Abundance-based management for Pacific halibut PSC

June 2017 Joint IPHC/Council meeting

Inter-Agency Workgroup:
NPFMC: Diana Stram, Sam Cunningham
NMFS RO: Rachel Baker
IPHC: Allan Hicks
NMFS AFSC: Dana Hanselman, Jim Ianelli, Carey McGilliard

nter-agency Workgroup tasked to review:

1. Indices that may be available to assess the abundance of halibut
2. Types of control rules that could be used
   - E.g., “stair-step” PSC limits with or without “floors” or “ceilings”
   - Evaluate developing control rules that could be combined in a 2-or 3-dimensional framework for setting PSC
3. Types of policy decisions that the Council would need to consider a this effort progresses

Council objectives and overarching goals

- Halibut PSC limits should be indexed to halibut abundance
- Halibut spawning stock biomass should be protected especially at lower levels of abundance
- There should be flexibility provided to avoid unnecessarily constraining the groundfish fishery particularly when halibut abundance is high
- Provide for directed halibut fishing operations [in the Bering Sea]
- Provide for some stability in PSC limits on an inter-annual basis

eline / Council actions

April 2016

- purpose and need statement
- explore weightings on IPHC stock assessment and EBS trawl survey
- public review workshop of paper prior to Council meeting in October

October 2016

- workshop on discussion paper (September 2016)
- 5 Objectives confirmed for action
- consider broader range of indices and BCRs (SSC 2d and 3d)
- develop draft performance metrics w/ public input

February 2017

- Public workshop to solicit input on draft overarching goals, measurabl objectives and associated performance metrics for analysis

April 2017

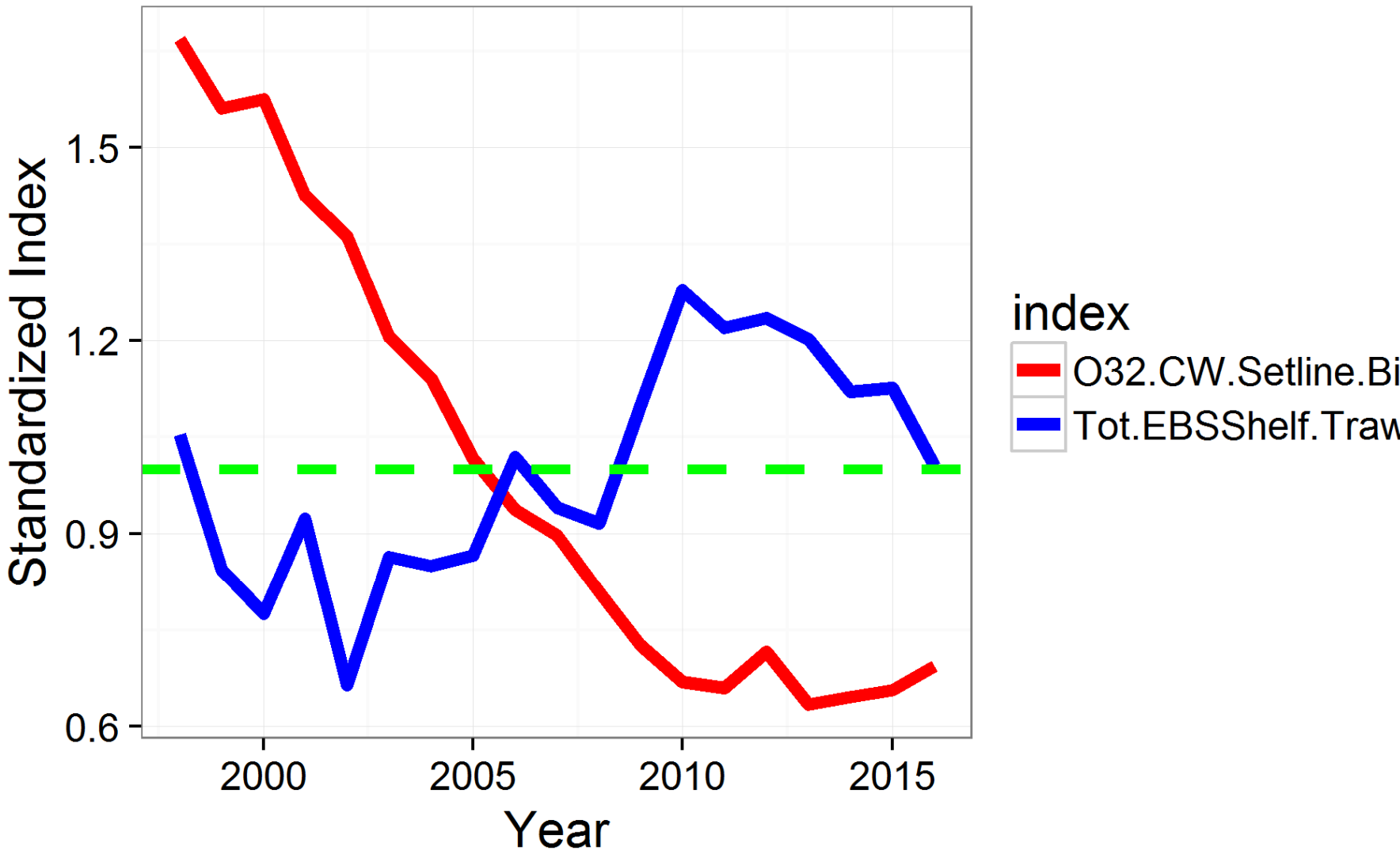
- Alternative development
  "Strawman" alternatives for illustration to aid selection of indices and control rules

June 2017

- Further exploration of indices
- Discussion of performance metrics/measurable objectives

siderations of indices for Pacific halibut for setting PSC limits
al thoughts}

date abundance	Strengths	Weaknesses
coastwide stock sment or set line y	Comprehensive, annually available	Mainly older Pacific halil than those in BSAI byca
EBS bottom trawl y	Good younger Pacific halibut index, timely, available.	Inconsistent index of fut Pacific halibut that recru the directed fisheries


Standardized Index
1.5
1.2
0.9
0.6
2000
2005
2010
2015
Year
index
O32.CW.Setline.Bi
Tot.EBSShelf.Traw

Some WG initial considerations for appropriate indices

- ddressed older and younger population components
- onsidered the coastwide geographic range
- onsidered the coastwide stock status
- ddressed recruitment differences in the BSAI and GOA
- formation to derive the index was available in a timely anner for Council harvest specifications
- formation to derive the index easily accessible

October 2016

andidate indices
haracterized

- E.g., guiding principles

tegrated index
eveloped

ontrol rule
evelopment

- Features of CRs (floors, ceilings, slope, starting point)

Considerations

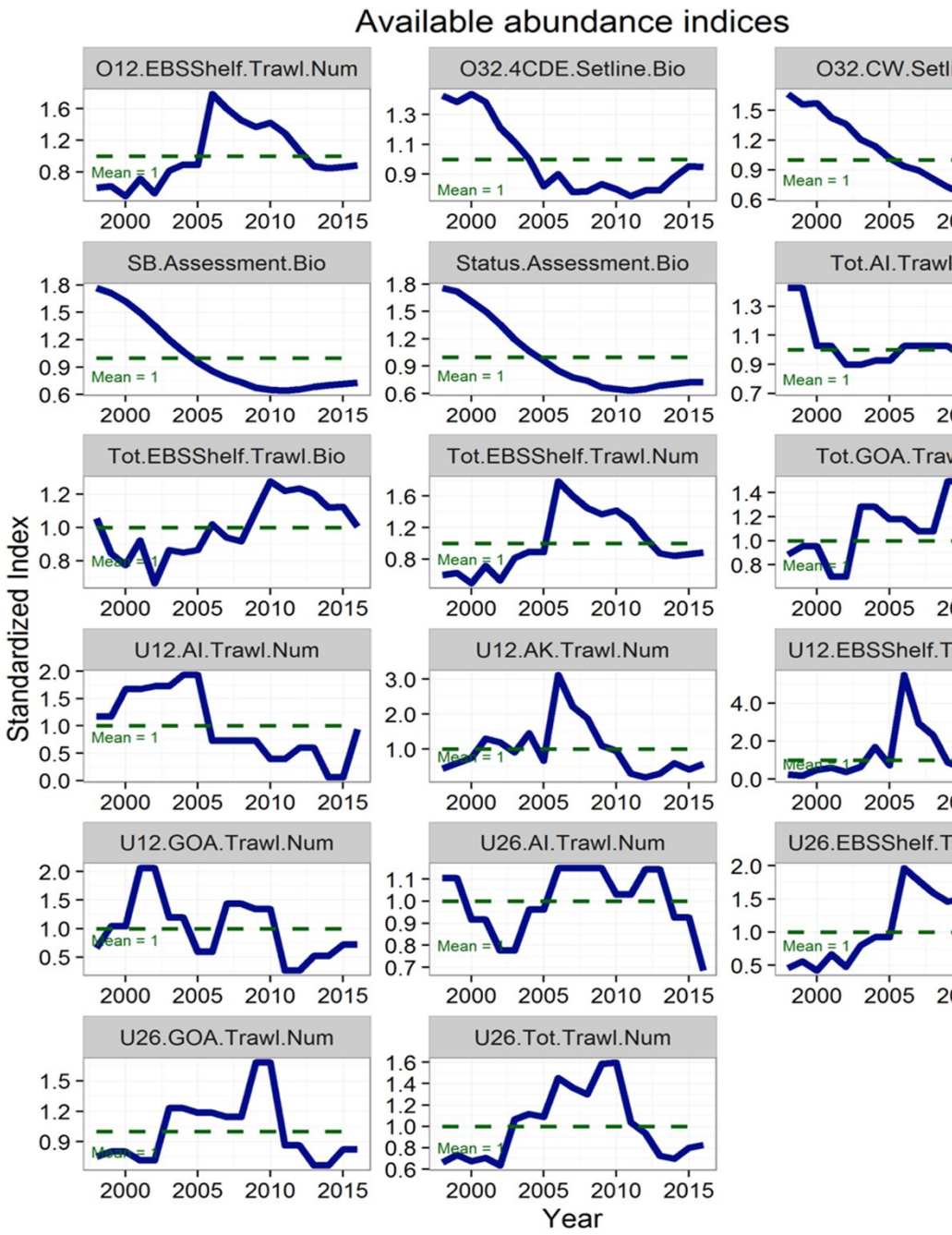
Indices

Abundance index	Addresses older and younger population components	Consideration of CW geographic range	Consideration of CW stock status	Addresses recruitment differences in BS AI and GOA	Timeliness of information	Access
Individual survey indices						
IPHC Coastwide setline survey	No	Yes	Yes	No	Yes	Ye
EBS shelf trawl survey	No	No	No	No	Yes	Ye
Integrated approaches across multiple indices						
IPHC assessment	No	Yes	Yes	No	Yes	Ye
Geostatistical model	No	Partial (AK)	No	Yes	Yes	N
EBS shelf trawl survey with IPHC assessment	Yes	Yes	Yes	No	Yes	Ye
ABM 3 survey combined index (EBS shelf trawl, GOA trawl, IPHC setline)	Yes	Yes	Yes	Yes	Yes	Ye

Description of indices

pril 2017 we presented 17 indices
at related to various aspects of
alibut abundance that were
nsidered by the workgroup

G drafted some combinations of
dices to form ABM candidate
ternatives to meet general
inciples



Review of the indices {June SSC review}

iomass (adult indices)	Numbers (bycatch encounter and recruitment)
PHC Setline Survey	NMFS EBS Shelf Trawl Survey
PHC Stock Assessment Spawning Biomass	NMFS GOA Trawl Survey
PHC Stock Status	NMFS AI Trawl Survey
MFS EBS Shelf Trawl survey	Multiple combinations of the above with different siz groups

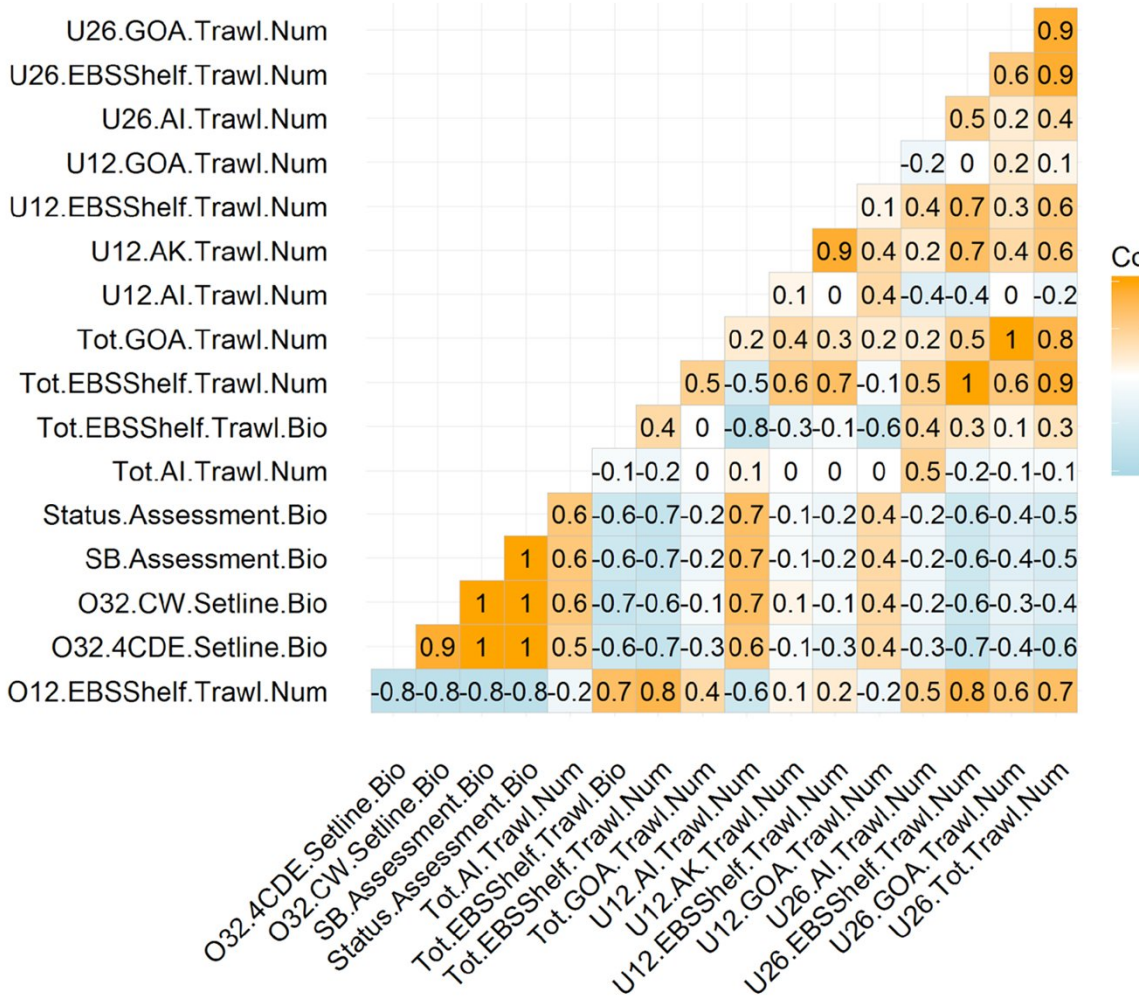
acific halibut Index ame	ABM Option	Description	Applies to what part of the halibut population
26/O32.4CDE.Setline.Bio		Biomass of halibut over 32 inches from the IPHC setline survey in the BS/AI	Representative of mostly female mature fish, and fish targeted by the directed fishery in the EBS (Area 4CDE)
26/O32.CW.Setline.Bio	1, 2 3, 4	Biomass of halibut over 32 inches from the IPHC setline survey in all areas	Representative of mostly female mature fish and as a proxy to coast wide stock status

ndex Summary

Combining indices that are either uncorrelated or negatively correlated would have properties that would help in explaining different dynamics of the population

Choosing indices that are highly positively correlated would have the effect of adding emphasis to that population component and for simplicity, it would likely be better to use just one of them.

There are multiple indices available for each stock attribute being addressed and several are interchangeable.



Some WG initial considerations for appropriate ndices

- ddressed older and younger population components
- onsidered the coastwide geographic range
- onsidered the coastwide stock status
- ddressed recruitment differences in the BSAI and GOA
- formation to derive the index was available in a timely anner for Council harvest specifications
- formation to derive the index easily accessible

Evolution of indices

- Gather all available data sources related to halibut
- Explore portion of halibut stock covered
- Discuss limitations of each data set
- Get feedback on what indices should cover
  - Stock status
  - Fishery encounters
  - Directed fishery
  - Recruitment
- Initial winnowing excluded EBS Slope, NMFS longline, geostatistical indices
- 2nd pass created more length based indices
- Final pass will further winnow to just a few of the “best”

ncil considerations in June 2017

n name	Summary
otion of indices	A slightly more thorough description of the indices pro in April with some guidance on their use
mance metrics review	Review the Council purpose and need and example of measurable objectives and related performance metri
utline of October 2017 discussion paper	Preliminary outline of what the workgroup thinks has requested for October Council meeting

Measurable objectives and performance metrics for analysis

- In order to assist in formulating alternatives, the workgroup requested the Council and stakeholders to define detailed management objectives with measurable outcomes
- Each measurable objective has an outcome (“a certain abundance”), a time-frame (“a specified number of years”) and a probability or acceptable risk level
- A performance metric can then be defined to evaluate whether or not a measurable objective has been achieved in the analysis of alternatives (e.g., the probability that the spawning stock abundance is above a certain level over a specific number of years)

Example performance metrics (Table 3)

Adult stock status:

Objective: Maintain a healthy coast wide halibut stock

Metric: Halibut spawning biomass must be above 30% of unfished 80% of the time

Stability:

Objective: Do not allow PSC limits to have extreme annual changes

Metric: PSC limit cannot change more than 5% per year

Moving forward: Outline of October Discussion Paper {Council guidance June 2017}

(Section 4 of paper)

1. Background information
2. Components of abundance-based halibut PSC management
   a. Characteristics and correlation analysis of indices considered and recommended ones for consideration
   b. Analysis of impact of systematically combining some individual indices
3. Development of ABM alternatives
   a. Using a sub-set of the individual and combined indices considered in Section 2 {SSC guidance June 2017}
   b. Construction of additional Elements and Options for range of ABM alternatives
4. Overview of intent for analysis of ABM alternatives

Next steps

- Council develops a range of alternatives for analysis.
  - Iterative process and may involve a complex suite of elements and options
  - May take several meetings before suite of alternatives are finalized
  - WG is also working to develop the appropriate tools for analysis so we are prepared for when the alternatives are drafted
- Once these alternatives have been finalized the Interagency workgroup will develop appropriate NEPA analysis for Council decision-making
  - Also iterative process. At a minimum will have initial review and final action at two separate meetings
  - Council may choose to modify alternatives at initial review
  - Council may choose to select a preliminary preferred alternative at initial review
  - Council will select a final preferred alternative at final action