

# AFSC Stock Assessment Classification Overview


Review of the new stock assessment classification exercise detailed in the Next Generation Stock Assessment Improvement Plan (NGSAIP) and results for the AFSC groundfish and crab stocks

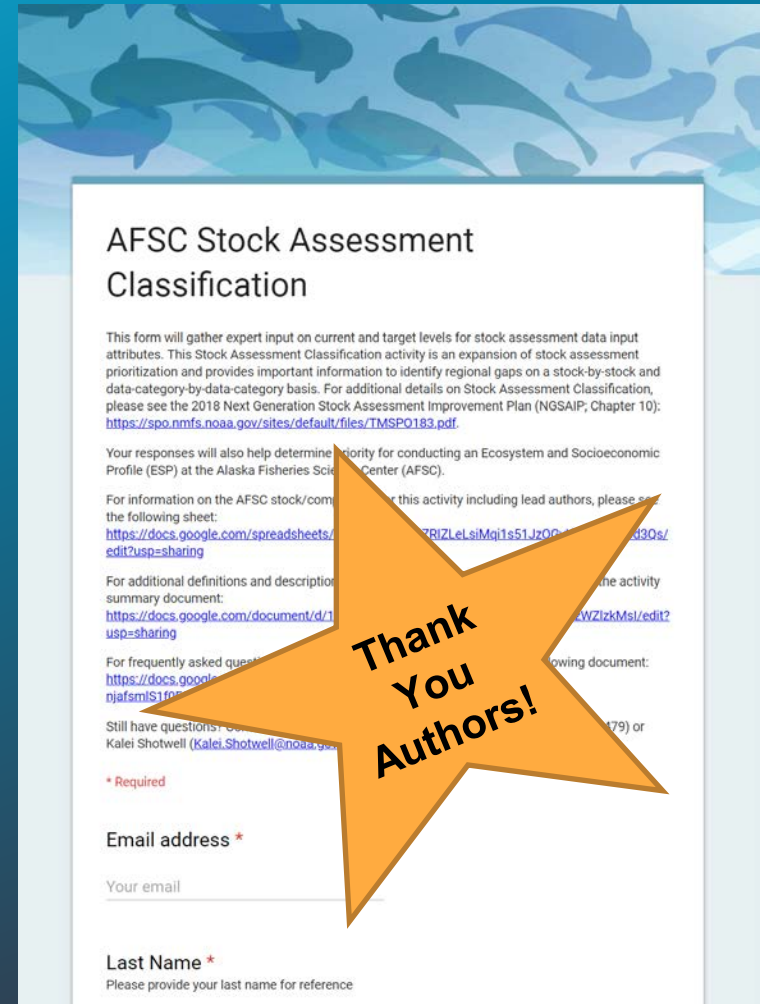


**NOAA**  
**FISHERIES**

Kalei Shotwell (AFSC, ABL)  
Kristan Blackhart (NSAP, ECS Federal)

# Stock Assessment Classification

- NGSaip ([Lynch et al., 2018](#))
  - Classifies 5 input data attributes
  - Uses 6 levels per attribute
  - Current and target scores by stock
- AFSC Process (August, 2019)
  - Webinar on classification
  - Form developed for assessment authors to complete 
  - Q/A sessions and FAQ document provided to authors



**AFSC Stock Assessment Classification**

This form will gather expert input on current and target levels for stock assessment data input attributes. This Stock Assessment Classification activity is an expansion of stock assessment prioritization and provides important information to identify regional gaps on a stock-by-stock and data-category-by-data-category basis. For additional details on Stock Assessment Classification, please see the 2018 Next Generation Stock Assessment Improvement Plan (NGSAIP, Chapter 10): <https://spo.nmfs.noaa.gov/sites/default/files/TMSP0183.pdf>.

Your responses will also help determine priority for conducting an Ecosystem and Socioeconomic Profile (ESP) at the Alaska Fisheries Science Center (AFSC).

For information on the AFSC stock/completion of this activity including lead authors, please see the following sheet: <https://docs.google.com/spreadsheets/d/1RIZLsiMq1s51Jz0G1.../edit?usp=sharing>

For additional definitions and description of the activity, please see the summary document: <https://docs.google.com/document/d/1.../edit?usp=sharing>

For frequently asked questions, please see the following document: <https://docs.google.com/document/d/1.../edit?usp=sharing>

Still have questions? Contact Kalei Shotwell (Kalei.Shotwell@noaa.gov) or (907) 586-1799 or (907) 586-1799

\* Required

**Email address \***

Your email

**Last Name \***

Please provide your last name for reference

**Thank You Authors!**

# Stock Classification Levels

## NOAA Fisheries' Stock Assessment Classification System


	Data Limited		➔	LEVEL	➔	Data Rich	
ATTRIBUTE	0	1	2	3	4	5	
<b>Catch</b>	No quantitative catch data	Some catch data, but major gaps for some fishery sectors or for historical periods such that their use in assessments is not supported	Enough catch data establish magnitude of catch and trends in catch for a major fishery sector in order to apply a data-limited assessment method. This includes fisheries that are closed and it is known that negligible catch is occurring	Catch data is generally available for all fishery sectors to support quantitative stock assessment, but some gaps exist such as low observer coverage, high levels of self-reported catch, weak information on discard mortality	No data gaps substantially impede assessment, but catch is not without uncertainty (e.g., recreational catches estimated from surveys)	Very complete knowledge of total catch	
<b>Size and/or age composition</b>	No composition data collected	Some size or age composition data has been collected, but major gaps in coverage, and not used in stock assessment	Enough size or age composition data has been collected to enable data-limited assessment approaches	Enough size or age composition data is collected over a sufficient time series to be informative in age/size structured assessment models	Enough age composition data has been collected over a sufficient time series to enable assessment methods that need age composition data from the fishery	Very complete age and size composition data, including, as needed on stock-specific basis, knowledge of ageing precision, spatial patterns or other issues	
<b>Abundance</b>	No indicator of stock abundance or trend in stock abundance over time	Fishery-dependent catch rates (CPUE) are available, but high uncertainty about their standardization over time; or expert opinion on degree of stock depletion over time	Fishery-dependent catch rates (CPUE) are sufficiently standardized to enable their use in full assessments; data from fishery-independent sources are not available or sufficient to estimate abundance trends	Limited fishery-independent survey(s) provide estimates of relative abundance; however, the temporal or spatial coverage of the stock is limited or the sampling variability is high	Complete fishery-independent survey(s) provide estimates of relative abundance, and the survey(s) cover a large proportion of the spatial extent of the stock with several years of tracking at a level of precision that supports assessments	Calibrated fishery-independent survey(s) or tag-recapture provide estimates of absolute abundance	

# Stock Classification Levels

NOAA FISHERIES' STOCK ASSESSMENT CLASSIFICATION SYSTEM (continued from previous page)

	Data Limited		➡	LEVEL	➡	Data Rich	
ATTRIBUTE	0	1	2	3	4	5	
<b>Life history</b>	No life history data	Estimates of most life history factors not based on empirical data; instead derived using proxies, meta-analyses, borrowed from other species, or without scientific basis	Estimates of some life history factors based on stock-specific empirical data, but at least one derived using life history proxies, meta-analyses, borrowed from other species, or without scientific basis. Generally supports data-poor assessments that use life history information	Estimates of most life history factors based on stock-specific empirical data	Data are sufficient to track changes over time in at least growth	No major gaps in life history knowledge, including detailed stock structure, spatial and temporal patterns in natural mortality, growth, and reproductive biology	
<b>Ecosystem linkage</b>	No linkage to ecosystem dynamic or consideration of ecosystem properties (environment, climate, habitat, predator-prey, etc.) in configuring the assessment (i.e., equilibrium conditions assumed for ecosystem)	Ecosystem-based hypotheses inform the assessment model structure (e.g., defining the stock boundaries and/or spatial or temporal features) and/or are used for processing assessment inputs (e.g., abundance index), but no explicit linkage to any ecosystem drivers (environment, climate, habitat, predator-prey, etc.)	The assessment includes some form of variability or effect to explicitly account for unidentified ecosystem dynamic(s) (e.g., time/space "regimes", random variation, or other approaches to changing features without direct inclusion of ecosystem data)	One or more assessment features is linked to a dynamic (i.e., data) from at least one of the following categories: environment, climate, habitat, predator-prey data (e.g., covariate)	The assessment model is linked to at least one ecosystem dynamic, and one or more process studies directly support the manner in which environmental, climate, habitat, and/or predator-prey dynamics are incorporated (e.g., consumption rates measured and covariate informed by results)	The assessment approach is configured to be coupled or linked with an ecosystem process (e.g., multispecies, coupled biophysical, climate-linked models)	

# AFSC Process Summary

- 61 groundfish & crab stocks
  - Current and target from author
  - Additional ecosystem linkage data
  - NGSaip targets calculated
  - Reviewed by representatives from PT/SSC, and author supervisors
- Summary Report 
  - Provides all values and justification for difference between author and NGSaip target, default author

## Next Generation Stock Assessment Improvement Plan

### Stock Assessment Classification

Alaska Fisheries Science Center 2019

Kalei Shotwell and [Kristan Blackhart](#)

A major focus of the 2018 [Next Generation Stock Assessment Improvement Plan](#) (NGSAIP) is developing a portfolio of "right-sized" assessments. To evaluate priorities for conducting assessments at frequencies and levels most appropriate to each stock, NOAA Fisheries needs a consistent approach to tracking and classifying assessments. The NGSaip details an updated stock assessment classification system that includes five data input attributes. This system allows us to track current status of the stock assessment enterprise, and establish targets for each stock's assessment. By comparing current status to targets, we can identify regional stock assessment gaps on a stock-by-stock and data-category-by-data-category basis. This provides an important planning tool to inform strategic decisions for stock assessments, and track performance of the stock assessment enterprise. It also gives NOAA Fisheries a strong business case to justify continued investment in stock assessments.

We recently conducted the stock assessment classification (SAC) as detailed in the NGSaip for the Alaska Fisheries Science Center (AFSC). Initially, the stock list for all Alaska groundfish and crab stocks was created using the status units that are tracked in the Species Information System (SIS). We additionally split out complex members for which there were data differences (i.e., the indicator stock is tier 1 or 3 and the remaining complex members are tier 5 or 6). This resulted in sixty-one stocks for conducting the AFSC SAC activity.

A Google form was created to gather the data necessary to conduct the AFSC SAC. One form was completed for each stock on the stock list by the lead stock assessment author. Questions on the form were used to gather data on the current and target levels for five stock assessment attributes. The five attributes and scoring criteria are detailed in the NGSaip and consist of information about the data available for catch, size-age composition, abundance, life history, and ecosystem linkages. Each attribute is scored on a 0 to 5 level basically describing a data-limited to data-rich stock. Authors scored the current and target levels for their stock(s) and provided justifications for their scores. Authors also provided additional information that was used to calculate the NGSaip suggested target levels for each attribute according to the NGSaip rubric (Chapter 10).

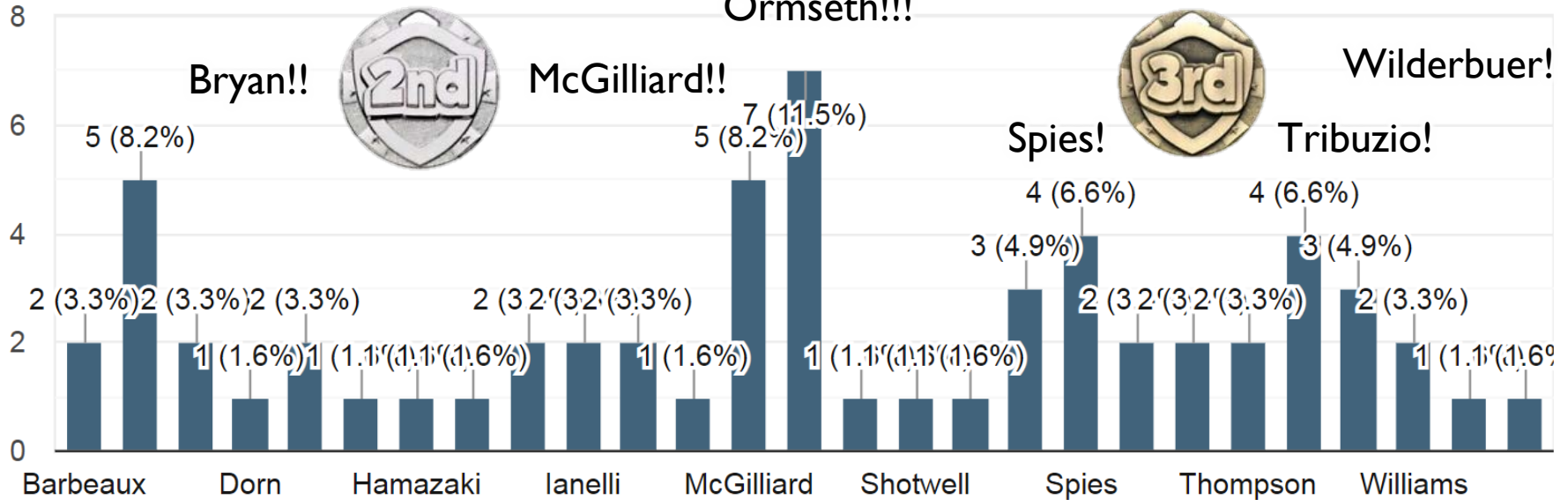
Along with the form, we provided several supportive documents and meetings to increase the consistency and timeliness of form responses. Definitions and descriptions of the activity were provided in a summary document which was also presented to the stock assessment authors via webinar (April

# Author Contributions

Last Name

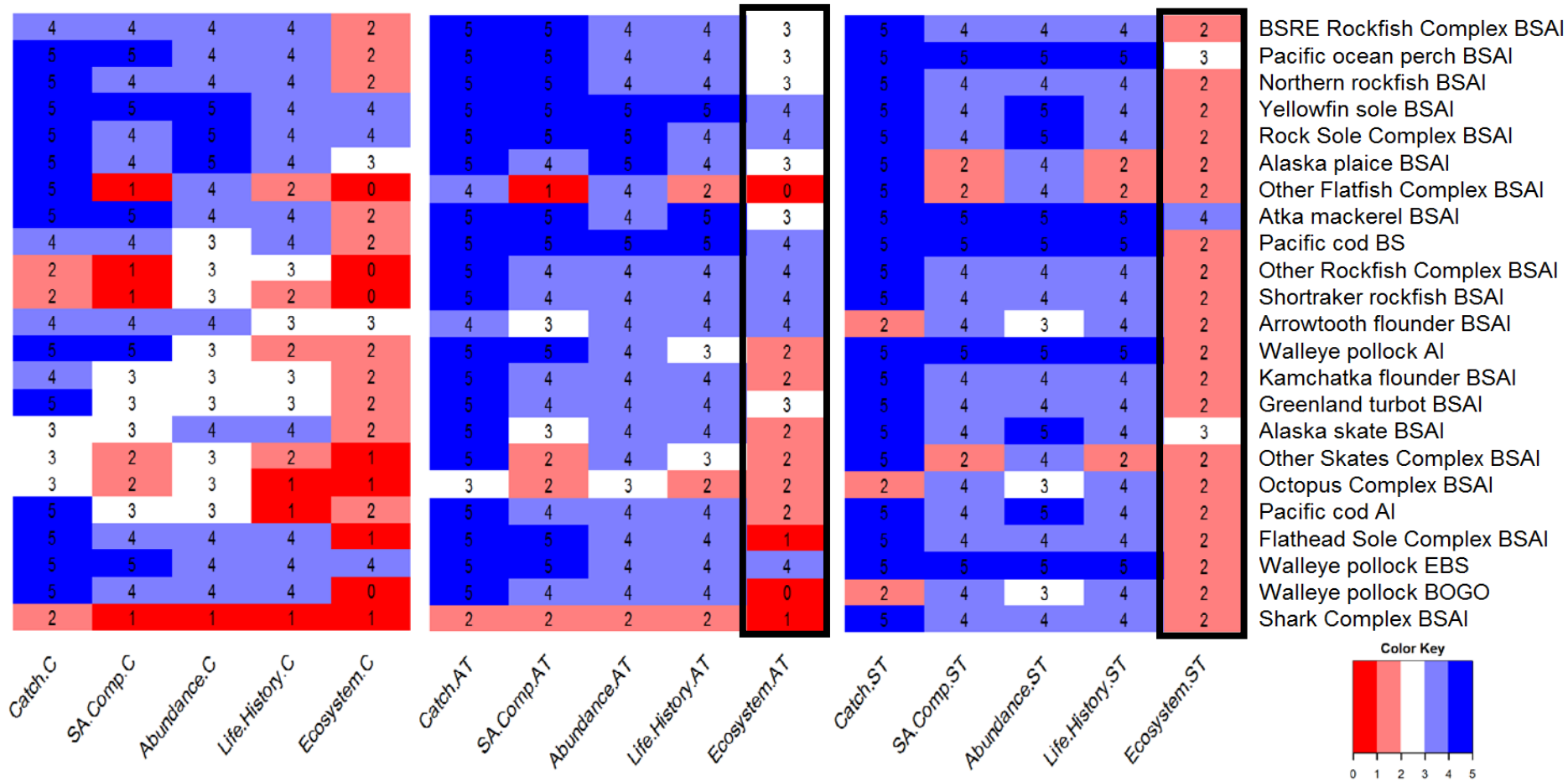


Ormseth!!!



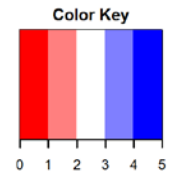
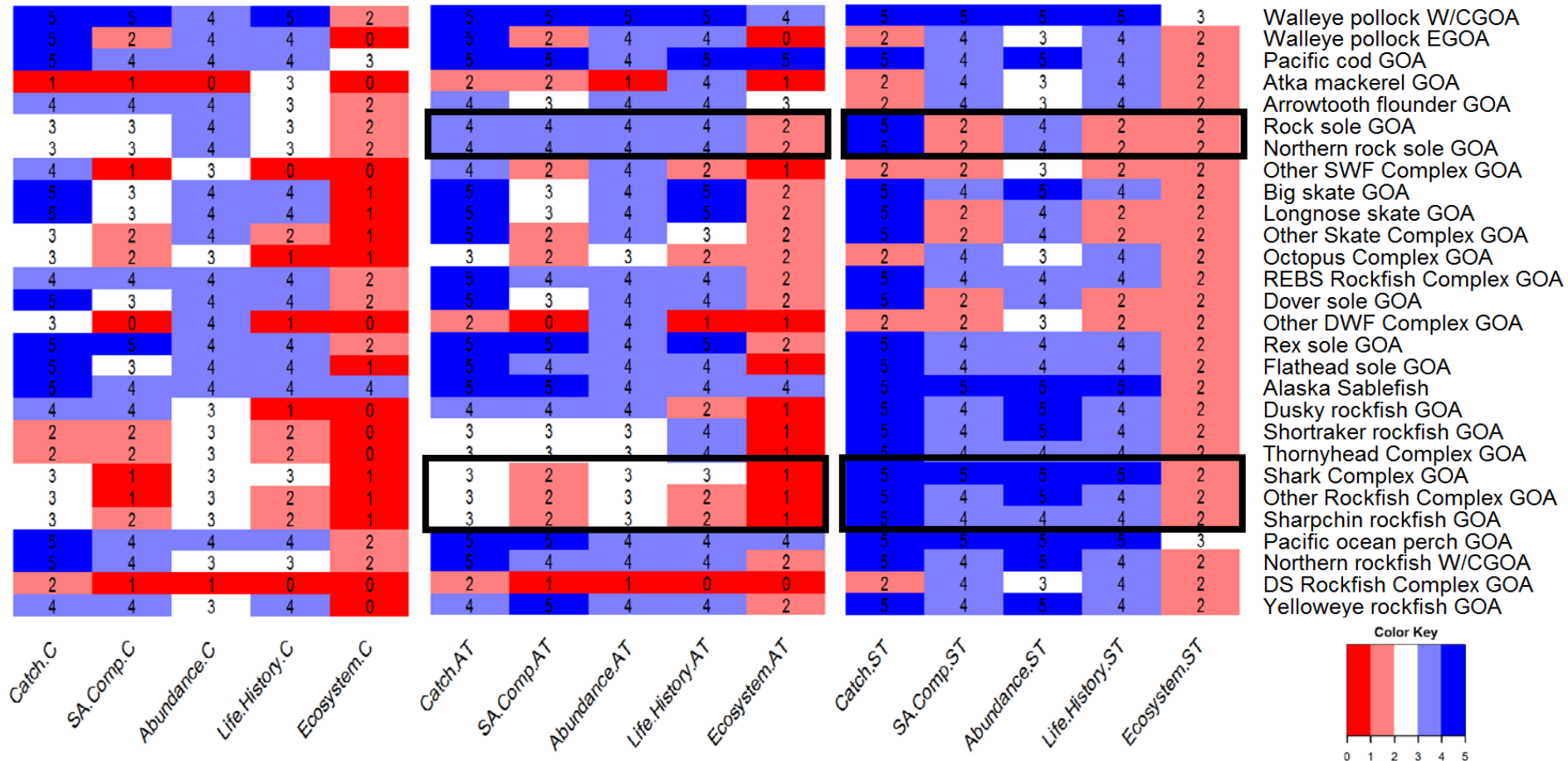
# Form Results – BSAI Groundfish

Author Current, Author Target, NGSaip Target



# Form Results – GOA Groundfish

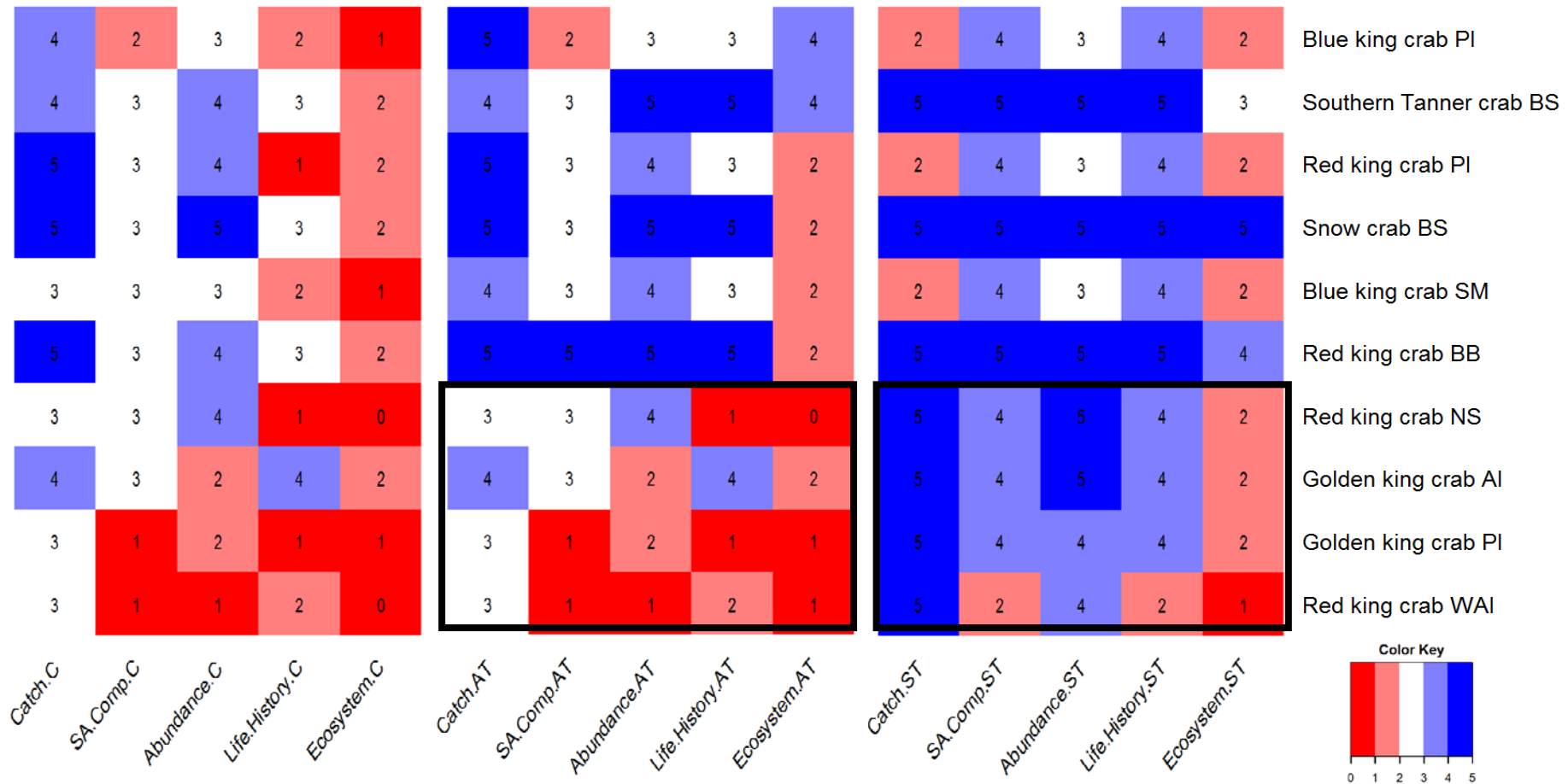
Author Current, Author Target, NGSaip Target





# Form Results – Crab

## Author Current, Author Target, NGSaip Target

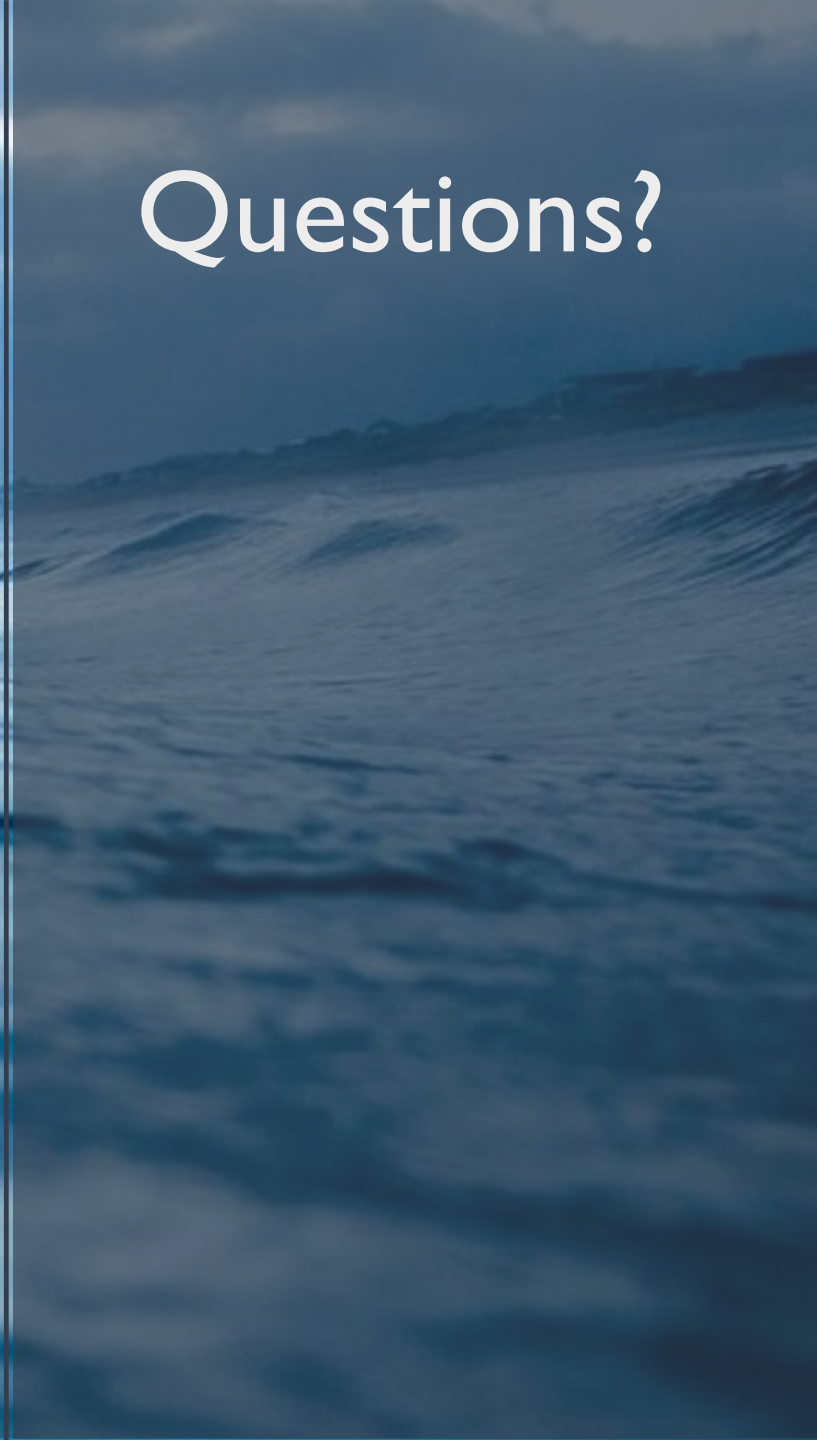


# Future Thoughts

- Classification data in Species Information System
  - Annual update of current values by authors
  - 5 year-ish review of target values
- National Stock Assessment Program gap analysis
  - Conducted by NSAP for future use in accounting
  - Identify priority stocks for conducting ESPs
  - Potentially use data gaps combined with stock assessment priorities for directing AFSC research



Questions?



# Ecosystem Socioeconomic Profile (ESP) Workshop Overview

Definition: A standardized framework that facilitates the integration of ecosystem and socioeconomic factors within the stock assessment process and acts as a proving ground for operational use in quota setting.



**NOAA**  
**FISHERIES**

Planning Team: Kalei Shotwell (ABL),  
Sandra Lowe, Martin Dorn, Ben Fissel,  
and Stephani Zador (REFM)

# Workshop Structure 2019-2021


<h2>Data</h2>	<p>Review ESP Process</p> 	<p>Collect</p> 	<p>Coordinate</p> 	<p>Create</p> 
<h2>Model</h2>	<p>Review ESP</p> 	<p>Develop</p> 	<p>Perform</p> 	<p>Improve</p> 
<h2>Advice</h2>	<p>Update ESP</p> 	<p>Forecast</p> 	<p>Evaluate</p> 	<p>Provide</p> 

# Communication Gap

December 2017 BSEI Introduction

**STOCK ASSESSMENT AND FISHERY EVALUATION REPORT  
FOR THE GROUND FISH RESOURCES  
OF THE BERING SEA/ALEUTIAN ISLANDS REGIONS**

Compiled by:  
**The Plan Team for the Groundfish Fisheries  
of the Bering Sea and Aleutian Islands**




With contributions by:  
K. Aydin, S.J. Barabasi, M. Bryan, J. Cahalan, C. Coorath, M. Dalton, K. Edwards, B. Froud, M. Fournier, D. Handman, A. Hayes, A. Hicks, J. Hoff, K. Holman, T. Horkko, P.J. Huber, J.N. Jansell, S. Kernech, R. Lamb, S. Lowe, C.R. Lundford, C.R. McMillan, D. McKelvey, D.G. Nichol, B. Norcross, D.A. Ormoch, W.A. Pabison, C.J. Rodriguez, C.N. Rooper, C. Suddas, P.D. Sponser, D.B. Spots, D. Stuenkel, T.F. Tordvik, G.G. Thompson, C.A. Truostro, and T.K. Wilderbaer.

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December 2017 GSA Introduction

**APPENDIX B  
STOCK ASSESSMENT AND FISHERY EVALUATION REPORT  
FOR THE GROUND FISH RESOURCES  
OF THE GULF OF ALASKA**

Compiled by:  
**The Plan Team for the Groundfish Fisheries of the Gulf of Alaska**

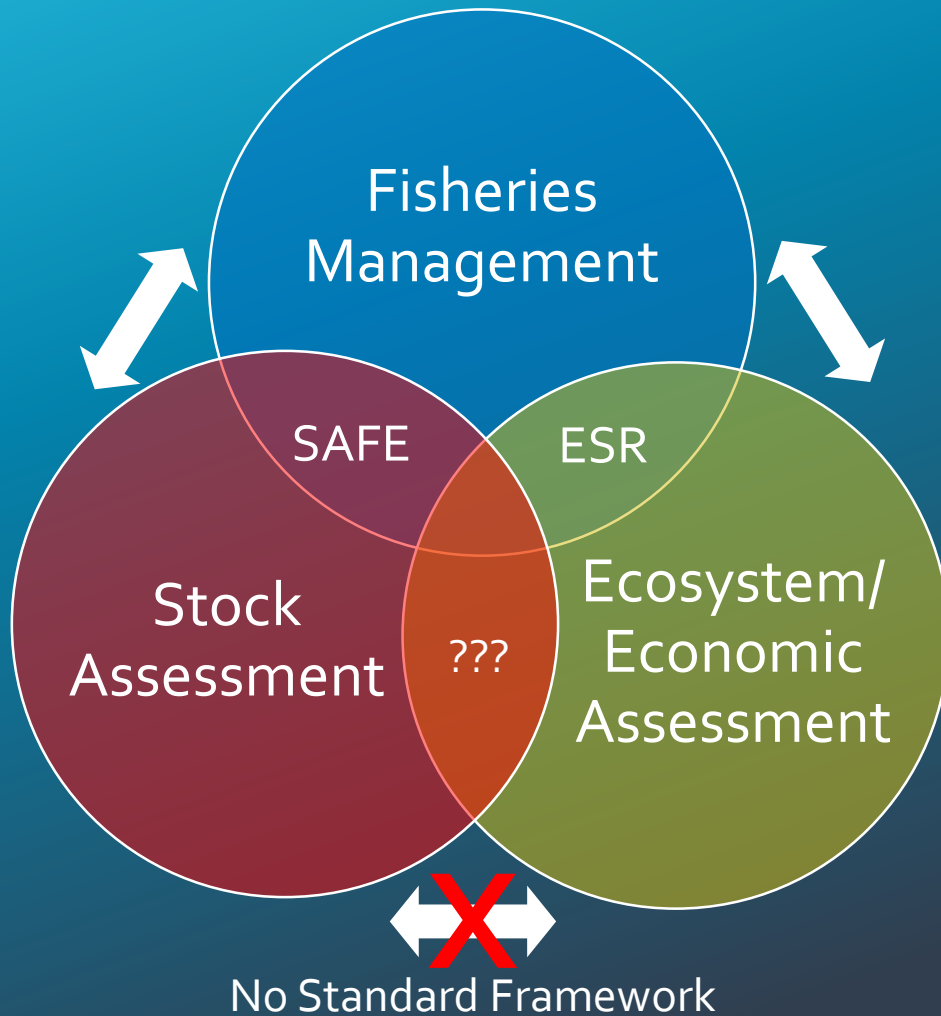


with contributions by:  
J. Armstrong, K. Aydin, S. Barabasi, M. Bryan, C. Conrath, L. Cinnera, K. Cozart, C. Cunningham, O. Davis, M. Doon, K. Echeve, C. Franco, K. Fausch, B. Froud, D. Handman, J. Heifer, K. Holman, P. Huber, J. Jansell, M. Jaramila, D. Jones, D. Lewis, S. Lowe, C. Lundford, A. McCarthy, C. McMillan, S. Meyer, D. Nichol, N. Nichele, A. Olson, O. Ormoch, W. Pabison, C. Rodriguez, J. Runkle, K. Sherrill, K. Spangler, P. Sponser, J. Spots, J. Stahl, T. Tordvik, C. Truostro, J. Turnock, T. Wilderbaer, B. Williams, K. Williams, Q. Yang, S. Zader.

November 2017

**North Pacific Fishery Management Council**  
605 W. 4th Avenue, Suite 309  
Anchorage, AK 99501


Page 1 NPFMC Gulf of Alaska SAFE



No Standard Framework

December 2017 ESR Executive

**Ecosystem Considerations 2017  
Status of the  
Eastern Bering Sea Marine Ecosystem**



Edited by:  
**Elizabeth Siddon<sup>1</sup> and Stephanie Zador<sup>2</sup>**  
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17109 Pk. Loma Loop Road  
Jensen, AK 99601  
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National Marine Fisheries Service, NOAA

With contributions from:  
Alex Andrews, Kerin Aydin, John Bengtson, Jennifer Belet, Nick Bond, Lyle Britt, Hillary Burgess, Kristin Chelak, Anne Marie Ebb, Lisa Ewert, Ed Farber, Benjamin Fowl, Shannon Fitzgerald, Robert Fox, Sarah Gauthier, Jessica Gion, Colleen Harpold, Ron Heintz, Jerry Hoff, Kristin Holman, Katherine Howard, Jim Jansell, Taylor Jarvis, Timothy Jones, Robb Kaler, Steve Kasperov, David Kimmel, Kathy Klotz, Liu Lokanick, Cand Ladd, Christie Lang, Geoff Long, Robert Lamb, Anna Lavoie, Jon Lee, Daniel K. Lew, Michael Litwin, Jennifer Mordugno, Fritz Muter, Jim Murphy, John V. Olson, Jon Overland, Julia Parish, Roll Rosen, Heather Rowner, Jon Rubin, Marc Romano, Chris Rooper, Sigurd Sola, Elizabeth Siddon, Kim Sparks, Philip Stabeno, Kate Stafford, Jeremy Sterling, Marvita Szymkowiak, Grant Thompson, Rod Towell, Meilin Wang, Andy Whitehouse, Tom Wilderbaer, Michael Williams, Sarah P. Wise, Elvin Yamsnikoff, and Stephanie Zador.

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NPFMC Bering Sea and Aleutian Islands SAFE

**STOCK ASSESSMENT AND FISHERY EVALUATION REPORT FOR THE  
GROUND FISH FISHERIES OF THE GULF OF ALASKA AND BERING  
SEA/ALEUTIAN ISLANDS AREA.**

**ECONOMIC STATUS OF THE GROUND FISH FISHERIES OFF ALASKA, 2016**

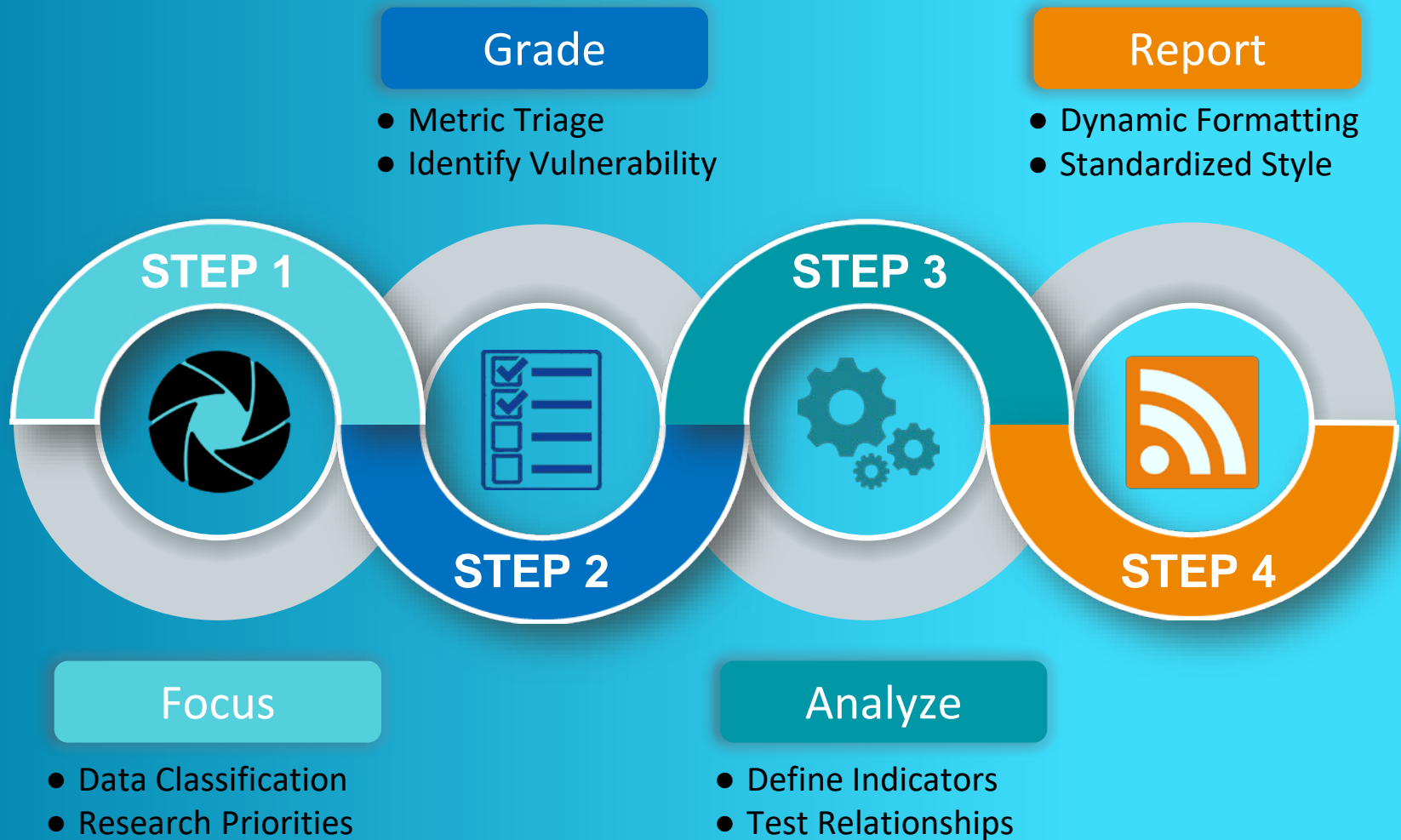
by  
Ben Froud, Michael Dalton, Brian Garber-Yonik, Alan Hayes, Stephen Kasperov, Jean Lee, Dan Lew, Anna Lavoie, Chung Seung, Kim Sparks, Sarah Ware.

Economic and Social Sciences Research Program  
Resource Ecology and Fisheries Management Division  
Alaska Fisheries Science Center  
National Marine Fisheries Service  
National Oceanic and Atmospheric Administration  
7600 Sand Point Way N.E.  
Seattle, Washington 98115-6319

December 20, 2017

NPFMC Economic SAFE

# ESP Process



# ESP Product

## Appendix in SAFE report

- 1) Intro: justification, data
- 2) Metrics assessment: national, processes
- 3) Indicators assessment: time series, analyses
- 4) Recommendations; data gaps, future priorities

*Shotwell et al., In Review*

### Appendix 3C. Ecosystem-Socioeconomic Profile of the Sablefish stock in Alaska

S. Kalei Shotwell, Ben Fissel, Dana H. Hanselman  
November 2017



*With Contributions from:*

Mayumi Arimitsu, Alison Deary, Miriam Doyle, Georgina Gibson, Ron Heintz, Stephen Kasperski, Chris Lunsford, Jamal Moss, Jodi Pirtle, Lauren Rogers, Ashwin Sreenivasan, Kally Spalinger, Lauri Sadorus, Wesley Strasburger, Johanna Vollenweider, Cara Wilson, Sarah Wise, Ellen Yasumiishi

*Please Note: This report is a first-generation document for the Ecosystem-Socioeconomic Profile (ESP) framework that is currently under review. The data and document will continue to be refined following feedback from contributors, the Plan Teams for the Groundfish Fisheries of the Bering Sea, Aleutian Islands, and Gulf of Alaska and the North Pacific Fishery Management Council.*

<https://www.fisheries.noaa.gov/resource/data/2018-assessment-sablefish-stock-alaska>



# ESP Needs

## Accessibility

Metrics and indicators need to be readily available similar to stock assessment output

## Consistency

Metrics and indicators need to be reliably and consistently produced

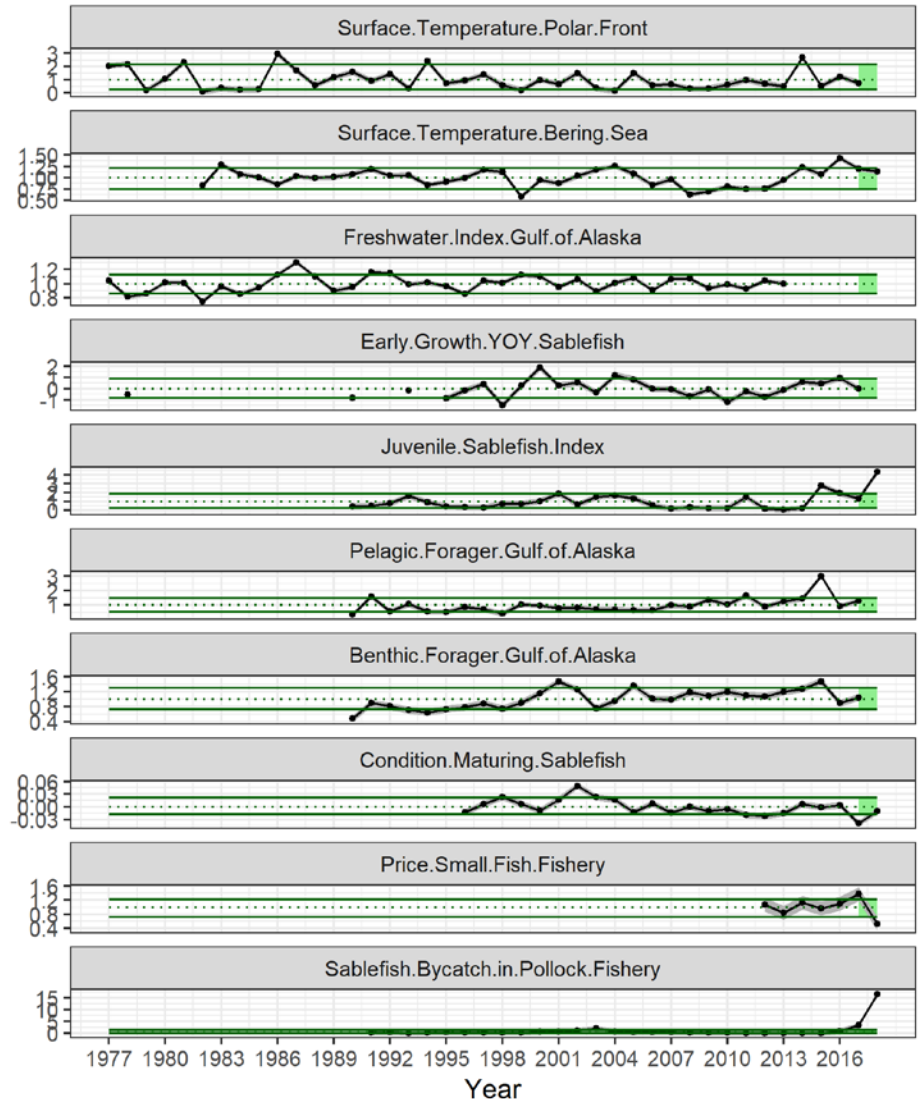
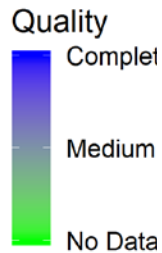
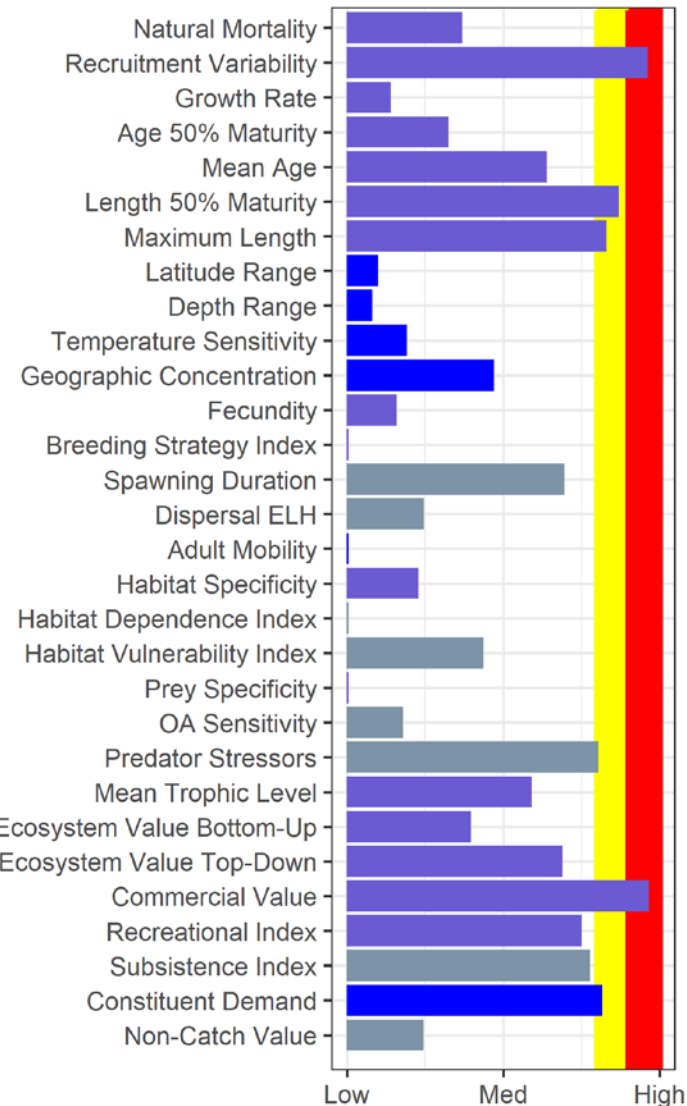
## Timeliness

Metrics and indicators need to be processed on the time scales of the stock assessments they feed

# ESP Overview/Examples – Day 1

- ESP Overview, Data Flow, Sablefish ESP
  - Overview of the ESP process & standard products
  - Review of data flow between ESR, ESP and management
  - Review of sablefish assessment, ESP, and informing SAFE
- Step-by-step GOA pollock and SMBKC ESPs
  - Review of progress toward completing the two stocks' ESP
  - Metrics and indicators can be refined, perhaps from information received through workshop presentations
  - Discussion on data-rich and data-limited ESP approaches

# ESP Standard Graphics – Day 1



# ESP Standard Table – Day 1

## Indicator List + Traffic Light

- Title of indicators
- Short description and references or contact
- Traffic light evaluation of most recent year with symbols (+,-,•) and current year with color fill (red, blue, yellow)

Title	Description	Mean
Surface Temperature Polar Front	Sea surface temperature index along the North Pacific Polar Front in central North Pacific (Shotwell et al. 2014)	●
Surface Temperature Bering Sea	Average surface temperature (°C) over all hauls of the RACE Bering Sea shelf bottom trawl survey	●
Freshwater Index Gulf of Alaska	Low-resolution model estimate of annually-averaged monthly discharge (GOA ESR, 2017)	●
Early Growth YOY Sablefish	Anomalies from growth index of sablefish sampled in rhinoceros auklet diet (Arimitsu and Hatch, GOA ESR, 2017)	●
Juvenile Sablefish Index	Catch-per-unit-of-effort for sablefish in the ADF&G large-mesh survey (Spalinger, pers. commun., 2018)	+
Pelagic Forager Gulf of Alaska	Combined relative population weights from the pelagic foragers (see EBS ESR, 2017) on the ABL longline survey	+
Benthic Forager Gulf of Alaska	Combined relative population weights from the benthic foragers (see EBS ESR, 2017) on the ABL longline survey	●
Condition of Maturing Fish	Sablefish condition inferred from length-weight residuals for maturing fish (550-590 mm) on ABL longline survey	●
Price Small Fish Fishery	Average price per pound of small sablefish in BSAI fixed gear fisheries (Armstrong et al., 2018)	+
Sablefish Bycatch in Pollock Fishery	Incidental catch of sablefish (tons) in the BSAI pollock midwater fishery (AKFIN)	+

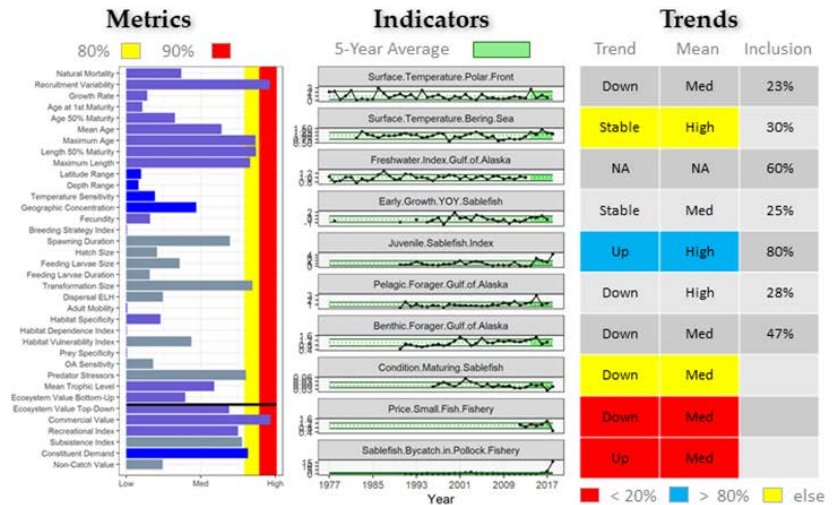
# ESP One-page Summary

## Primary elements of full ESP

- 1) Justification, classification
- 2) Updated versions of the standard graphics set
- 3) Considerations summary for ecosystem and socioeconomics
- 4) Link to full ESP and contact information



- Data rich stock near target in all classification categories, stock recommended for ESP (summary below)

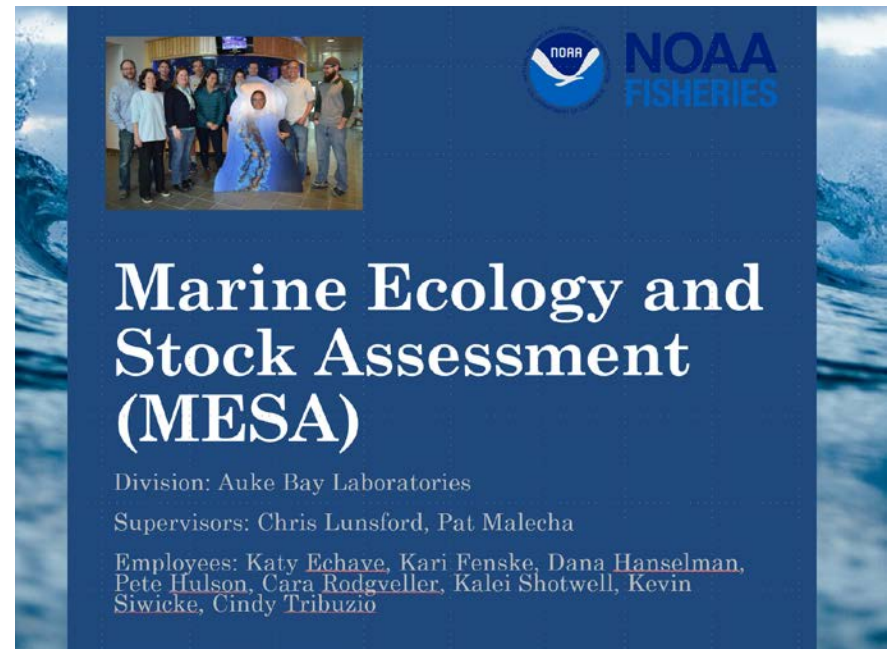


- High recruitment variability and low productivity metrics coupled with rapid growth in thermal thresholds, larval match to stratification and prey resources, first overwinter energetic costs, optimal foraging habitat, and juvenile body condition resulted in 8 indicators for monitoring
- High economic value and constituent demand metrics coupled with instability in small fish price and incidental catch in fisheries at the sablefish northern range resulted in 2 indicators for monitoring
- Ecosystem trend modeling revealed average to good conditions for larvae/juveniles of the 2016 year class but potentially suboptimal foraging conditions for maturing juveniles of the 2014 year class while economic trend modeling revealed substantially reduced small fish prices in 2018 and increased incidental catch in the BSAI fisheries in 2017 and 2018

# Program Presentations – Day 2

- 1) Main goal to overview data from programs for potential use in ESPs
- 2) Included organization, databases, current and future metrics/indicators, program contacts
- 3) Draft ESP Data List
- 4) Provided presentations

## Example Program Presentation Template



# Cross-cutting 20 Programs

**Pacific Marine Environmental Laboratory EcoFOCI**

Supervisors: Jane Duffy-Anderson (PMEL), Libby Logerwell

Employees: Ali Dixey, Lauren Rogers, David Kimmel, Matt Wilson, Steve Potts, Adam Spear, Melissa Pappas, Morgan Bailey, Ben Cooper, Callison Hampel, Jesse Lamb, Kathy Miller, Kimberly Ruhl, Amanda Dougherty

Principal Investigators: Esther Gribben, Jess Nodder

**Ecosystems & Fisheries-Oceanography Coordinated Investigations (EcoFOCI)**

Or within AFSC the Recruitment Process Program

Supervisors: Jane Duffy-Anderson (PMEL), Libby Logerwell

Employees: Ali Dixey, Lauren Rogers, David Kimmel, Matt Wilson, Steve Potts, Adam Spear, Melissa Pappas, Morgan Bailey, Ben Cooper, Callison Hampel, Jesse Lamb, Kathy Miller, Kimberly Ruhl, Amanda Dougherty

Principal Investigators: Esther Gribben, Jess Nodder

**Ecosystem Monitoring and Assessment (EMA)**

Auke Bay Labs Division

Supervisors: Ed Faley (PMEL), Andy Gray (BO)

Employees: Alan Anderson, Andrew Diamond, Charles Waters, Elizabeth Siddons, Elton Yamawaki, Kristin Creed, Lisa Emmer, Jenna Meyer, Jennifer Gates, Jim Murphy, John Usher, Jordan Warren, Scott Valucka, West Straubinger

**Recruitment, Energetics, and Coastal Assessment (RECA)**

Supervisors: Todd Miller, Mandy Lindeberg (adjd)

Employees: Emily Ferguson, Corey Fugate, Larry Holland, Jaxak Masello, Michele Manuda, Katharine Miller, John Moran, Matthew Rogers, Fletcher Sewall, Rob Suryan, Johanna Volenweider

Science Support: Bryan Comack, Taylor Jarvis, Darrie Neff, Halla Schultz, Ashwin Sreenivasan, Courtney Weiss, Sponder Linda

**The FBEP science team in Newport, OR**

**Midwater Assessment and Conservation Engineering (MACE)**

Supervisors: Chris Wilson, Patrick Resler

Employees: Alex De Robertis, Scott Kurosh, Taina Honkaniemi, Darin Jones, Nathan Leiffenburger, Mike Levine, Abigail McCarthy, Denise McArthur, Sarah Stenness, Rick Towler, Kresimir Williams, Noelle Youlum

**Shellfish Assessment Program**

Former supervisor: Robert Foy

NOAA employees: Dan Urban, Leah Zachar, Pam Jensen, Allie Conrad, Jennifer Gardner, Erin Fedewa, Jon Richar and Chris Long

Contractors: Connor Cleary, Swigard Duesterlich and Kelly Champagne

**Groundfish Assessment Program**

Program Lead: Stan Kotsick

Supervisors: Bob Lauth, Wayne Patison

Employees: Lewis Beath, Lyle Bell, Jason Connor, Christina Conner, Elizabeth Dawson, Patricia Harkin, Jerry Hoff, Steve Innes

Employees: Elana Jorgensen, Heather Kowalski, Paul Larson, Bob MacCrimmon, Peter Morris, Dan Nelson, Jay Orr, Mike Wang

Employees: Nancy Robinson, Steve Rowley, Kathryn Subramanian, Alison Vigen, Paul Van Susteren, Cynthia Young, Mark Zimmerman

**Age and Growth Program**

Supervisors: Tom Helzer and Della Aderit

Employees: Irina Benson, John Brogan, Chris Qvarnli, Betty Goetz, Charles Hutchinson, Craig Kestel, Beth Matta, Dustin Nadjovic, Sandi Nedeicher, Julie Pearce, Charles Platon, Jon Short, Kai Stone, Todd TerBrink

Presented by Beth Matta

AFSC Age and Growth Program

**REEM: Resource Ecology and Ecosystem Modeling Program**

Products

- Adult groundfish food habits data and indices
- Model-based estimates of predation

Presented by: K. Austin, K. Hoenner

**Fisheries data collection by the AFSC**

Supervisors: Chris Wilson, Patrick Resler

Employees: Alex De Robertis, Scott Kurosh, Taina Honkaniemi, Darin Jones, Nathan Leiffenburger, Mike Levine, Abigail McCarthy, Denise McArthur, Sarah Stenness, Rick Towler, Kresimir Williams, Noelle Youlum

**Fisheries Monitoring and Analysis**

**Status of Stocks and Multispecies Assessment (SSMA)**

Supervisors: Anne Hoffmann, Sandra Luch

Employees: Steve Hoffmann, Matthew Bryan, Marina Dean, Tom Ismail, Carey McCallister, Greg Omereth, Ingrid Taylor, Paul Sponner, Doug Strickland, Cindy Swenfeldt, Geoff Thompson

Principal Investigators: A. Harvati, C. Monahan, C. Tappin, M. Tarte, T. Washburn

**Marine Ecology and Stock Assessment (MESA)**

Division: Auke Bay Laboratories

Supervisors: Chris Lunsford, Pat Malachuk

Employees: Katy Edinger, Kari Fankha, Dana Hanselman, Pete Holman, Cara Koenigstein, Kristi Shumway, Kevin Swartz, Cindy Tebbens

**The ESSRP team**

**Seabird Data: Possible Contributions**

William Sydeman, Mayumi Arimitsu, Heather Renner, Sarah Ann Thompson, John Platt, Scott Hatch, Rob Suryan, Stephani Zador

**Regional Office Fisheries Data**

Presented by Anne Marie Eich Sustainable Fisheries Division

<https://www.fisheries.noaa.gov/about/atlaska-regional-office>

**Westward Region Large-Mesh Bottom Trawl Surveys**

**The IPHC Fishery Independent Setline Survey**

International Pacific Halibut Commission (<https://www.iphc.int/>)

**Essential Fish Habitat Species Distribution Models and Ecosystem Socioeconomic Profiles**

Jodi Pirtle Alaska Regional Office Habitat Conservation Division Juneau, Alaska

Presented by: Jodi Pirtle

**Habitat and Ecosystem Process Research program**

James Thorson

Core team: Mike Cameron, Phil Ganz, Tom Hurst, Mandy Lindeberg, Beth Matta

# Database Access – Day 2

- Online platforms allow quick, consistent access
  - Accept many data types
  - Specify user access
  - Data quality controls
- We already use many of these tools
  - AKFIN, AOOS
  - ERDAAP, Webpages

ALASKA FISHERIES INFORMATION NETWORK

Alaska Fisheries Information Network

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IOOS Integrated Ocean Observing System

AOOS Alaska Ocean Observing System

THE EYE ON ALASKA'S COASTS AND OCEANS

ERDDAP Easier access to scientific data

ERDDAP > tabledap > Make A Graph

Bering Sea Ecosystem Data from Lisa Eisner

Institution: AFSC (Dataset ID: KakeI\_test\_data)

Range: longitude = -172.07 to -159.99°E, latitude = 54.49 to 60.02°N, time = 2003-09-01T15:13:11Z to 2012-10-10T05:02:00Z

Information: Summary | License | FGDC | ISO 19115 | Metadata | Background | Subset | Data Access Form

Graph Type: markers

X Axis: longitude

Y Axis: latitude

Color: Tbot

Constraints

Optional Constraint #1

Optional Constraint #2

Server-side Functions

Graph Settings

Marker Type: Plus

Color: [Color Bar]

Color Bar: Minimum: Maximum: N Sections: Scale:

Draw land mask: [ ]

Y Axis Minimum: Maximum: Ascending: ascending

Click on the map to specify a new center point.

Zoom: Out 8x Out 2x Out Data In In 2x In 8x

Sea Water Temperature at Bottom (degree\_C)

Kake's test data set

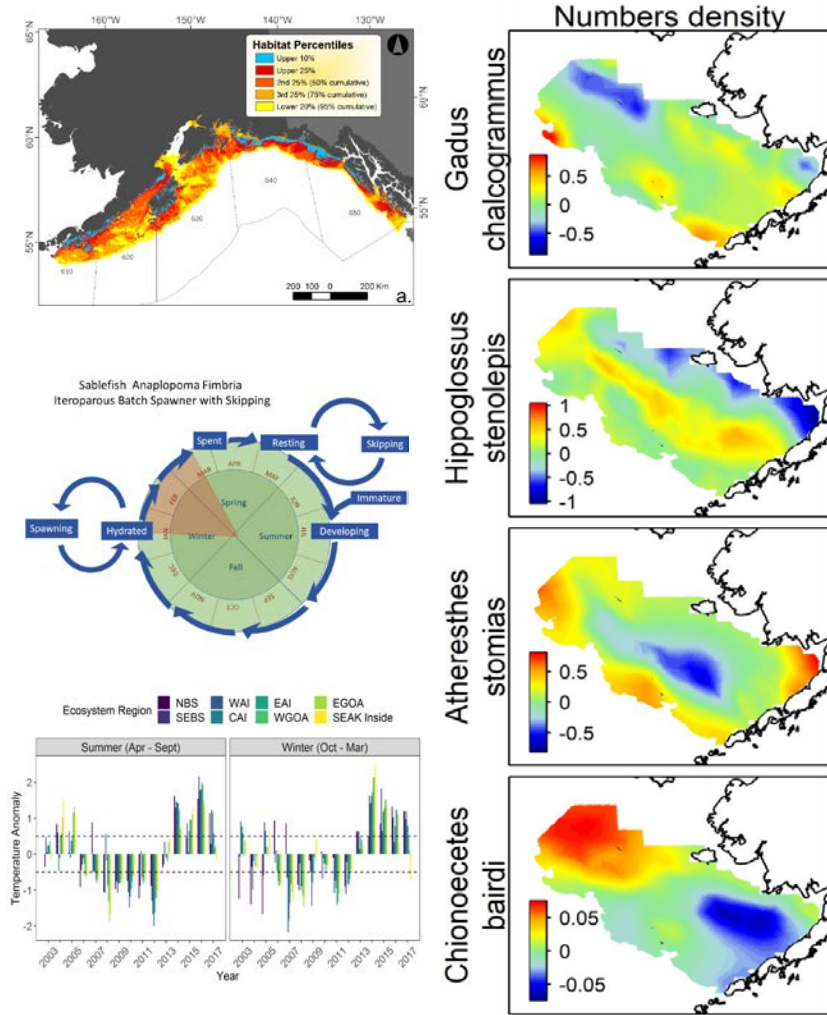
Data courtesy of AFSC

Redraw the Graph (Please be patient. It may take a while to get the data.)



# Metrics/Indicators – Day 3

- Program/group overview
  - EFH process review, online mapper, SDM development
- Spatial temporal model tools for developing metrics/indicators
- MARVELS working group review and maturity metrics
- Remote sensing indicators and linkages to fisheries data
- Avenues for development















# ESP Priority Stocks – Day 3

- Use classification to understand data availability
  - Sablefish example of a data rich stock at or near target for all categories
  - High life history and ecosystem linkages targets
- Combine with AFSC research priorities
  - Recruitment important

Category	Current	Target	Gap
Catch	5	5	0
Size/Age	4	5	1
Abundance	4	4	0
Life History	4	4	0
Ecosystem	4	4	0

# Coordinating Timelines

	January- March	April	May-August	September- October	November - December
Data gathering	 Winter Surveys & Early Ecosystem Monitoring		 Late Spring and Summer Surveys	 Fall Ecosystem Surveys	
Reports		 Econ Full Update of Year-1	 Early Warning Update, New Crab ESPs	 Surveys/ESR Update, PEEC Report, Crab SAFEs, New Groundfish ESPs	 Econ Update, ESR Full Report, Groundfish SAFEs, Groundfish ESPs
Meetings	 February Council	 April Council	 May Crab Plan Team, PEEC, June Council	 Sept Crab & Groundfish Plan Team, Oct Council	 Nov Groundfish Plan Team, Dec Council

# Next Steps

- Finalize Workshop Products
  - Complete ESP Data Workshop Tech Memo – 2020
  - Finalize ESP Data List and use for setting up ERDDAP
  - Draft ESP Stock Priorities List using classification
  - Setup timeline for ESP data delivery and production
  - Continue cross-program collaboration
- ESP Model Workshop, spring 2020
  - Include first workshop participants and/or designee
  - Focus on data delivery and modeling applications

# ESP Reference Docs

1. [ESP Workshop Proposal](#)
2. [ESP Workshop Agenda](#)
3. [ESP Data List](#)
4. [Workshop Presentations](#)
5. [Guidelines Document](#)
6. [Stock Assessment Priorities\\*](#)



Questions?

