Black Cod Almanac

MESA Program, Auke Bay Laboratories, NMFS, Juneau, AK January 2025

Greetings!

We hope this New Year finds you in good health and thinking about the upcoming 2025 season after a time of rest! This is the 12th installment of the Black Cod Almanac, which was created to improve communication and increase dialogue between scientists and members of the industry. The intent is to provide updates on relevant research, summarize highlights of both the Groundfish Plan Team and the North Pacific Fishery Management Council meetings, and share news that may be of interest to those involved with the federal sablefish fishery. Please feel free to pass this on, or to send us email addresses of others who may appreciate receiving this newsletter.

December 2024 North Pacific Fishery Management Council Meeting Highlights

The December NPFMC meeting was held in Anchorage, AK, December 2 – 10, 2024.

https://www.npfmc.org/npfmc-newsletters/

2025/2026 GOA Groundfish Specifications

The sablefish overfishing limit (OFL), acceptable biological catches (ABC), and total allowable catches (TAC) by area for 2025 are:

Area	OFL (t)	ABC (t)	**TAC (t)**
AK-Wide	**58,532**	47,605	
Gulf of Alaska		22,836	**22,836**
Western		4,746	
Central		9,744	
W. Yakutat		2,686	
E. Yak/S.E. Out		5,660	
Bering Sea		13,203	**8,496**
Aleutians		11,566	**7,940**

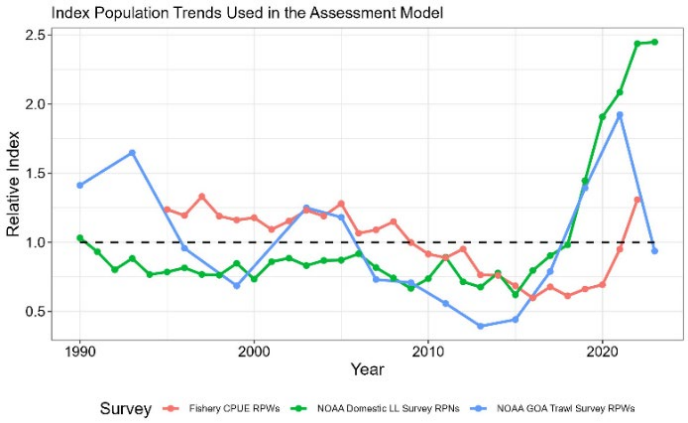
Inside This Issue

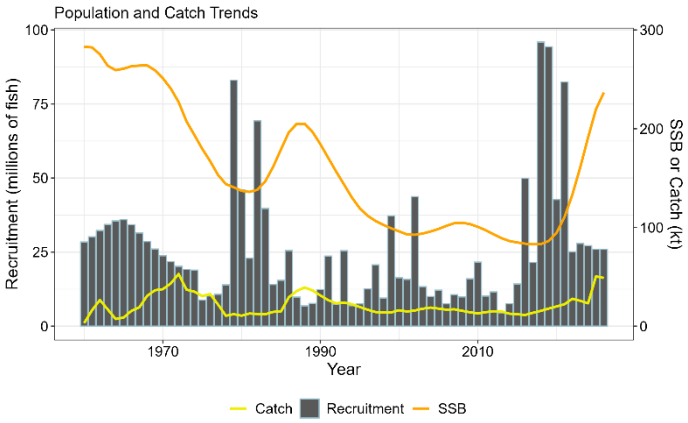
2024 November Groundfish Plan Team Meeting Highlights

Daniel Goethel presented the sablefish assessment during the November 2024 NPFMC Groundfish Plan Team meeting that was held in Seattle, WA November 12 – 15, 2024. The final stock assessment report can be found at this location https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2024/Sablefish.pdf

Data and Stock Assessment Model

- Survey indices had been steadily increasing since 2015, but the 2023 NOAA longline survey abundance leveled off and the 2023 NOAA GOA bottom trawl survey declined. **There were no surveys in 2024.**
- No changes to the author proposed model aside from updated data for 2024.
- The biomass and spawning stock biomass (SSB) continue to increase, while recruitment appears to have returned to more average conditions in recent years.



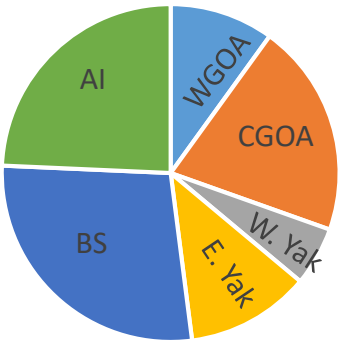


Stock Status and ABC Recommendations

- The resource is *not overfished* and *overfishing is not occurring.*
- Recent ABCs have not been fully utilized with catch averaging ~71% of the ABC over the last 3 years, and was ~50% utilized in 2024.
- The ABC increased by 6% due to continued maturation and growth (in weight) of the population.

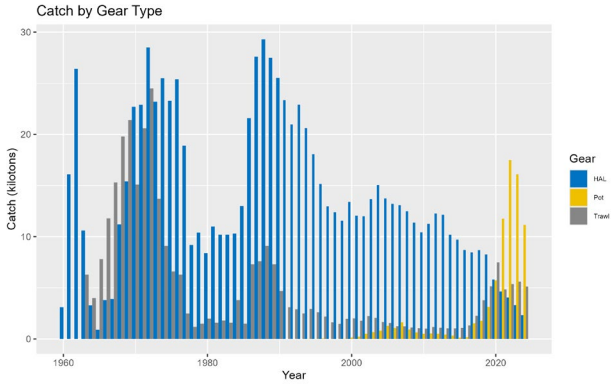
Apportionment

- Apportionment: based on 5 year average longline survey biomass proportions by area.



Other Considerations

- The population age-structure is beginning to expand with the rapid maturation of the 2014 and 2016 year classes.
- 2014 – 2021 year classes comprise >81% of projected 2025 SSB.



Catch & Changing Dynamics

- Pot catch >80% of fixed gear catch since 2022

Sablefish Research Update

The sablefish team at ABL (MESA) with University of Alaska Fairbanks (UAF) partners (the Cunningham lab) continue a rich legacy of sablefish research with a diverse research portfolio, including both at-sea and model-based work, which aims to improve assessment and management advice.

For more information on any of the research projects please contact the lead investigators listed below, the sablefish assessment lead (Daniel Goethel, daniel.goethel@noaa.gov), the MESA program manager (Chris Lunsford, chris.lunsford@noaa.gov), or the UAF Principal Investigator (Curry Cunningham, cjcunningham@alaska.edu).

What Factors Lead to Large Sablefish Recruitment Events? (*Samara Nehemiah*)

Better understanding of how sablefish respond to changes in ecosystem conditions at various spatiotemporal scales could help predict fluctuations in abundance and aid managers and stakeholders in building more robust, climate-resilient policies. Early life history dynamics are a primary driver of eventual recruitment success and year class strength, yet remain understudied from an assessment perspective. This project will explore potential climate and environmental drivers of sablefish recruitment and implement specific linkages (e.g., linking pre-recruitment mortality to temperature) into the spatial sablefish assessment model. In particular, the model will integrate larval dispersal from an existing sablefish larval individual-based model (IBM) to account for spatial dynamics and ecosystem impacts on larval sablefish. Thus, a climate-linked spatial assessment model will be developed to better address ecosystem drivers of recruitment success at spatially-relevant scales (e.g., management regions).

Do Large Recruitment Events Reduce Long-term Growth of Sablefish?

(*Matt Cheng*)

Growth data from the NMFS longline survey was used to better understand historical and recent changes in Alaska sablefish growth. Results from this study generally indicated that sablefish growth for young to intermediate-aged individuals have declined over time. Moreover, recent large recruitment events appear to be contributing to further declines in growth, potentially due to additional competition for prey resources. Future research will focus on monitoring these changes in growth and incorporating results into management advice.

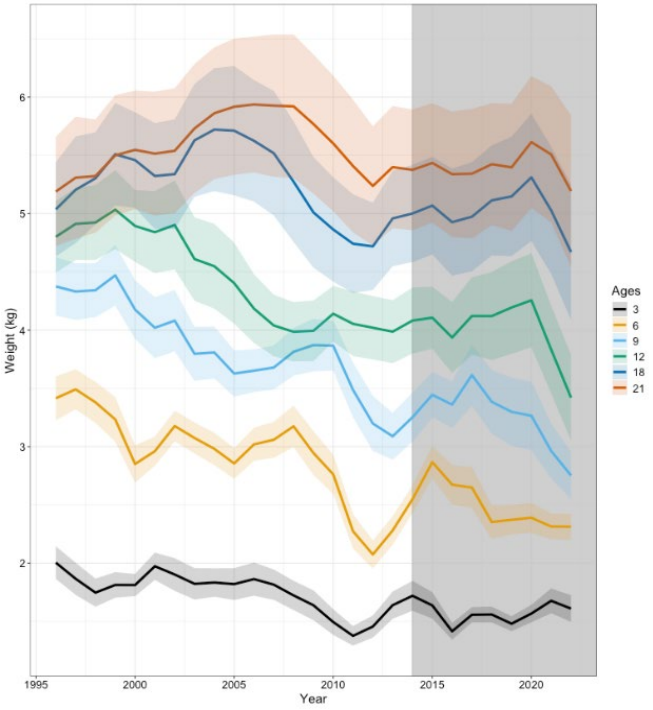
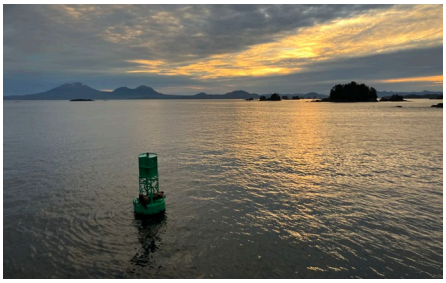


Figure. Estimated growth trends for female sablefish. Colored lines represent age classes. The grey shaded region highlights the onset of recent (since 2014) increases in recruitment.



How Can the Quota Process Improve Sablefish Conservation and Economic Metrics? (*Joshua Zahner*)

The combination of cyclic recruitment patterns, which flood economic markets, and the long-lived nature of sablefish have raised concerns about whether the existing NPFMC harvest control rule (HCR) provides robust harvest recommendations that meet the objectives of fishery participants while also ensuring sustainability. Management Strategy Evaluation (MSE) is a simulation modeling tool for analyzing and comparing potential management options, including tradeoffs in resulting conservation and fishery performance metrics, before they are implemented for management advice. An MSE research tool for sablefish has been developed and iteratively refined through stakeholder input during two industry meetings in 2024. Work is ongoing to compare the performance of the NPFMC B40% HCR with various alternate HCRs (e.g., including quota stability constraints). Performance of management options is being compared across a variety of future climate-recruitment scenarios to ensure that a given HCR is robust to uncertain and varying future dynamics. Basic economic performance metrics (e.g., relative gross revenue) have been integrated to ensure HCRs can also achieve metrics important to stakeholders, but further work is needed to advance the economic sub-model in the future. Final results are expected to be available and disseminated to stakeholders in 2025. A spatially explicit version of the OM, which was informed by the outputs of the spatial assessment model, is also in development based on stakeholder feedback.

Would you like to know more about the MSE or be included in future discussions? To be added to the MSE email listserv please contact Joshua Zahner (jazahner@alaska.edu). More information on this work can be found here.

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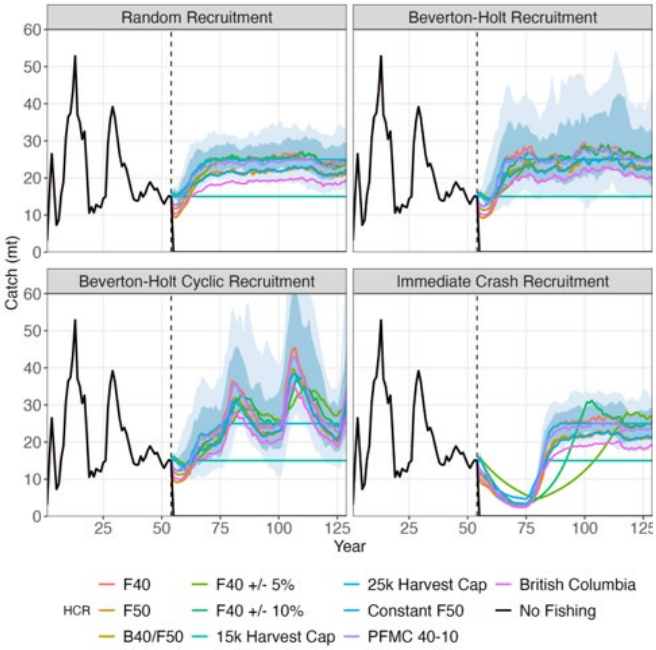


Figure. Example of projected catch under possible harvest control rules (colored lines) across four possible future recruitment scenarios (column panels).

The Where, When, and Why of Sablefish Movement and Spawning Migrations

(*Matt Cheng*) lhcheng@alaska.edu

The role of spatial dynamics and ecosystem or climate drivers on the long-term sustainability of the sablefish resource remains a primary uncertainty. A five region spatial assessment model for sablefish has been developed that estimates age-based movement of fish among regions (by integrating conventional tagging data), spatial variation in recruitment, and regional differences in harvest. The goal of this modeling work is to better understand how spatial processes influence sablefish dynamics and sustainable harvest levels. The spatial model will be updated periodically serving as a companion model to the single region operational assessment to monitor regional depletion and productivity.

Additional work is also ongoing to better understand high resolution movement patterns through the implementation of a long-term satellite

Cont.

tagging program. Analysis of existing sablefish satellite tagging data has begun and movement tracks will be available soon, which could help identify essential fish habitat (EFH) and spawning corridors. This data will then be integrated into the spatial modeling framework to help inform movement estimates. More information of this work can be found here.

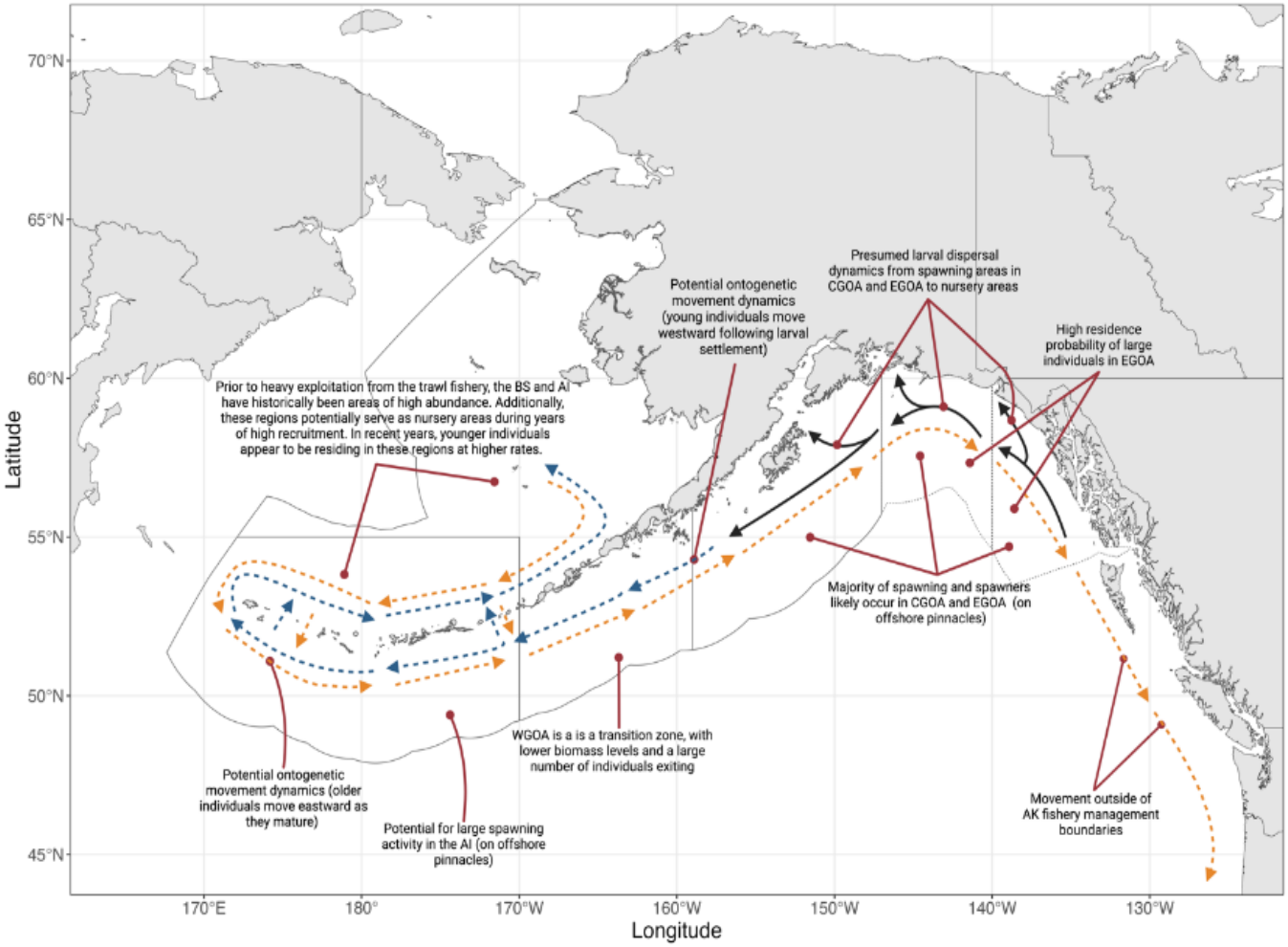


Figure. Conceptual model of sablefish hypothesized spatial dynamics. Black solid arrows represent larval dispersal, blue dashed arrows are the movement dynamics of younger individuals, and orange dashed arrows are general movement dynamics of individuals as they mature.

EBS Trawl Catch of Sablefish and Recruitment Signals

In recent years, data from pelagic trawl gear has been a strong early indicator of large incoming recruitments at age-1 (before they are observed by the survey):

- **2020, 2021, and 2023 year class appear to be small** based on length compostion data from EBS trawl gears.
- **2022 year class appears large** based on 2023 pelagic trawl fishery length comps.

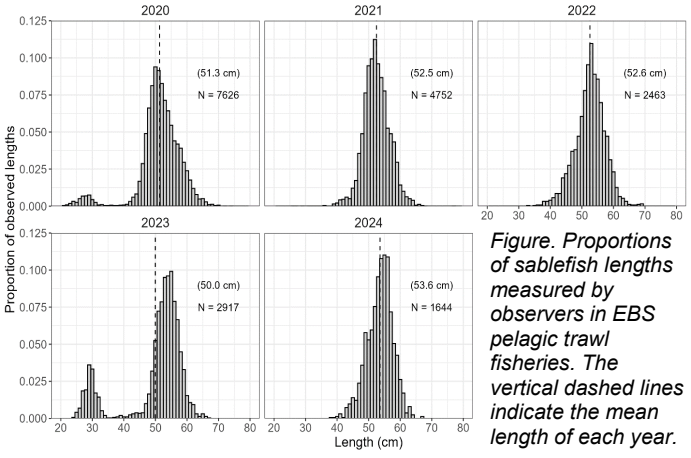


Figure. Proportions of sablefish lengths measured by observers in EBS pelagic trawl fisheries. The vertical dashed lines indicate the mean length of each year.

Marine Resource Education Program

https://mrep.gmri.org/

The Marine Resource Education Program (MREP) was created as a training program for fishermen to learn how to effectively engage and navigate the complex system of fisheries science and management.

The MREP hosts regional workshops that are moderated by fishermen to assist fisheries scientists and managers portray fisheries science and management issues in an approachable way. These workshops are held for fishermen to:

- Learn the nuts and bolts of marine fisheries science and management
- Demystify acronyms and vocabulary
- Gain tools and insights into effective engagement with the North Pacific Fishery Management Council
- Connect with key regional fishery science and management experts

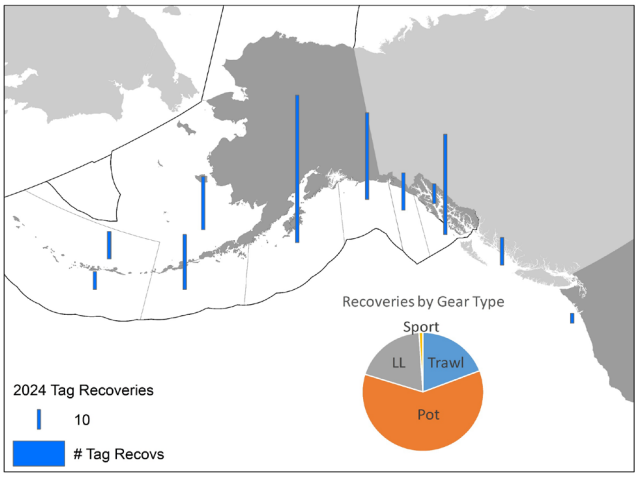
Workshops are free for accepted participants, with travel, hotel, and food costs covered.

Please visit the MREP site to apply for the 2025 workshop in **Kodiak, AK, April 28 – May 2, 2025.**

2024 Groundfish Tag Program Recap

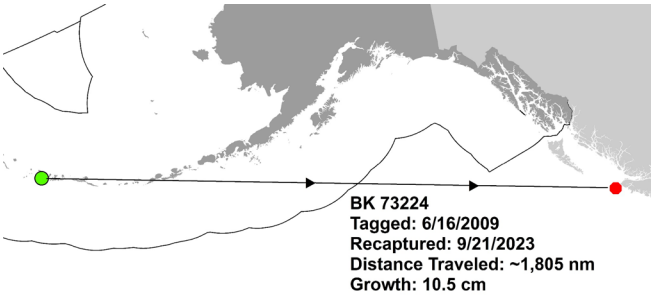
2024 number of tags RECOVERED:

- 379 sablefish (1 electronic archival tag)
- 1 shortspine thornyhead



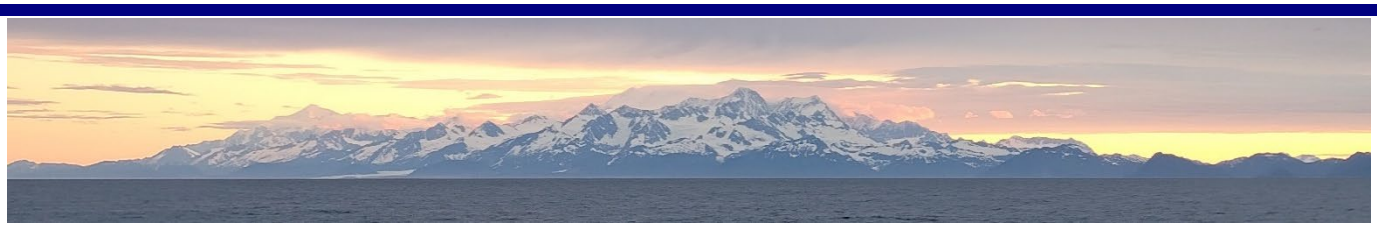
Of those RECOVERED SABLEFISH tags:

- Greatest time at liberty: ~43 yrs (tagged in 1981!)
- Shortest time at liberty: 7 days (traveled 15 nmi during that time)
- Greatest distance traveled: 1,805 nmi



AFSC Groundfish Tag Website

https://www.fisheries.noaa.gov/resource/map/alaska-groundfish-tagging-map



2024 NMFS Longline Survey

In 2024, the AFSC Longline Survey was cancelled. For many years the survey operated solely on a cost-recovery basis, i.e., sale of survey catch paid for the operational costs of the vessel. Due to socioeconomic conditions, that arrangement was untenable for 2024. Survey managers are currently working on alternative financial arrangements to fund a 2025 survey. A Request for Quotation (RFQ), as part of a survey vessel contract solicitation, is anticipated to be published in early 2025 on the federal government's System of Awards Management website (SAM.gov). The data from the survey is the primary index of abundance used in the sablefish stock assessment. To increase the accuracy of survey results, survey coordinators and stock assessment authors respectfully request that the fishing fleet avoid stations by staying at least 5 nautical miles from each station for 7 days before and 3 days after planned sampling dates (3 days after allows for potential survey delays). This will allow the survey vessel to sample historic stations unencumbered and will minimize negative effects on catch rates. The schedule and the stations to be sampled on the 2025 survey are yet to be determined. Please contact survey coordinators after April for an updated station schedule.

Contacts

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Dan Goethel: Lead sablefish assessment author
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Pat Malecha: Coordinator of the longline survey
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Kevin Siwicke: Coordinator of the longline survey
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Katy Echave: Groundfish Tag Program
katy.echave@noaa.gov

Calendar of Events

Sablefish Tag Reward Drawing

Ted Stevens Marine Research Inst. - Juneau, AK – March 2025
Drawing for all of the 2024 sablefish tag returns with cash reward prizes.

North Pacific Fishery Management Council Meetings

https://www.npfmc.org/three-meeting-outlook/

Egan Center - Anchorage, AK
February 3 – 10, 2025

Egan Center – Anchorage, AK
March 31 – April 7, 2025

Agate Beach BW – Newport, OR
June 2 – 10, 2025

Egan Center – Anchorage, AK
September 29 – October 8, 2025

Egan Center – Anchorage, AK
December 1 – 9, 2025

NPFMC Groundfish Plan Team Meetings

Alaska Fisheries Science Center – Seattle, WA
September 16 - 19, 2025
November 10, 12 - 14, 2025

Marine Research Education Program

Fisheries Science & Management Workshop
https://www.mrep.gmri.org/
Kodiak, AK
April 28 – May 2, 2025

Logbooks and Whales

THANK YOU for volunteering to provide whale presence and depredation information in logbooks! This will continue to be an important data source for analyses of the effects of whales in the fishery. **Please continue to include whale data on all sets, even if there are no whales present.**

Groundfish Tag Recovery Reporting - Survey123 App

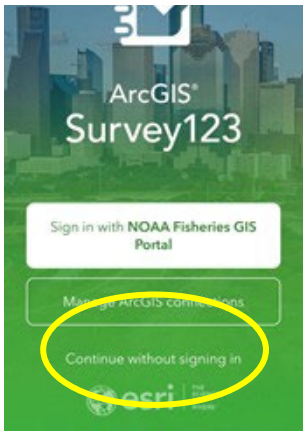
1) How do I download the Survey123 app?

Downloading the Survey123 app on your smart device is the **FIRST STEP** to getting access to the Groundfish Tag Recovery Reporting survey. The **SECOND STEP** is clicking the individual link for the Groundfish Tag Recovery Reporting survey and then selecting 'Open in Survey123 field app'.

FIRST STEP: **a)** To download the free Survey123 app, scan the QR code on the device in which you will be submitting tag recoveries. Select the appropriate option for your device for downloading from the app store.

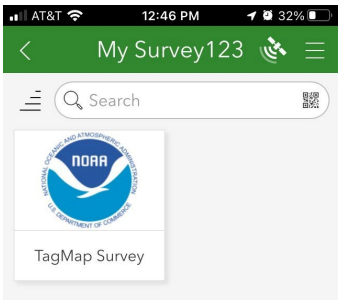
b) When you open the Survey123 app for the first time, you will be asked if Survey 123 can access your camera – click **'Yes/Allow.'**

c) You will then see a log in screen (as seen in the figure at right) – click **'Continue without signing in'** at the bottom of the screen.

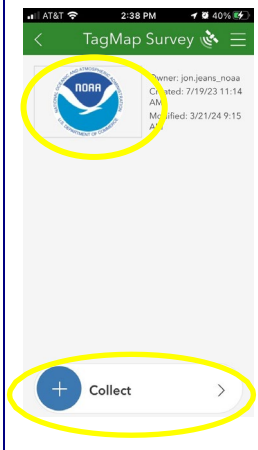


d) You may then be asked about Survey123 having access to your location – we would recommend selecting **'Allow while using app'** as you may use this feature to record your location for immediate tag reporting. You will then see a screen saying **'You don't have any surveys on your device.'** You will not see any surveys on this page unless you have already used the Survey123 app for other surveys. **e) Close the app.**

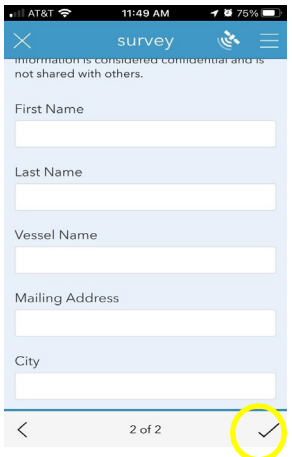
SECOND STEP: In order to access the Tag Reporting survey, close the app and scan the QR code again on the same device you downloaded the Survey123 app. Select '**Continue without signing in.**' This should take you to the Tag Reporting entry. At this point, the Groundfish Tag Recovery Reporting survey is downloaded and can be opened in the Survey 123 app. When opening the Survey 123 app from here on, you should see a screen like that to the right. The Tag Recovery Reporting Survey will now remain on your device under the Survey123 app. Click on the Tag Map Survey to report a tag recovery.



YOU WILL ONLY NEED TO GO THROUGH THIS PROCESS THE FIRST TIME YOU SUBMIT A TAG RECOVERY!



Submitting a Tag Recovery: **a)** Open the Survey123 app on your device. b) Select **'Continue without signing in'** at the bottom of the screen. c) Click on the TagMap Survey icon on your 'My Survey123' screen. d) Click **'Collect'** at the bottom of the screen (as seen at left) and fill out a survey tag recovery. This will take you to the Tag Reporting survey. There are two pages with prompts for submitting a tag recovery. Items with an asterisk are required. Those without can be left blank as needed. In the second page, make sure and click the check mark at the bottom right of the page (shown in the figure to the right) to ensure the tag recovery has been submitted.



More Useful Tips for using the Survey123 Tag Reporting App

1) Do I need to Sign in to the Survey123 app?

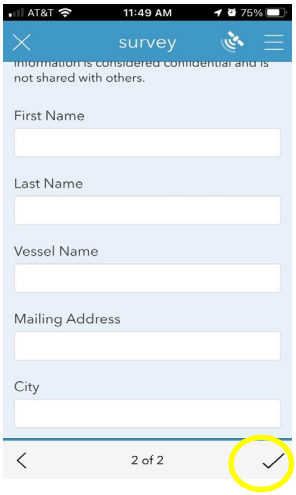
No, you do not need to sign in or create sign in details to use the Survey123 app. After downloading and opening the Survey123 app, you should see the screen featured on the left.

The text at the bottom of the screen that says '**Continue without signing in**' is what you want to click. You will need to click this each time you open the Survey123 app.

2) Submitting a Tag Recovery:

There are two page with prompts for submitting a tag recovery. Items with an asterisk are required. Those without can be left blank if necessary.

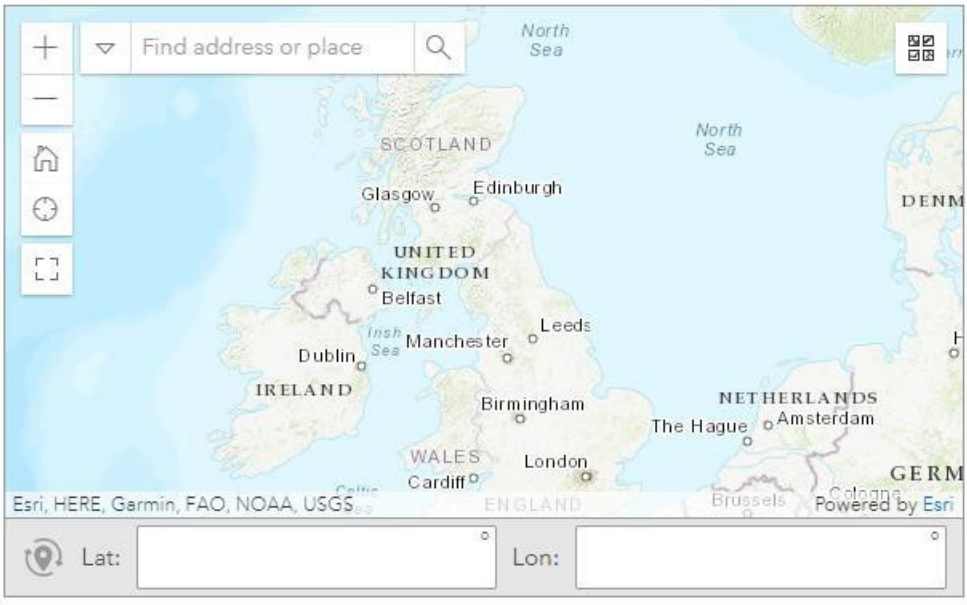
On the second page, make sure and click the check mark at the bottom right of the page (as seen in the figure to the right) to ensure the tag recovery has been submitted.



3) Why isn't my location being picked up on the map and/or why can't I see a map at all?

There are several reasons why this could be the case but, in general, ensuring the location services on your device are enabled (see question 5 for instructions) and using the Survey123 field app to submit the survey should resolve this issue.

If you can see a map, but your location is not showing up, it may look something like this:



At this point, you can either:

- Click on the location icon on the left-hand side to find your location (a blue dot will appear at your location on the map if location services are enabled),
- Zoom in and click on the map to set your location,
- Search for your location using an address in the search bar at the top, OR
- Enter your latitude and longitude (if you have this information at hand)

When your location has been set, a blue pin will appear on the map, and the latitude and longitude boxes will be populated.

If you are experiencing this issue and do not have access to mobile data, please refer to question 7.

4) How do I enable location services on my smart device?

The follow information comes from Esri's ArcGIS Survey123 FAQ for submitters:

> ***On iOS**, when the app is launched for the first time after installing, you will be asked if you want to capture location only when the app is on, always, or never. This can be changed later in your device's settings, by browsing to **Settings** > **Privacy** > **Location Settings** > **Survey123**.*
>
> ***On Android**, when the app is launched for the first time after installing, you will be asked if you want to allow access to the device's location. This can be changed later in your device's settings, by browsing to **Settings** > **Apps** > **Survey123** > **Permissions** (or similar depending on the Android device). On Android, when you run the app in the background, a notification that the app may be using your current location appears; however, your location will only be captured according to the behavior chosen in the location settings within the app. The default behavior is to only capture the location as needed by a survey, meaning that no location is captured when the app is in the background.*

5) How accurate is the location captured by the Survey123 field app?

The accuracy of the Survey123 app depends on the ability of your device to capture locations. Keep in mind that accuracy will vary depending on what device you use and that it's important you choose a device that will best suit the type of survey you are doing.

If you are at all concerned that your device may not have captured an accurate location, you can always go back after the survey has been submitted and edit this information (see question 7 for instructions). For reference, the app records the location you are at when you click 'Collect' to begin the survey.

6) If I'm revisiting the same site, can I edit or view a survey I've previously submitted?

Yes, but you must be using the Survey123 app in order to do this. After you submit your first survey, you will see a 'Sent' folder at the bottom the survey summary page:

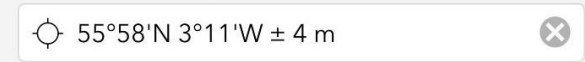
If you click into the 'Sent' folder, you can see all previously submitted surveys from your device. By clicking on one of the surveys, you will be given the option to 'View' or 'Copy sent data to a new survey'. By choosing the 'Copy sent data to a new survey' option, you can simply edit your location and answers to questions and submit as a new survey.

7) What if I don't have a mobile data plan or the location I'm going to is very remote and I may not have access to mobile data?

Short answer: You can still access and fill out the survey without mobile data but you **MUST** download the Survey123 app in order to do this. See instructions below:

When connected to Wi-Fi or mobile data, download the Survey123 app, as well as the Groundfish Tag Recovery Reporting survey you need to take into the field. You can then begin capturing survey information without a data connection. Upon completing the survey, you will be given the option to 'Save in Outbox', please select this option. In doing so, all of your survey results will be stored locally on your device. **When you are able to reconnect to Wi-Fi or mobile data, you will need to submit your survey that has been saved in your Outbox.** To do this, navigate to the survey summary page where you will see an 'Outbox' folder (see image below). By clicking on this folder, you will be able to see the survey you filled out and can submit it by clicking 'Send' in the bottom right corner of the screen.

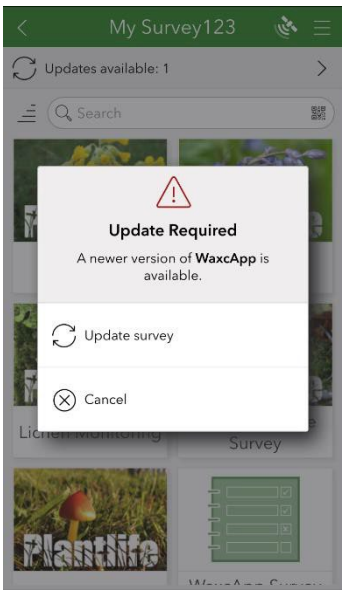
Note: You will not be able to see a map with your location while filling out a survey offline but rest assured, if you have locations services enabled on your device, the app will record your location. It might look like the following image, no map but an un-editable box containing your present coordinates.



8) If I already have the Groundfish Tag Recovery Reporting survey downloaded, how do I access the newest version?

You will know there is an update available when you open the Survey123 app and notice a bar across the top of the screen that says, 'Updates available'. You can click on this bar and update the survey. The other option is to simply click on the NOAA icon on the 'My Survey123' screen as if you are going to fill out a survey. You will then get a message saying that a required update is available - click 'Update survey'.

Then, when you enter the survey, you will be able to see the newest version of the Groundfish Tag Recovery Reporting survey.



9) If I'm submitting a survey multiple times, is there a way to save some of the information so I don't have to keep re-entering it?

Yes, there is a way! Once you have populated the survey with the answers you wish to save for future surveys, you can set them as your favorite answers by clicking the menu icon  in the upper right corner of the screen. You will then select the option 'Set as favorite answers'. Once your favorite answers have been saved, you can insert them into new surveys by clicking on the menu icon again at the start of your next survey and selecting 'Paste answers from favorite'. This is a good option for address fields.

10) How do I make the text larger on the Survey123 app?

If you're having trouble with the size of the text, you can customize these settings within the Survey123 app. Click on the menu icon  in the upper right corner of the 'My Survey123' page and then select 'Settings'. In Settings, select 'Text' and adjust the text size by sliding the circle to the right to increase the size.

Still having trouble, didn't see your question listed or want to report an issue with Survey123?

Please get in touch with us if this FAQ guide did not help to answer your query by sending an email to: katy.echave@noaa.gov. Please be as detailed and specific as possible so that we can resolve any issues quickly and efficiently. It would also help tremendously if you could include screenshots of issues, where relevant. Thank you!

REWARD
FOR TAGGED SABLEFISH

The U.S. National Marine Fisheries Service Auke Bay Laboratory in Juneau, AK tags sablefish (blackcod) in the Gulf of Alaska, Bering Sea and Aleutian Islands in order to study distribution and migration.

Tags may be yellow, red, or orange and are usually located below the first dorsal fin on the left side of the fish. In addition, sablefish are being tagged with ¾ inch diameter x 2 ¼ inch long electronic tags placed inside the fish with a 3 inch long fluorescent green and pink tag located near the dorsal fin of the fish. The external tag reads – "Reward for Depth Sensor Inside Fish." These electronic tags are worth monetary rewards of up to $500 if returned.

Postage-paid envelopes are available in most areas. For a reward and information on the tagged fish, please send tags with as much of the following information as possible:

- Name of vessel
- Location of recovery
- Fork length (from tip of snout to fork in tail)
- Depth fished
- Date of recovery
- Sex of the fish
- Round weight
- Type of gear

Sablefish Tag Program
NOAA/NMFS Auke Bay Laboratories
17109 Pt. Lena Loop Rd.
Juneau, AK 99801