Maia Kapur - NOAA Federal <maia.kapur@noaa.gov>

Re: 2023 Summer GOA AT survey POP data available

33 messages

Pete Hulson - NOAA Federal <pete.hulson@noaa.gov> Fri, Sep 29, 2023 at 9:44 AM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Sandra Parker-Stetter <sandy.parker-stetter@noaa.gov>, Patrick Ressler - NOAA Federal <patrick.ressler@noaa.gov>, Darin Jones - NOAA Federal <darin.jones@noaa.gov>, Mike Levine - NOAA Federal <mike.levine@noaa.gov>, Maia Kapur - NOAA Federal <maia.kapur@noaa.gov>

Thanks much David - really appreciate all your work on this. I've also Cced Maia Kapur who will be taking over the POP assessment going forward - we'll set up a meeting with you guys early next spring for introductions and to fill Maia in on where this work is at.

Thanks again,

Pete

On Thu, Sep 28, 2023 at 10:38 AM David McGowan - NOAA Federal <david.mcgowan@noaa.gov> wrote:

> Hi Pete,
>
> I just pushed our preliminary POP results from the summer GOA survey to the git repo (https://gitlab-afsc.fisheries.noaa.gov/mace_stock_assessment_results/mace_goa_summer_survey_pop_result). These results will likely be updated before the November Plan Team meeting as we address some vessel radiated noise issues, but don't expect the estimates to change by more than 10%. Let me know if you have any questions.
>
> Dave
>
> --
> David W. McGowan, PhD (he/him/his)
> Research Fish Biologist
> Midwater Assessment and Conservation Engineering Program (MACE)
> RACE Division, Alaska Fisheries Science Center, National Marine Fisheries Service
> National Oceanic and Atmospheric Administration (NOAA)
> 7600 Sand Point Way NE, Seattle, WA 98115
> Office: 206-526-4163
> Email: david.mcgowan@noaa.gov

David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Wed, Oct 11, 2023 at 11:26 AM
To: Pete Hulson - NOAA Federal <pete.hulson@noaa.gov>, Maia Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Sandra Parker-Stetter <sandy.parker-stetter@noaa.gov>, Patrick Ressler - NOAA Federal <patrick.ressler@noaa.gov>, Darin Jones - NOAA Federal <darin.jones@noaa.gov>, Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Hi Maia and Pete,

I just pushed the updated survey results using the noise-reduced data set (DS2) to the git repo (https://gitlab-afsc.fisheries.noaa.gov/mace_stock_assessment_results/mace_goa_summer_survey_pop_result). These should be considered the final data as we do not anticipate any additional changes to these survey results. Total POP biomass decreased by 770 t (-0.52%) from the data sent to you after Plan Team. Deleted all output files from the original data set (DS1). Let me know if you have questions regarding the data update.

Dave

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David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Fri, Oct 20, 2023 at 8:14 AM
To: Pete Hulson - NOAA Federal <pete.hulson@noaa.gov>, Maia Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Hi Maia and Pete,

Just wanted to give you a heads up that we just pushed a minor update to the POP estimates from the summer GOA AT survey to the git repo (https://gitlab-afsc.fisheries.noaa.gov/mace_stock_assessment_results/mace_goa_summer_survey_pop_result). It's essentially a rounding error change related to the noise removal template we used, but want to make sure you have our most updated numbers. Let me know if you have any questions, and enjoy your weekend.

Dave
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Pete Hulson - NOAA Federal <pete.hulson@noaa.gov> Fri, Oct 20, 2023 at 9:10 AM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Maia Kapur - NOAA Federal <maia.kapur@noaa.gov>, Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Thanks for the heads up Dave, appreciate all your work on this
[Quoted text hidden]

Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Thu, Nov 2, 2023 at 11:34 AM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>

Hi David
I was hoping to take a look at the AT data, but when I log into gitlab at the link you provided I get a 404-not found error. Do I need to be added to a permissions list? My username is mkapur-noaa.
MK
[Quoted text hidden]

David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Thu, Nov 2, 2023 at 11:38 AM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>, Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Hi Maia, I'm not in front of my computer for another 30 min. Mike, can u grant Maia access to the git folder?

Dave
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Mike Levine - NOAA Federal <mike.levine@noaa.gov> Thu, Nov 2, 2023 at 11:48 AM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>

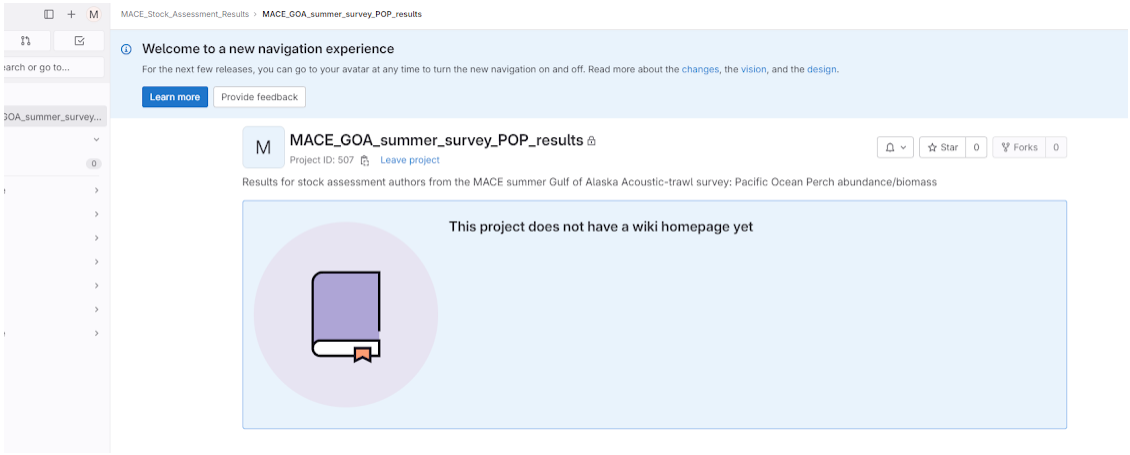
Hi Maia and Dave,

No problem! You should get an invite now. Sorry about that,

Mike
[Quoted text hidden]
--
Mike Levine (he/him/his)
Research Fishery Biologist
NOAA\NMFS\AFSC
802-318-0881; 206-526-6417

Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Thu, Nov 2, 2023 at 12:42 PM
To: Mike Levine - NOAA Federal <mike.levine@noaa.gov>
Cc: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>

Thanks for your quick attention to this. Sorry, I'm new to gitlab -- I'm able to log into the project now but don't see anything, just a blank homepage.. Is there a straightforward way for me to get the data (i.e. a CSV summary file) in the meantime?



Thanks
MK
[Quoted text hidden]

David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Thu, Nov 2, 2023 at 12:43 PM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Here you go, Maia
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3 attachments

- **pop_biomass_num_length_by_region_survey_202308_DS_2_A_1.csv**
  3K
- **pop_biomass_num_management_area_survey_202308_DS_2_A_1.csv**
  1K
- **pop_specimen_data_survey_202308_DS_2_A_1.csv**
  133K

Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Thu, Nov 2, 2023 at 12:50 PM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Awesome, thanks! Really appreciate your responsiveness. I'll let you know if I have any questions.
MK
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Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Thu, Nov 2, 2023 at 1:03 PM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

I'm still very new to these data; any chance there is a similar spreadsheet that has records (biomass) by **depth** & stratum? I'm mainly curious if the AT survey is also seeing them higher in the water column, as the pelagic trawls have. If that jibes with what you saw anecdotally that would be is helpful too.
MK
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David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Thu, Nov 2, 2023 at 1:06 PM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

To be clear, are you interested in biomass at vertical depth increments (i.e. vertical position below surface/above seafloor) or by bottom depth? I'm free to video chat if that's easier to explain than type out...

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Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Thu, Nov 2, 2023 at 1:11 PM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Thanks - and my apologies for doing this in somewhat of a rushed manner! For now, I think at vertical depth increments would be the key question. We've had reports that mid-water/pelagic trawls are finding them more frequently, and I was hoping to check whether the AT survey also saw them higher off the bottom in recent years.

Let me know if that makes sense.
MK
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David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Thu, Nov 2, 2023 at 1:13 PM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

No problem, we're here to help you...

We can easily provide data to you in 10 m vertical depth bins for each 0.5 nmi horizontal bin. Sound good?
[Quoted text hidden]

Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Thu, Nov 2, 2023 at 1:15 PM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

That would be great!
MK
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David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Thu, Nov 2, 2023 at 2:14 PM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Hang tight, Maia, still trying to figure out how to best fill in 0s for depth layers and samples w/ no POP
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Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Thu, Nov 2, 2023 at 3:09 PM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Ok, thanks for the update. Please don't feel rushed on this. Just something I was hoping to look into informationally for the plan team a week from Monday.
MK
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David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Thu, Nov 2, 2023 at 5:04 PM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Hey Maia,

See if this works for you. Can provide similar data from the 2013-2021 surveys (odd years only) if you're interested. Also see a violin plot that we report for pollock vertical distribution below - if this is helpful, can generate one for POP tomorrow.

Dave

Column definitions:

"SHIP" = unique ship ID number (157 = Oscar Dyson)
"SURVEY" = survey number (Year and cruise)
"DATA_SET_ID" = internal MACE data set number (2 = noise-reduced surface referenced data set)
"INTERVAL" = unique for each sample number (covers 0.5 nmi horizontal bin along transect) (* must be read in as character if imported from .csv *)
"MEAN_BOTTOM_DEPTH" = acoustically measured bottom depth within the sample
"LAYER" = 10 m vertical layer ordered from surface to seafloor
"RANGE_FROM_REFERENCE_UPPER" = shallowest depth within the layer
"RANGE_FROM_REFERENCE_LOWER" = deepest depth within the layer
"START_LONGITUDE" = longitude at begining of sample (can provide end location upon request)
"START_LATITUDE" = latitude at begining of sample (can provide end location upon request)
"ANALYSIS_ID" = internal MACE analysis number for data set X
"SPECIES_CODE" = 30060 for POP
"BIOMASS" = total biomass (kg) within the sample -> density * interval width (can be summed across layers and intervals)
"NUMBERS" = total abundance (numbers of fish) within the sample -> density * interval width (can be summed across layers and intervals)
"BIOMASS_NM2" = biomass density (can be summed across layers within each interval, only mean across intervals)
"NUMBERS_NM2" = abundance density (can be summed across layers within each interval, only mean across intervals)

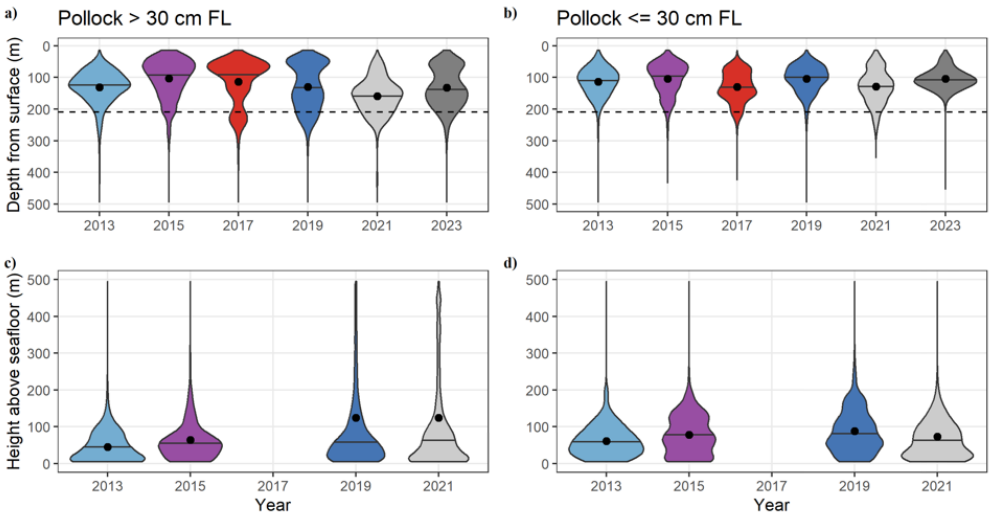

Figure 9. -- Estimated biomass distributions of adult pollock (> 30 cm FL) and juvenile pollock (<= 30 cm FL) depth (a. and b.) and height above the seafloor (c. and d.) during summer GOA surveys. Depth is referenced to the surface and height is referenced to the bottom. Data were averaged in 10 m depth bins. Mean bottom depth for 2023 is shown in a. and b. (dashed line). Plots show the probability density of pollock distribution, with median pollock depth noted by black horizontal lines, and the mean weighted pollock depth indicated by black points. Note that depths (or heights) > 500 m are omitted from plotting, but calculations include pollock at all surveyed depths; also note that c) and d) are not calculated for the 2017 survey.

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2 attachments

POP biomass and numbers by sample and 10m layer_DY202308.csv
10078K

POP biomass and numbers by sample and 10m layer_DY202308.RData
1027K

Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Mon, Nov 6, 2023 at 8:53 AM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Thanks so much, I'm checking this out now. Yes, I believe the time-varying aspect is crucial, and something like the violin plots you showed for Pollock is exactly what I'm looking for. Would it be possible to re-generate those violin plots using a 30 or 35cm cutoff?

MK

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David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Mon, Nov 6, 2023 at 9:01 AM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Sure, I think we can do that, Maia. Have a couple things to deal with this morning but will try to work on the POP violin plots for 2013-2023 this afternoon/tomorrow morning.

Dave
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Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Mon, Nov 6, 2023 at 9:02 AM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

That's just fine. My presentation is a week from tomorrow, so anytime this week works for me.
MK
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David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Mon, Nov 6, 2023 at 9:03 AM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Good to know, thanks.
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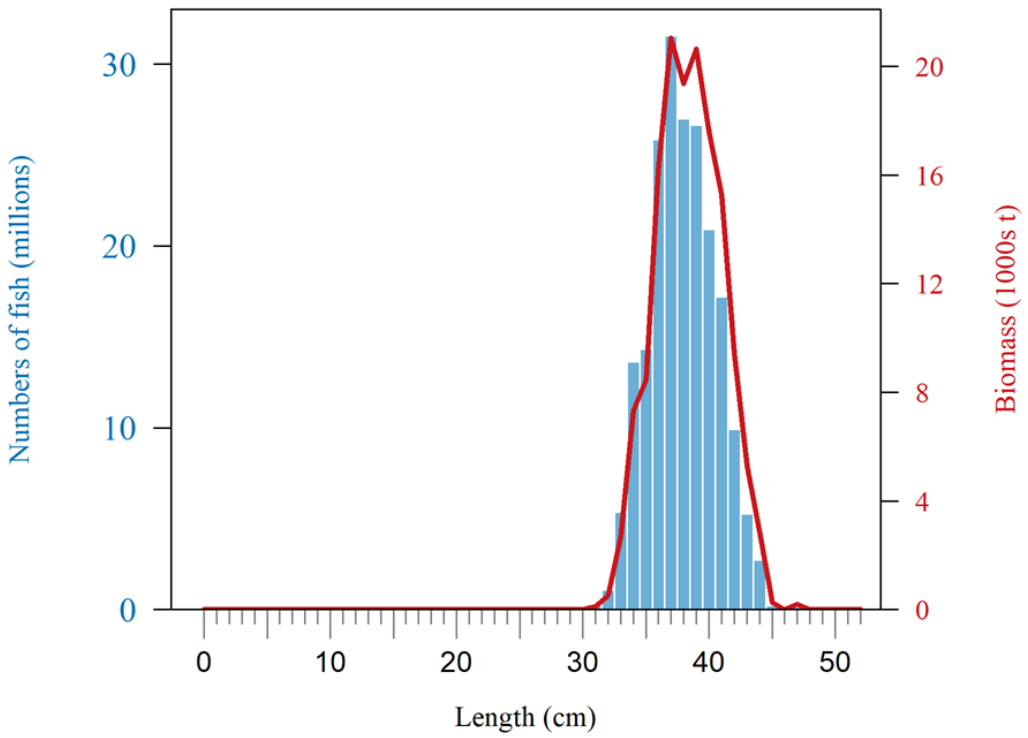
David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Tue, Nov 7, 2023 at 8:50 AM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Hi Maia, checking in with you about the need for a size cutoff for the POP vertical distribution plots. We use 30 cm for pollock to differentiate between juveniles and adults. For POP, you can see our length histogram below indicating a single length mode for numbers and biomass. Are you okay if we simplify this as a 2x1 plot and show depth for all POP, or do you have a size cutoff you'd prefer we use?

Dave



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Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Tue, Nov 7, 2023 at 9:48 AM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Thanks for your detailed look at this. I was thinking to account for size-at-maturity, but certainly aggregated is just fine.
MK
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David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Tue, Nov 7, 2023 at 9:59 AM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Having an issue w/ our 2013 and 2019 surface-referenced vertical data that I'm still working through, but here's a preview:

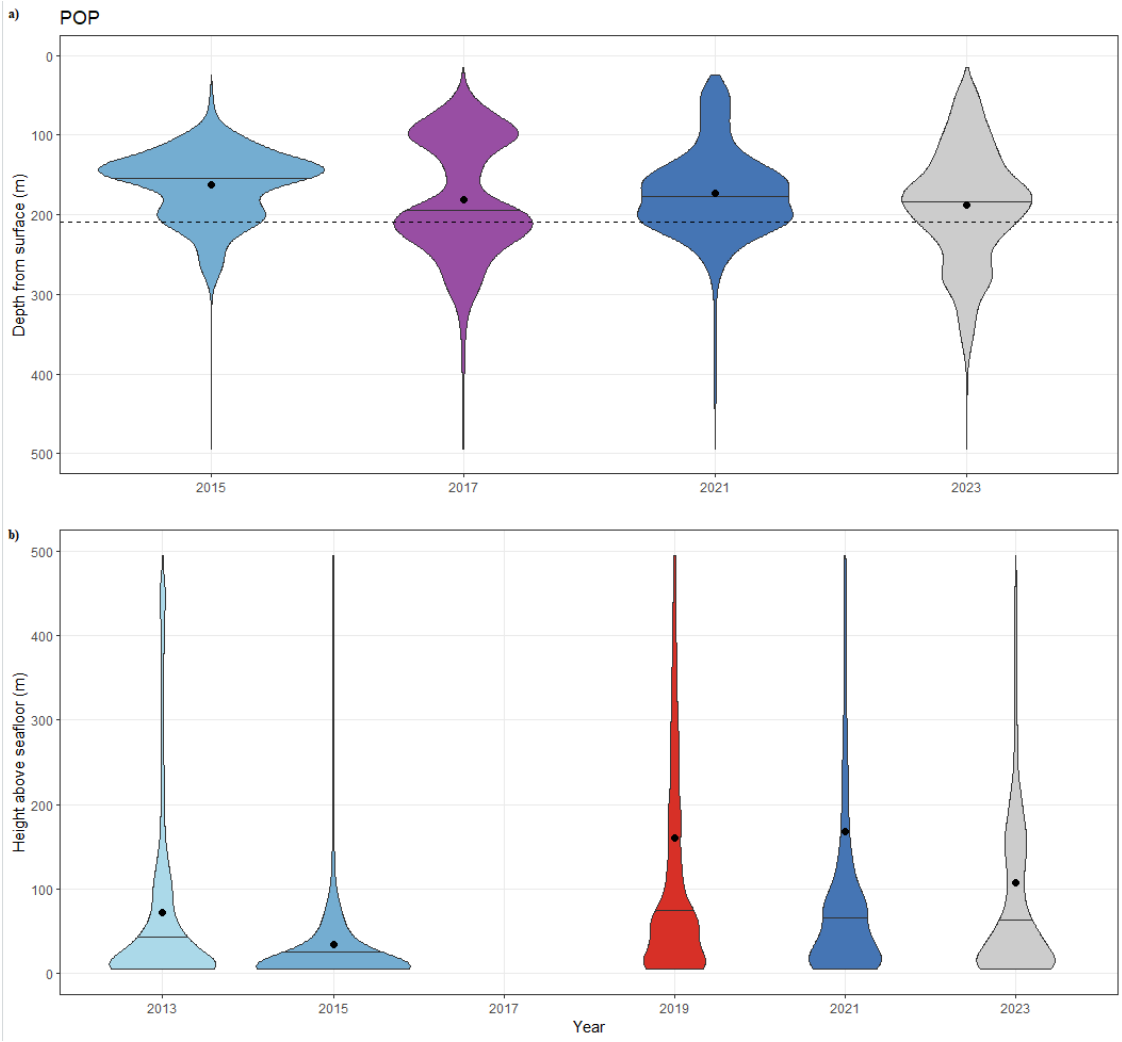

Figure XX. Estimated biomass distributions of POP depth a) and height above the seafloor b) during summer GOA surveys. Depth is referenced to the surface and height is referenced to the bottom. Data were averaged in 10 m depth bins. Mean bottom depth for 2023 is shown in a) (dashed line). Plots show the probability density of POP distribution, with median POP depth noted by black horizontal lines, and the mean weighted POP depth indicated by black points. Note that depths (or heights) > 500 m are omitted from plotting, but calculations include POP at all surveyed depths; also note that b) are not calculated for the 2017 survey.

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Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Tue, Nov 7, 2023 at 10:02 AM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

Awesome. Only if it's not too much trouble, when you render the final plot, would you mind making the axis titles & labels a bit larger? Planning to show this on a slide.
Thanks.
MK

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David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Tue, Nov 7, 2023 at 10:03 AM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>

No problem, this is currently formatted for cruise report

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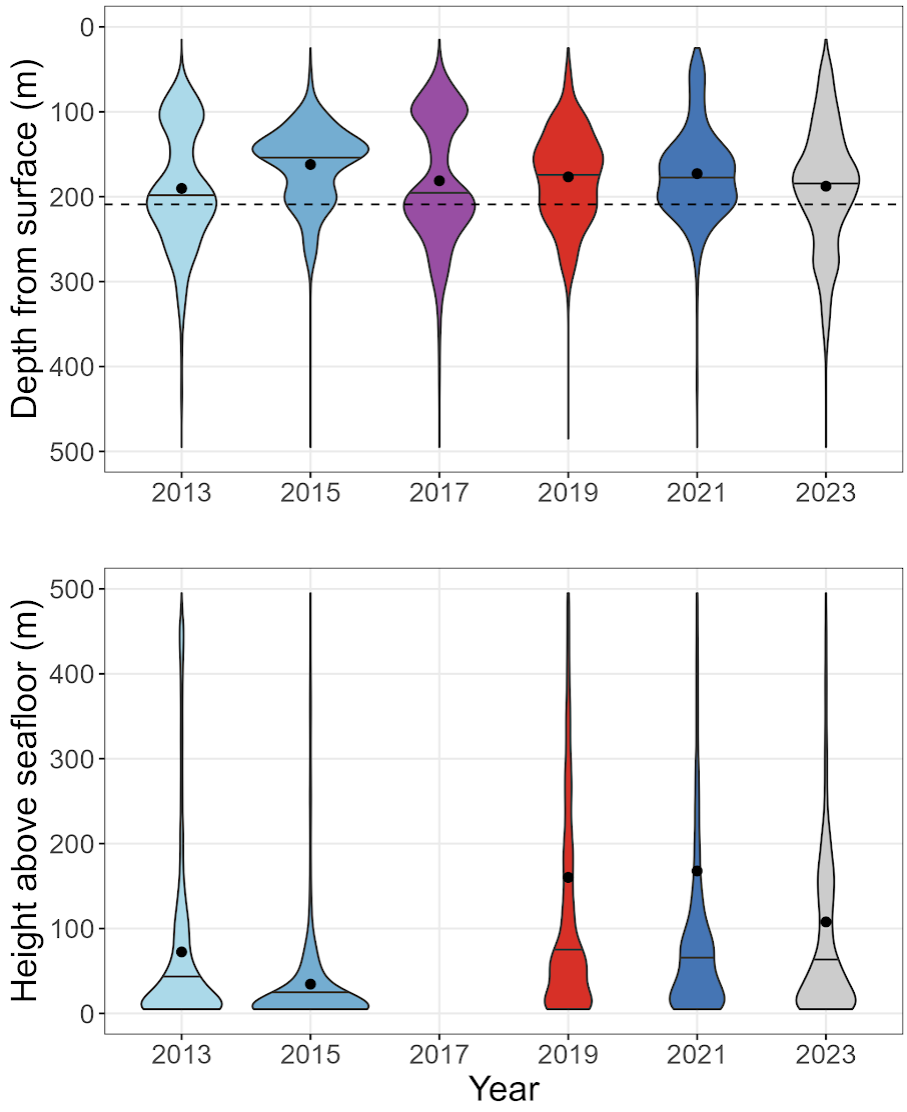
David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Tue, Nov 7, 2023 at 11:22 AM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>



How's this work for you?
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Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Tue, Nov 7, 2023 at 11:36 AM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>, Mike Levine - NOAA Federal <mike.levine@noaa.gov>
Cc: Patrick Ressler - NOAA Federal <patrick.ressler@noaa.gov>

Fantastic! It does look like we are seeing some expansion higher into the water column, with slight but not pronounced vacancy at depth. This time series corresponds with the higher encounter rates in the midwater pollock trawls.

I want to extend my appreciation for how rapidly you turned this around, your collaborative attitude and attention to detail. To be able to get rapid looks at these data in the middle of assessment season is invaluable for me as I defend my work to the Plan Team. You saved me lots of time that I'd otherwise spend munging and interpreting the data.

I'm CCing Patrick here to highlight the value of your contributions.

Thank you.

MK
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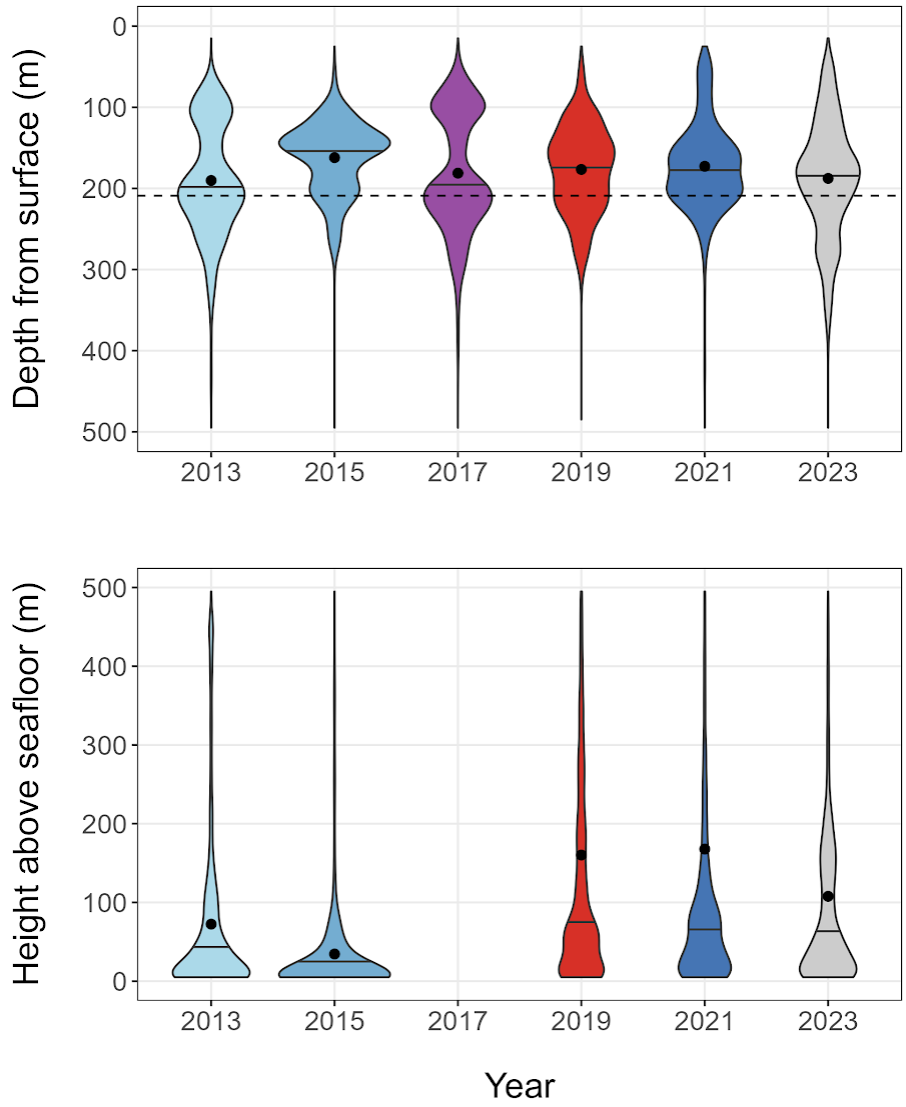
David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Tue, Nov 7, 2023 at 11:50 AM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>, Patrick Ressler - NOAA Federal <patrick.ressler@noaa.gov>

Great to hear this was useful for you, Maia. Mike and I were happy to help. We can provide a version of this plot formatted for a report if you want to include it in the SAFE in the future. Otherwise we'll likely include it as a base figure in the annual survey cruise report.

Dave

PS I cleaned up the axis titles to create a bit more space for you.



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Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov> Tue, Nov 7, 2023 at 1:09 PM
To: David McGowan - NOAA Federal <david.mcgowan@noaa.gov>

Thanks - I think we won't put it in the SAFE this year but will the next time (2025).
MK
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David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Tue, Nov 7, 2023 at 1:17 PM
To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>

Sounds good, was assuming 2024 SAFE chapters were too far along to make any additions. Good luck on the PT talk next week...
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David McGowan - NOAA Federal <david.mcgowan@noaa.gov> Thu, Nov 9, 2023 at 11:41 AM

To: Maia Sosa Kapur - NOAA Federal <maia.kapur@noaa.gov>
Cc: Mike Levine - NOAA Federal <mike.levine@noaa.gov>, Patrick Ressler - NOAA Federal <patrick.ressler@noaa.gov>

Hi Maia, have a few more figuress for you to consider that we think may provide additional context as to where POP in the midwater were distributed in 2023 compared to prior years. The first plot shows CDFs of biomass relative to bottom depth, depth below the surface, and height above the seafloor by year from 2013-2023. This shows that POP were horizontally distributed over deeper bottom depths in 2023, with few occurring in less than 200 m. Their vertical position below the surface remained relatively similar to other years, but were located higher above the seafloor (particularly compared to 2013 and 2015). This indicates POP shifted out towards deeper waters near or beyond the shelf break.

The 2nd figure shows biomass heatmaps for distributions by year, with POP concentrating in southern Shelikof Strait and along the shelf break. Note, geostatistical metrics (center of gravity and inertia) are calculated by NMFS management area. Let me know if you have any questions or would like to discuss this further before or after Plan Team. Enjoy the long weekend.

Dave

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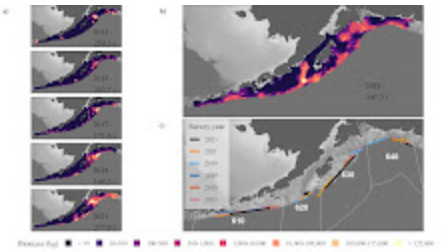
2 attachments

POP distribution summary_6.5x7.5_504dpi.tif
437K



POP interpolated distributions comparison 2013-2023.tif
947K