch	Random	1156	1,000	1232
Northern rockfish	Random	517	700	369
Dusky rockfish	Random	440	500	548
Shorthead rockfish	Stratified	316	400	350
Redstripe rockfish	Stratified	64	200	
Sharpchin rockfish	Stratified	136	200	
<b>Total</b>		<b>11715</b>	<b>11,850</b>	<b>11,279</b>

# Occupied 2021 Station Locations



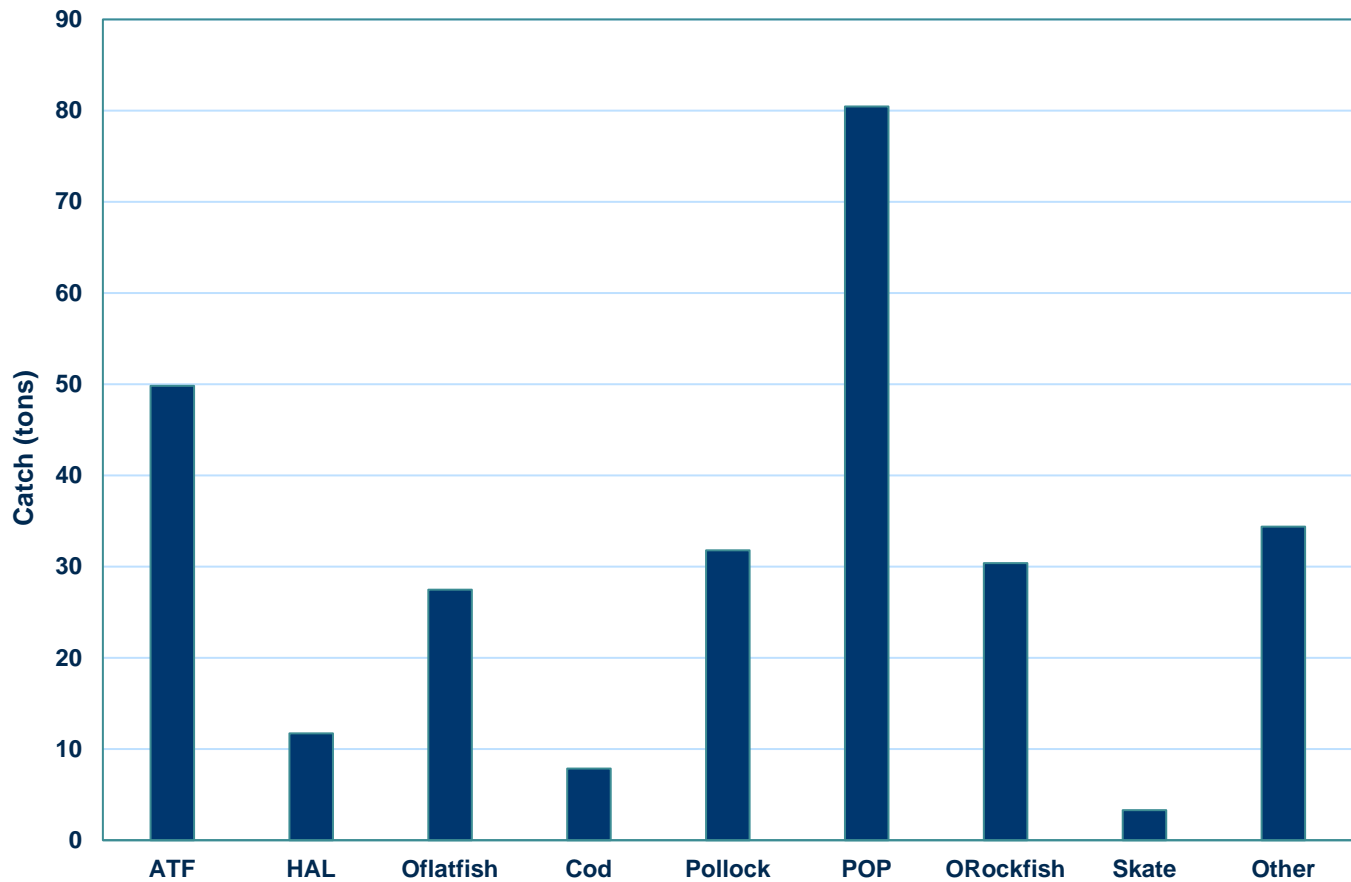


# Mean SST and Bottom Temp (°C)

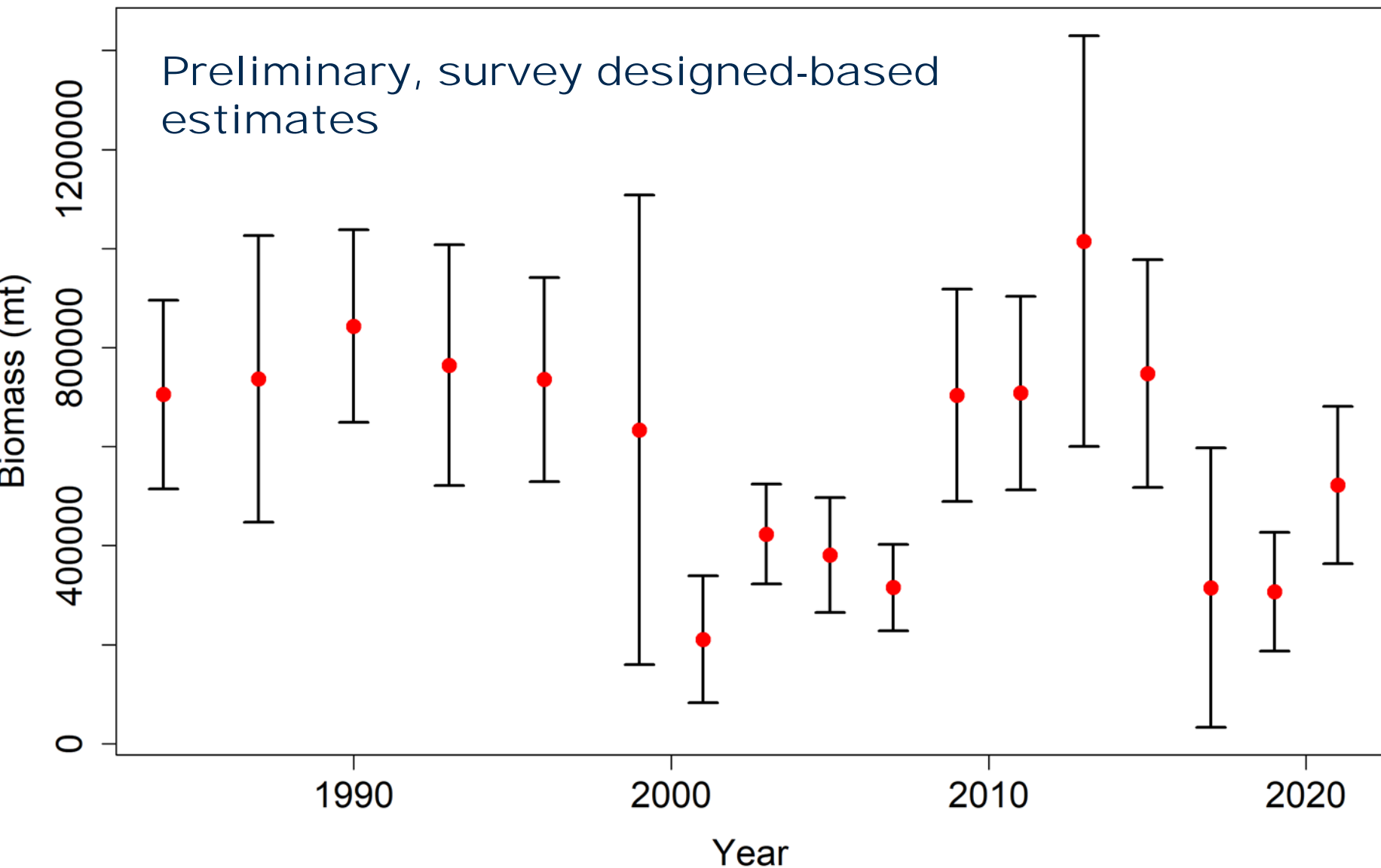




# 2021 GOA Catch Composition

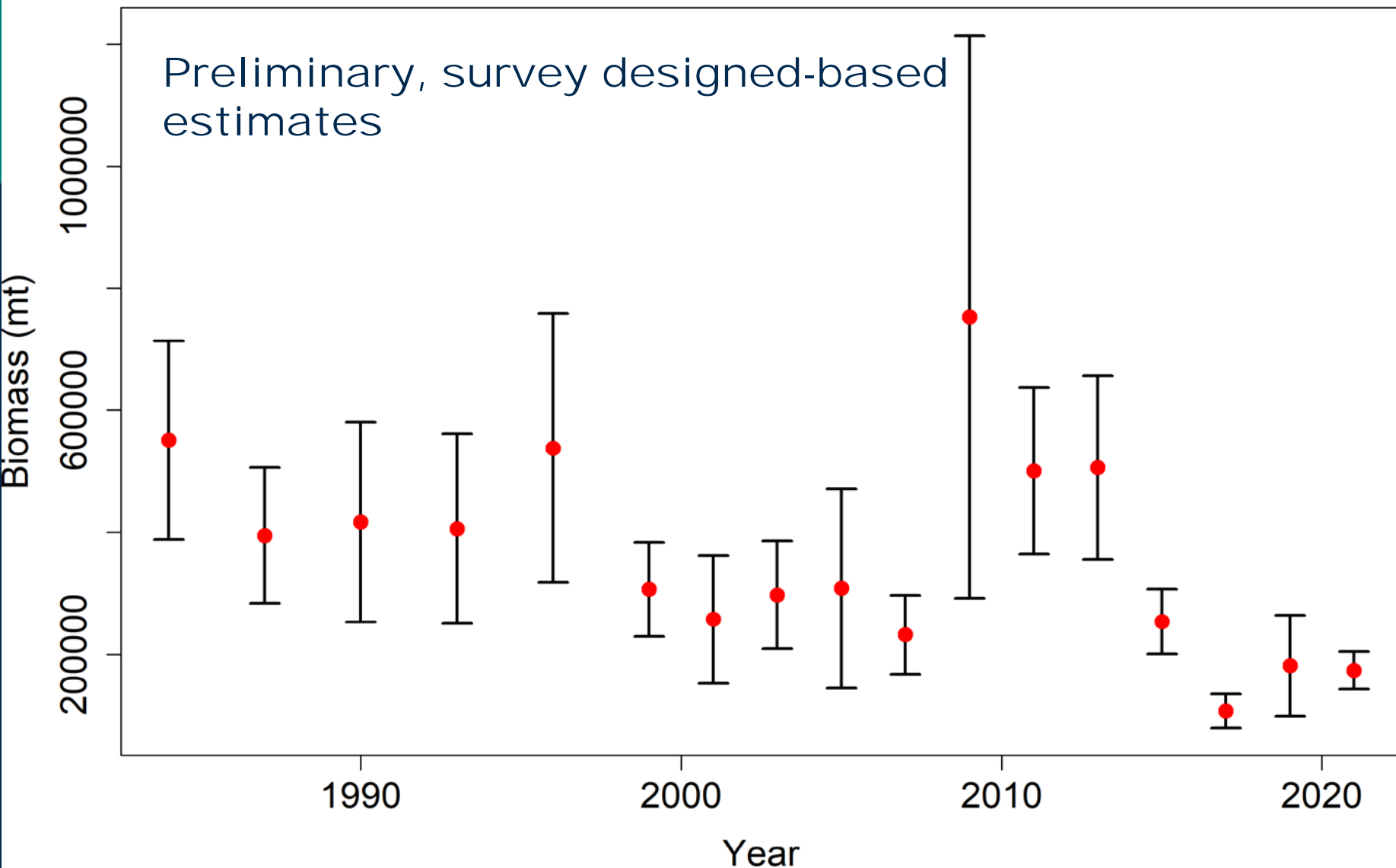


# walleye pollock (*Gadus chalcogrammus*)



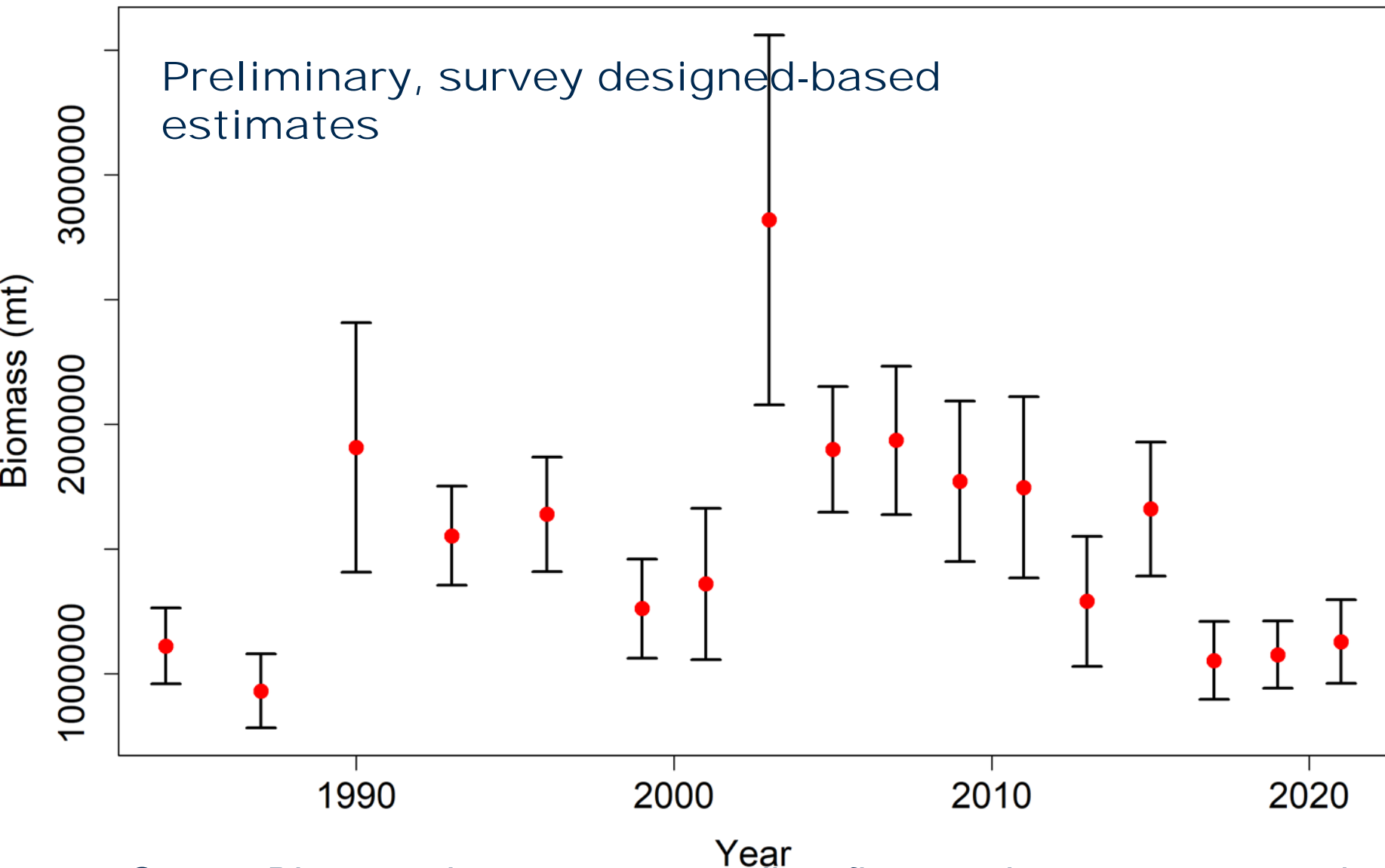
*Survey Biomass does not necessarily reflect stock assessment results*

# Pacific cod (*Gadus macrocephalus*)



*Survey Biomass does not necessarily reflect stock assessment results*

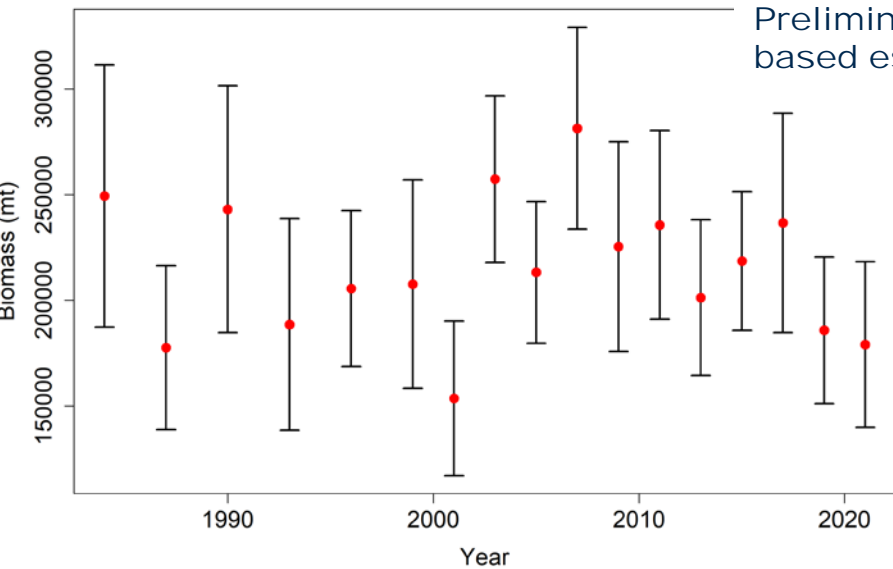
# arrowtooth flounder (*Atheresthes stomias*)



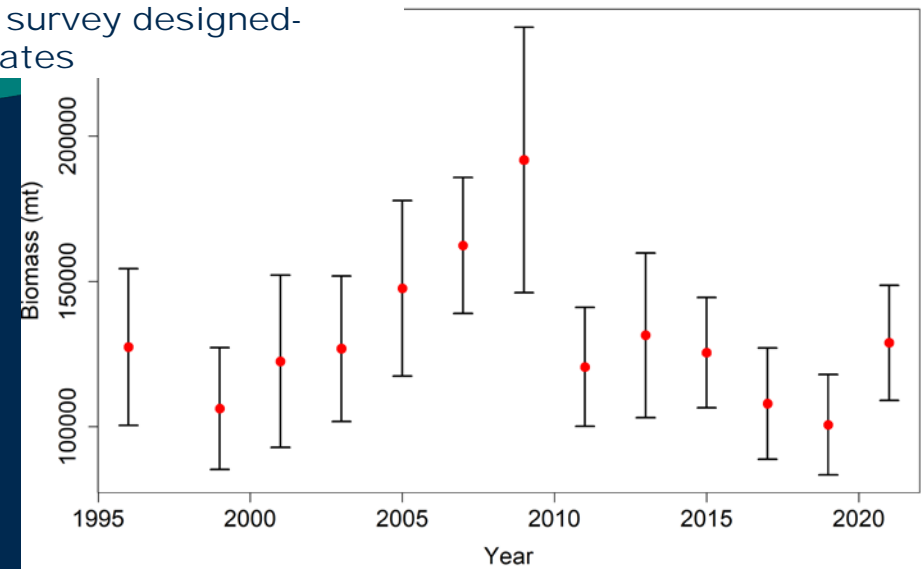
*Survey Biomass does not necessarily reflect stock assessment results*



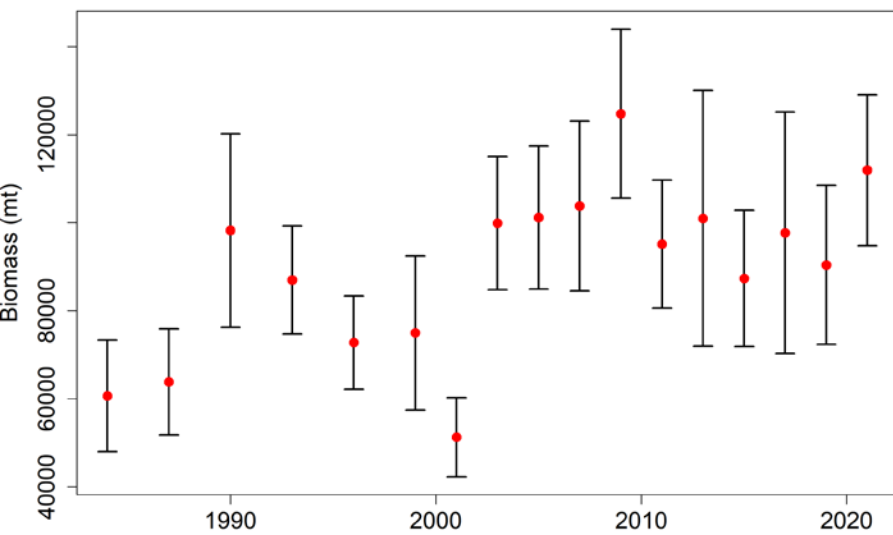
flathead sole (*Hippoglossoides elassodon*)



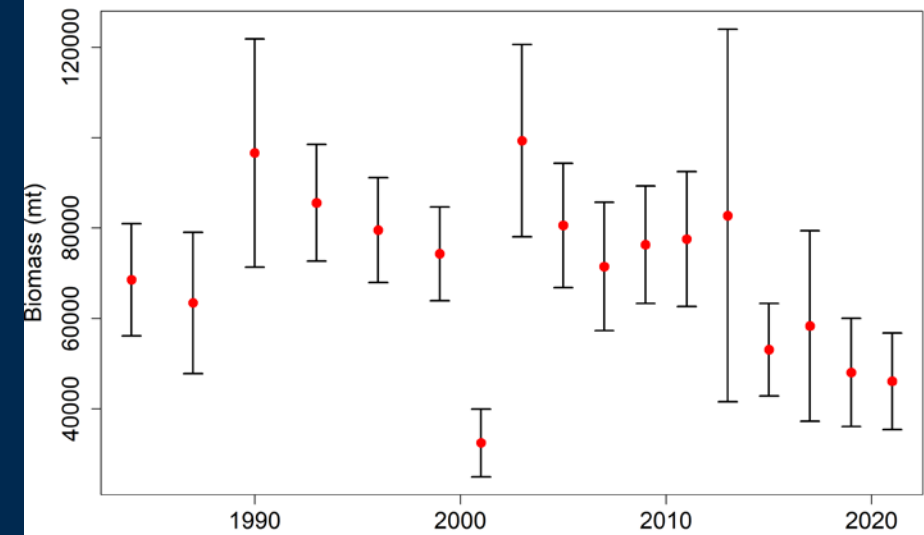
southern rock sole (*Lepidopsetta bilineata*)



rex sole (*Glyptocephalus zachirus*)

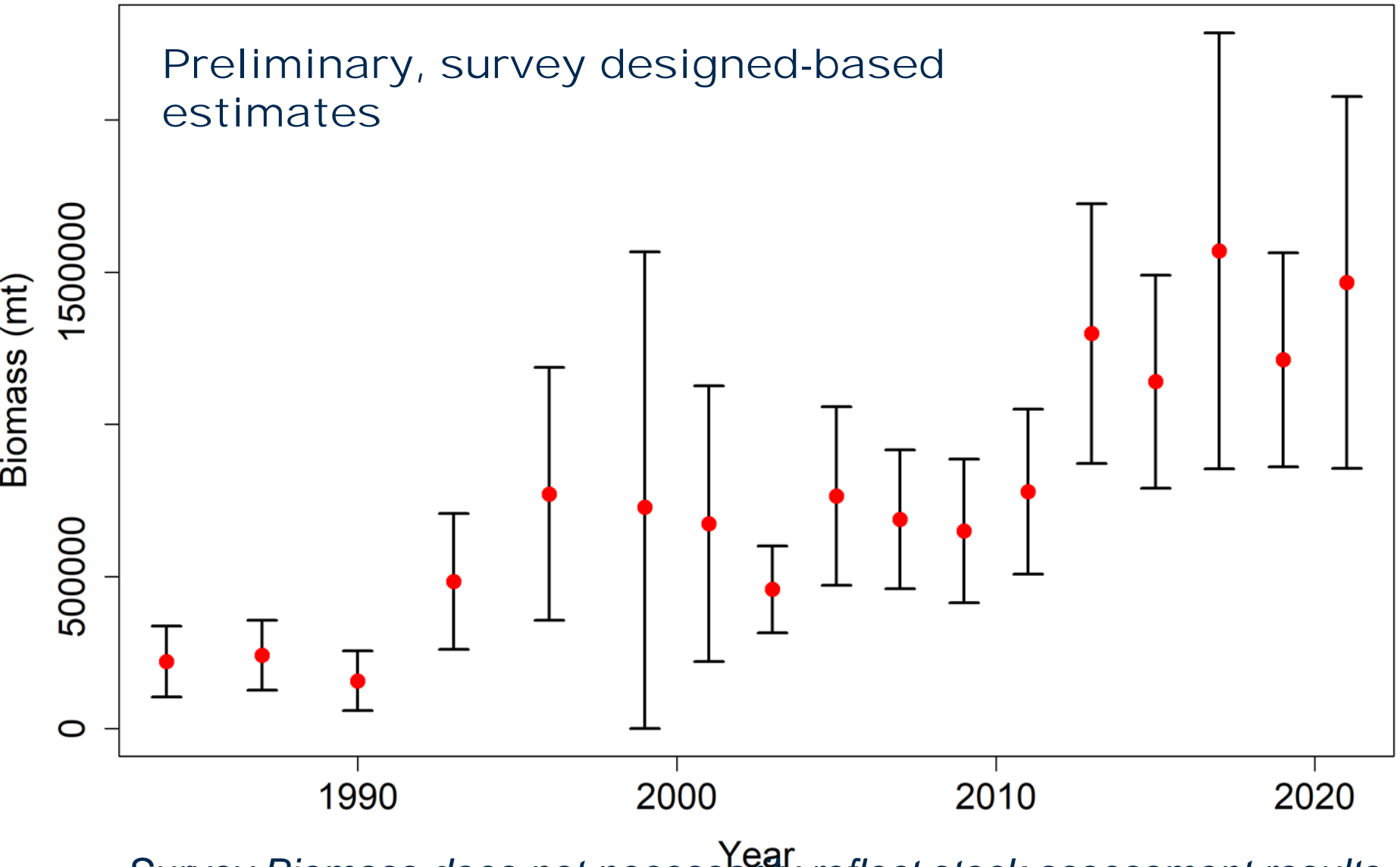


Dover sole (*Microstomus pacificus*)

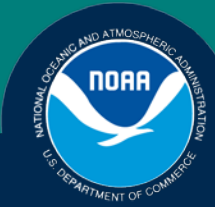


*Survey Biomass does not necessarily reflect stock assessment results*

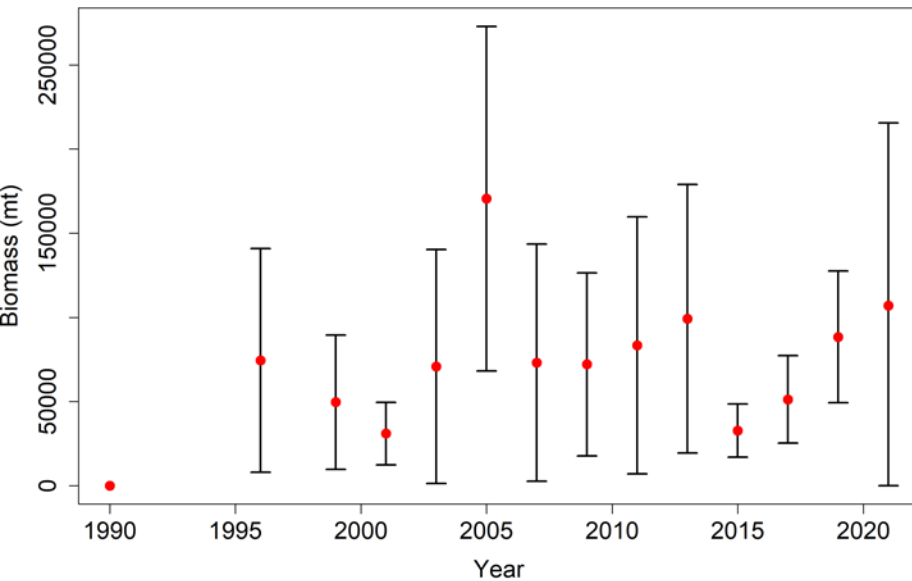
## Pacific ocean perch (*Sebastes alutus*)



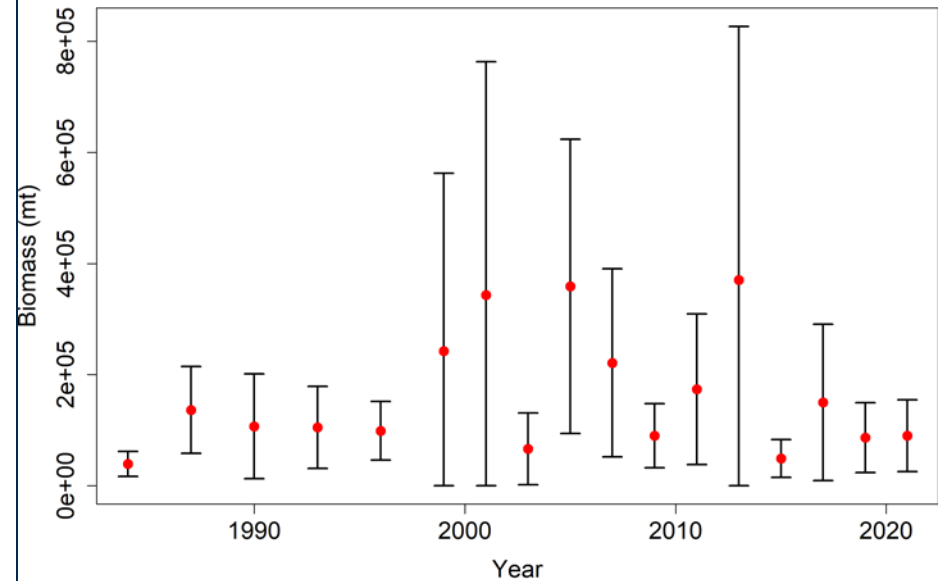
*Survey Biomass does not necessarily reflect stock assessment results*



dusky rockfish (*Sebastes variabilis*)

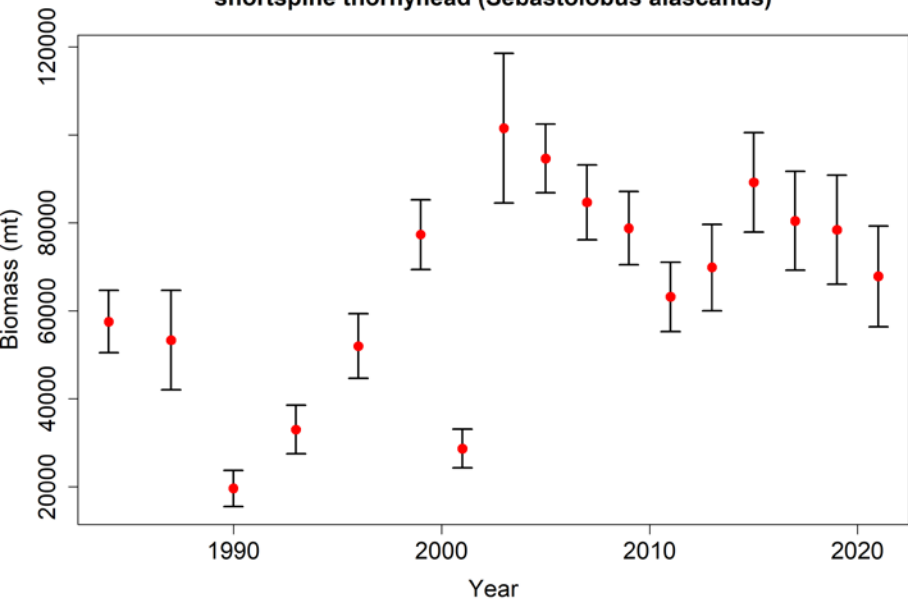


northern rockfish (*Sebastes polyspinis*)

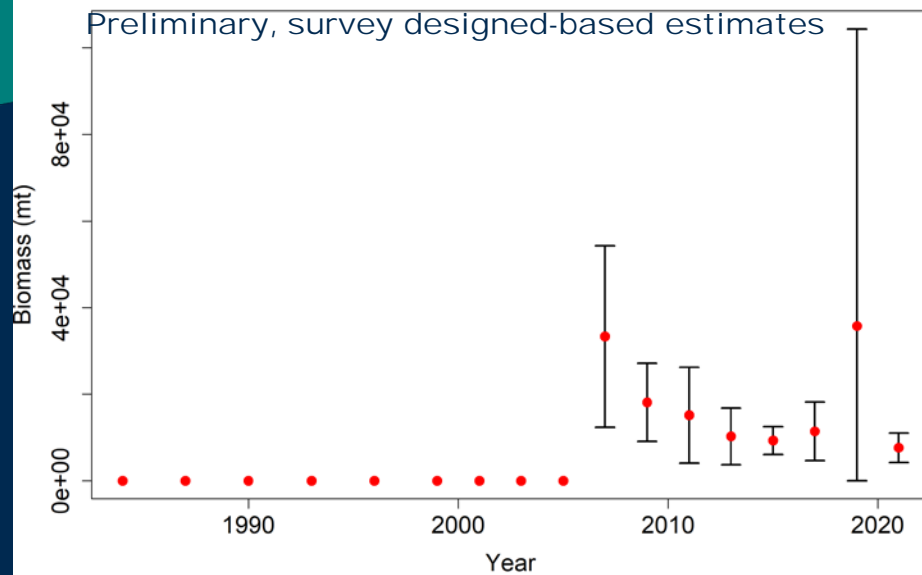


*Survey Biomass does not necessarily reflect stock assessment results*

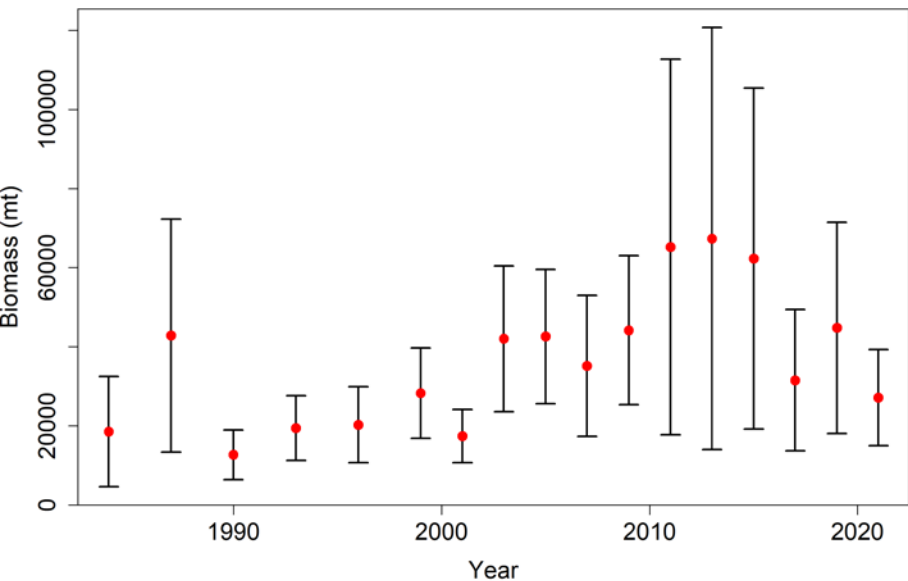
**shortspine thornyhead (Sebastolobus alascanus)**



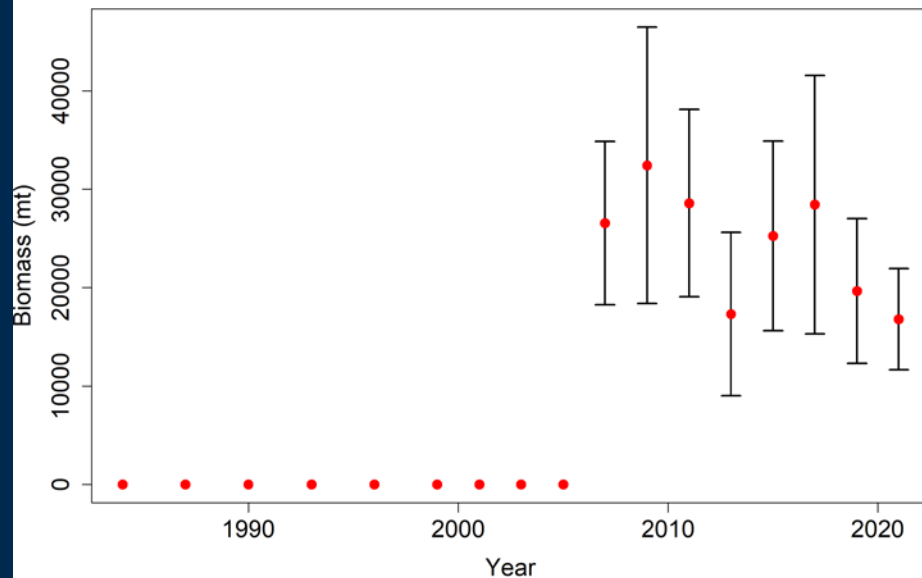
**blackspotted rockfish (Sebastes melanostictus)**



**shorttraker rockfish (Sebastes borealis)**

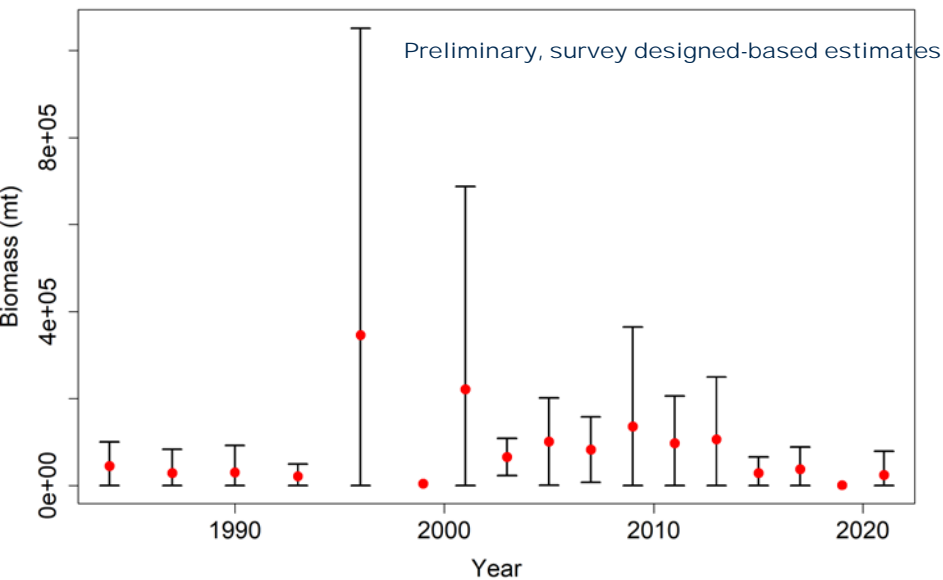


**rougheye rockfish (Sebastes aleutianus)**

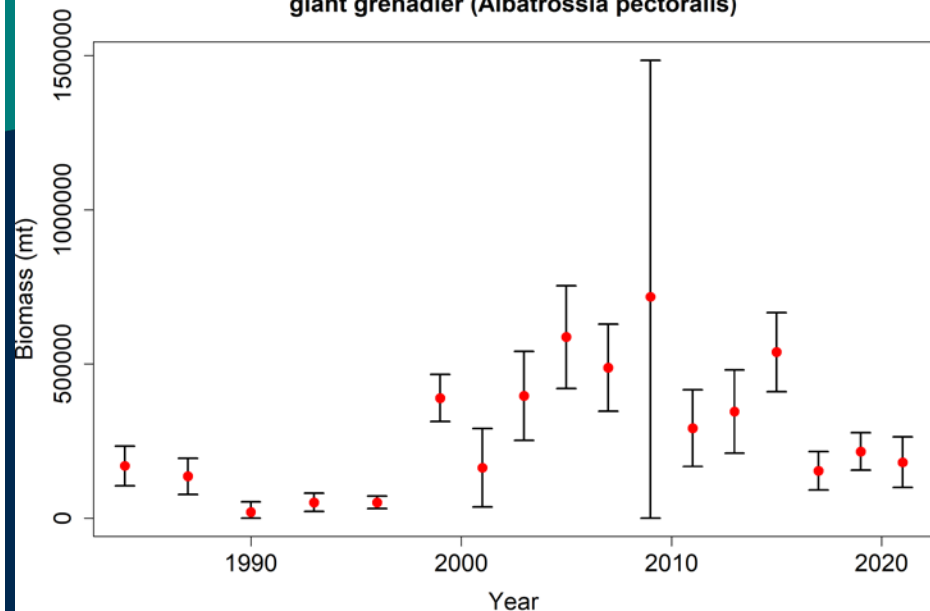


*Survey Biomass does not necessarily reflect stock assessment results*

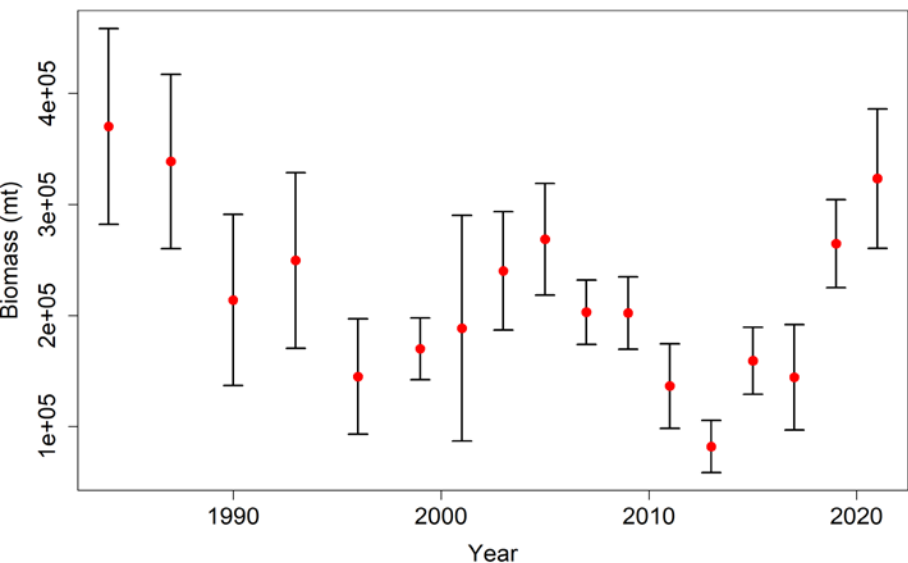
**Atka mackerel (*Pleurogrammus monopterygius*)**



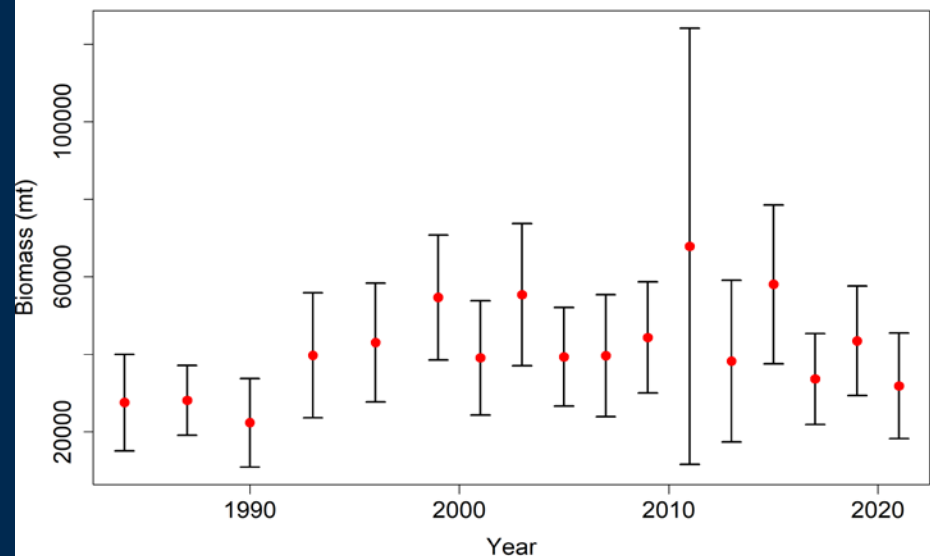
**giant grenadier (*Albatrossia pectoralis*)**



**sablefish (*Anoplopoma fimbria*)**



**big skate (*Beringaja binoculata*)**



*Survey Biomass does not necessarily reflect stock assessment results*



## Next Steps

- Complete effort review
- Finalize data base
- Re-estimate survey biomass, size, split-factor, etc.
- Update age composition
- Upload data to AKFIN
- Available 9/30
- Model-based estimates
- ESR contributions



# 2021 GOA Survey Team

- Nate Raring, co-ord.
- Christina Conrath
- Ned Laman
- Susanne McDermott
- Cecilia O’Leary
- Sean Rooney
- Lou Rugolo
- Margaret Siple
- Paul von Szalay
- Mark Zimmermann
- Jeff Napp
- Jerry Hoff
- Kevin McCarty
- Zack Oyafuso
- Pearl Rojas
- Olav Ormseth
- Jeremy Harris
- Rick Hibpshman
- Kalya Gunther
- KC Dill
- Observers: G. Christie, Taylor Fredrickson, B. Bagwell, A. Delpopolo
- RSST Support