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# Report of the September 2015 Joint Groundfish Plan Team meeting

C-1 Groundfish Specifications  
Council October 2015

## Meeting overview

- Dates: September 21-24 (counting non-joint dates)
- Place: AFSC Seattle lab
- Leaders: Dana Hanselman (BSAI co-chair), Grant Thompson (BSAI co-chair), Diana Stram (BSAI coordinator), Jon Heifetz (GOA co-chair), Jim Ianelli (GOA co-chair), Jim Armstrong (GOA coordinator)
- Participation: 29 Team members present, plus numerous AFSC and AKRO staff and members of the public
- File containing minutes includes Joint, BSAI, GOA

## Agenda (1 of 2, action items in red)

- Council activity
- NS1 guidelines
- IPHC/DMR update
- Team procedures (model numbering)
- Species-specific ecosystem considerations
- Ecosystem monitoring and assessment studies
- EFH 5-year review
- Observer deployment plan (C-6 agenda item)



## Agenda (2 of 2, action items in red)

- Survey averaging workgroup
- Sablefish research
- Surveys and field work at Auke Bay Laboratories
- Marine mammal update
- Economic SAFE and integration into assessments
- EBS bottom trawl survey (separate presentation)
- Squid harvest specification methods
- Stock assessment prioritization policy



## IPHC/DMR update (1 of 2)

- Gregg Williams (retired) will no longer be performing the DMR calculations
- Opportunity to explore possible changes in methodology
- Current practice is to base DMRs on 10-year averages of annual values
- Although DMRs are typically fixed for 3 years, this may change if a new methodology is adopted
- At this meeting, Council may initiate action to identify alternatives
- Teams recommend that long-term (10 year) averages (next slide) be used in 2016 while methods are identified for future DMR estimation



## IPHC/DMR update (2 of 2)

- Numbers in italics represent rollovers (no new data)

Non-CDQ					
BSAI			GOA		
Gear/Target	2013-2015	2016	Gear/Target	2013-2015	2016
<b>Trawl</b>			<b>Trawl</b>		
Atka mack	77	82	Bottom poll	60	58
Bottom poll	77	81	Pacific cod	62	62
Pacific cod	71	66	Dpwtr flats	43	43
Other Flats	71	63	Shallwtr flats	67	66
Rockfish	79	83	Rockfish	66	65
Flathead sole	73	72	Flathead sole	65	67
Midwtr poll	88	88	Midwtr poll	71	59
Rock sole	85	86	Sablefish	71	59
Sablefish	75	75	Arr. fldr	73	76
Turbot	64	82	Rex sole	69	71
Arr. Fldr	76	84			
Yellowfin sole	83	84			
<b>Pot</b>			<b>Pot</b>		
Pacific cod	8	20	Pacific cod	17	21
<b>Longline</b>			<b>Longline</b>		
Pacific cod	9	9	Pacific cod	11	10
Rockfish	4	4	Rockfish	9	9
Turbot	13	11			

CDQ		
BSAI		
Gear/Target	2013-2015	2016
<b>Trawl</b>		
Atka mack	86	82
Bottom poll	83	86
Pacific cod	90	87
Rockfish	80	69
Flathead sole	79	79
Midwater poll	90	90
Rock sole	88	86
Turbot	89	89
Yellowfin sole	86	85
<b>Pot</b>		
Sablefish	34	41
<b>Longline</b>		
Pacific cod	10	10
Turbot	4	4



## Survey averaging workgroup activity

A “random effects” model was evaluated for several Tier 5 stocks and complexes (via simulations)

Teams also sought guidance on area apportionments

### Issue:

Dealing with missing strata in some years...

### Result:

Performance improved running each stratum separately (then summing)



## Survey averaging workgroup

The Teams recommended using random effects model for best estimate of current survey biomass; also use for area apportionment

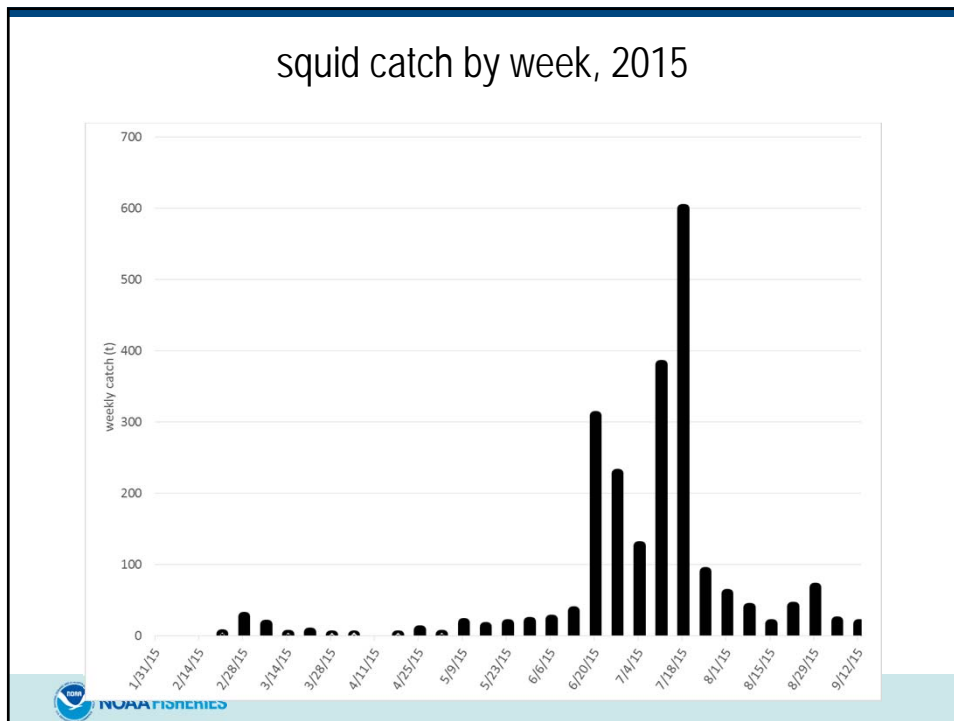
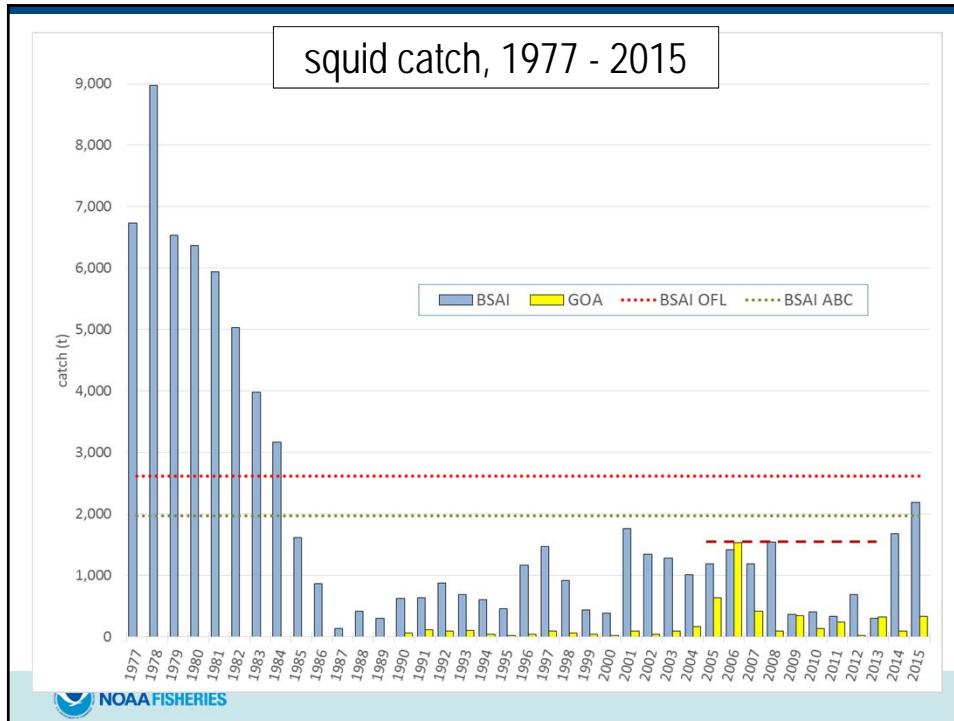
- Since 2013 Teams had recommended comparing with status quo

For Tier 5 complexes, evaluate results for

- Each species separately (if F's by species) or as combined complex (if single F over all species)

Guidance provided in minutes for addressing with and without missing strata by species and by complex





## Squid harvest specification methods


- 2015 BSAI squid catch has exceeded ABC
- Author's list of potential courses of action:
  - Use alternative to current Tier 6 method for harvest recommendations
    - How to justify choice of alternative?
  - Initiate research to allow better squid assessment
    - Likely to be very expensive (e.g., dedicated surveys)
  - Move squid to Ecosystem Component
    - Consistent with Teams' recommendation from last year
    - If done, continued catch monitoring would be important



## Squid harvest specification methods

- Author's list of potential courses of action, continued:
  - Set TAC/ABC at current level of catch; set OFL above this level to allow for management uncertainty
    - Opposite from conventional approach since about 1996
    - Guidelines use management uncertainty to reduce ACT from ACL
  - Set ABC with no OFL
    - Precedent: Atlantic deep-sea red crab fishery
    - Evidently passed Secretarial review, but not clear how this is consistent with NS1 guidelines
- The Teams recommend:
  - Consideration be given to moving squid into the EC,
  - Recommend that the squid assessment for November include, at a minimum: 1) the Tier 6 approach using maximum catch; and 2) an approach similar to the Tier 5 approach, using  $F=M=1$  as the estimate of OFL fishing mortality, and using survey biomass as a "minimal" biomass estimate






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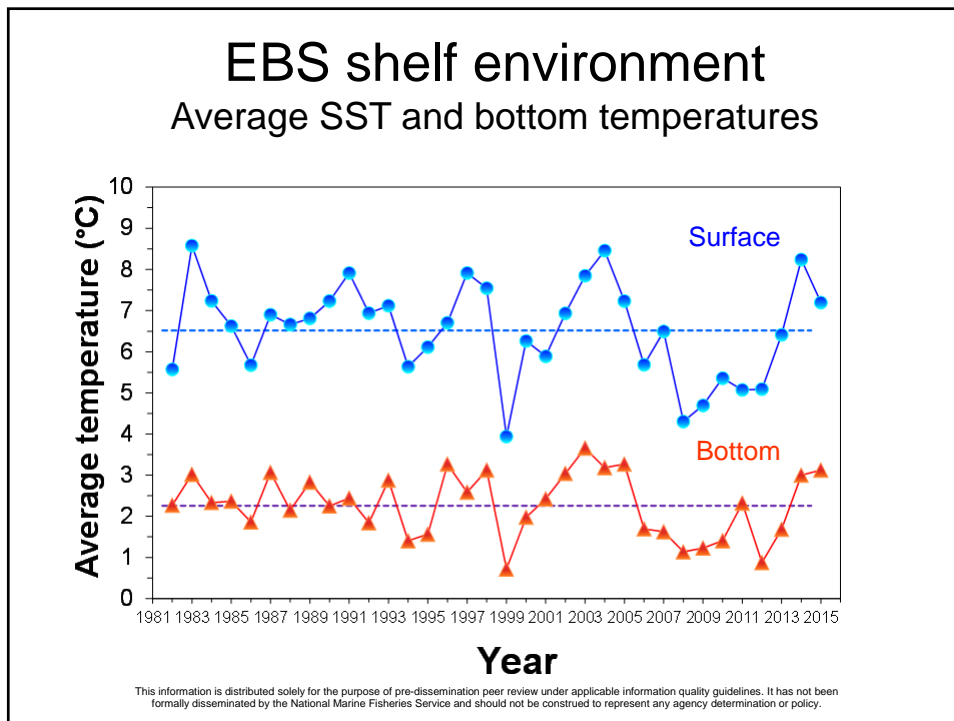
# Results from the Eastern Bering Sea Shelf Bottom Trawl Survey in 2015

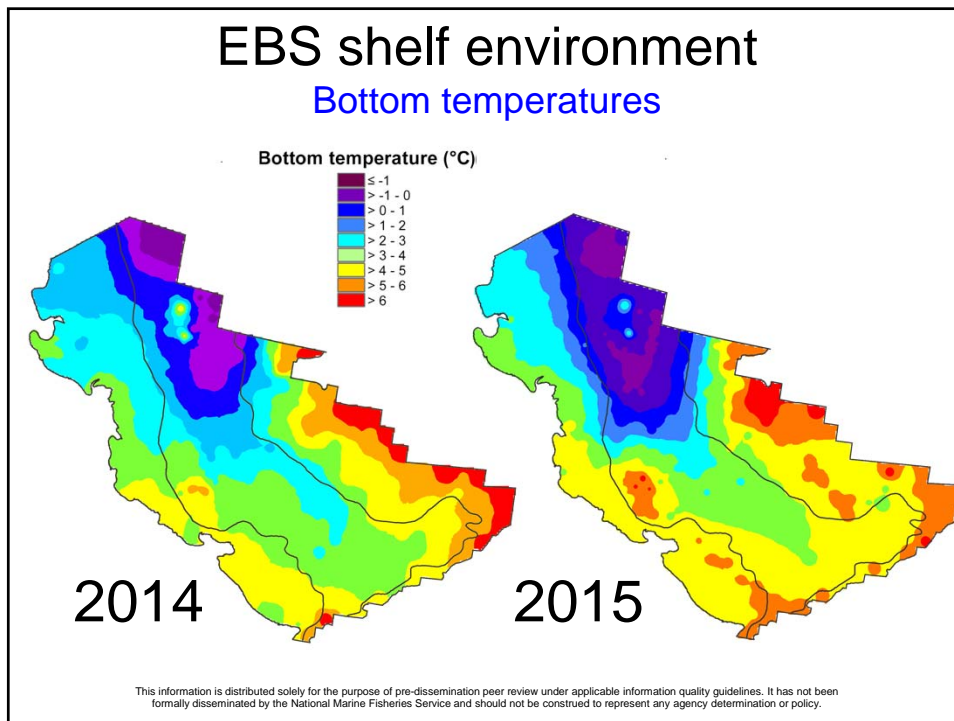
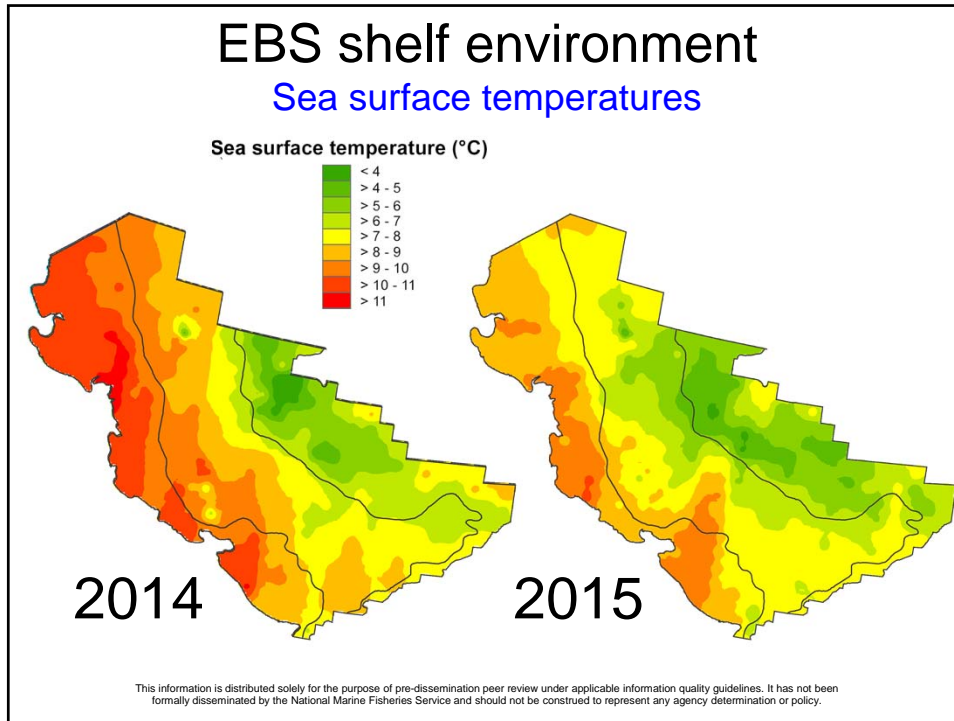
(Abridged Council version)



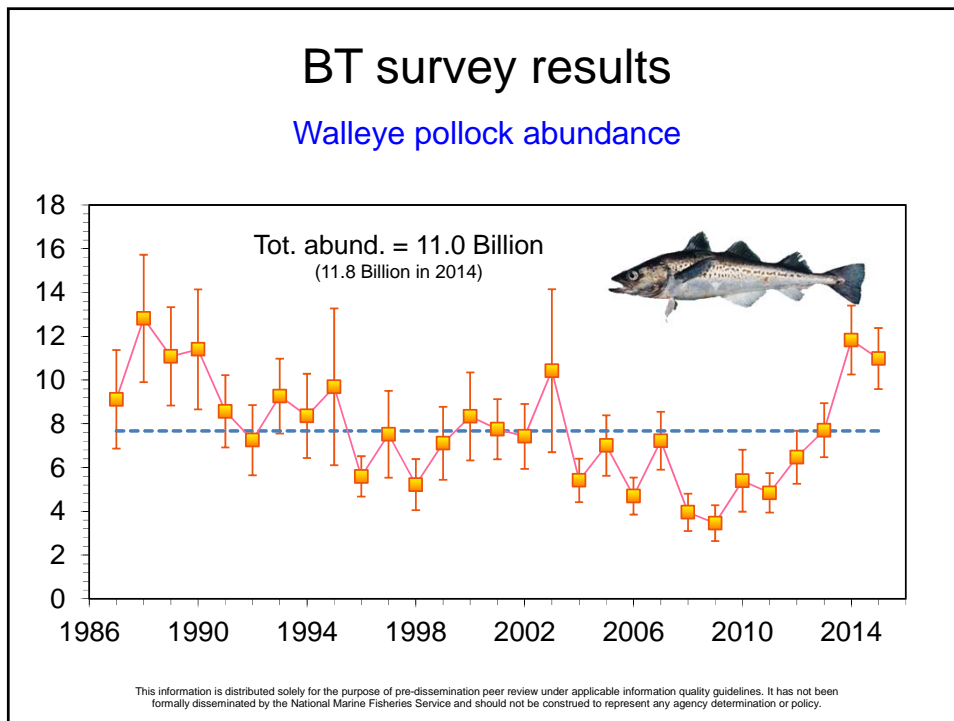
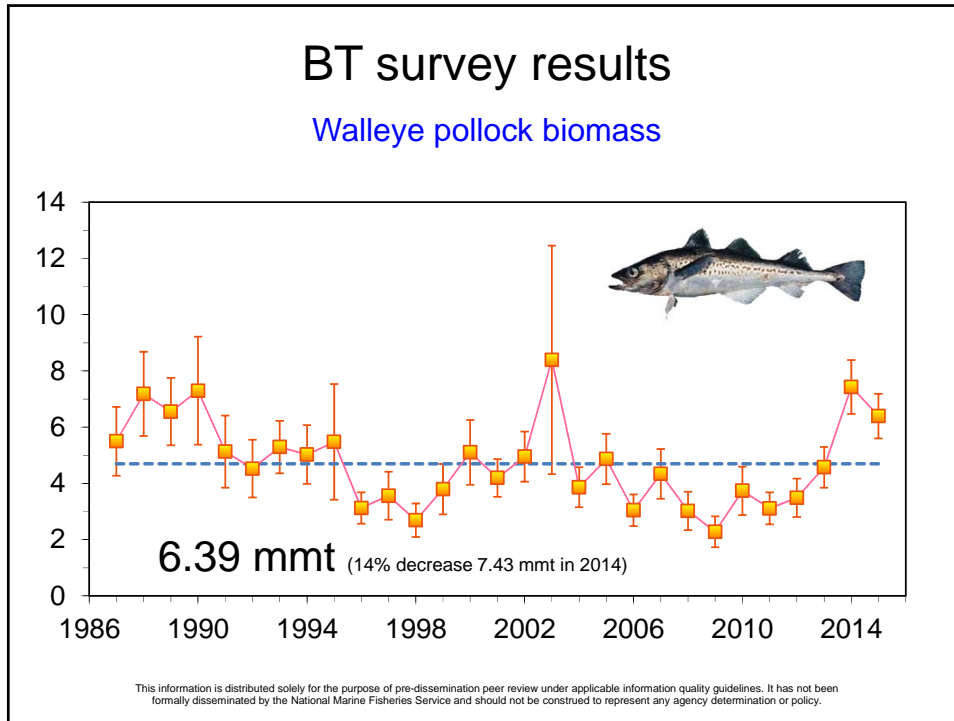
Resource Assessment & Conservation Engineering Division  
Groundfish Assessment Program

September 22, 2015



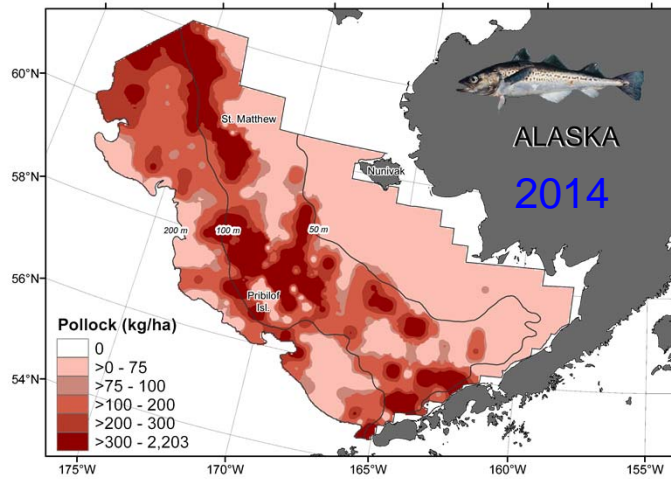






## Distribution and Abundance

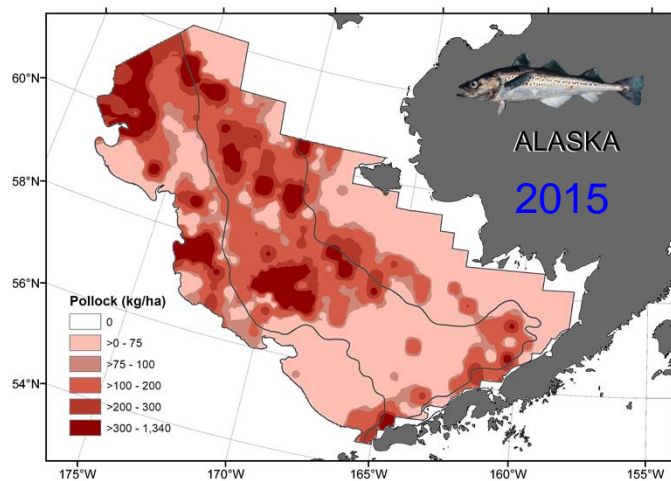
### Walleye pollock



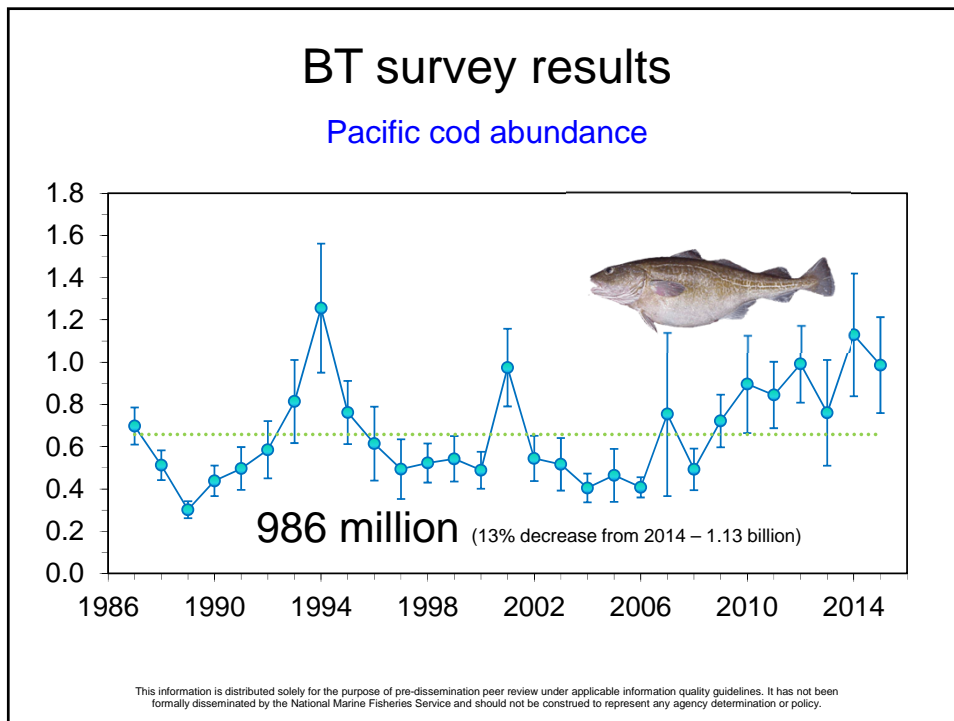
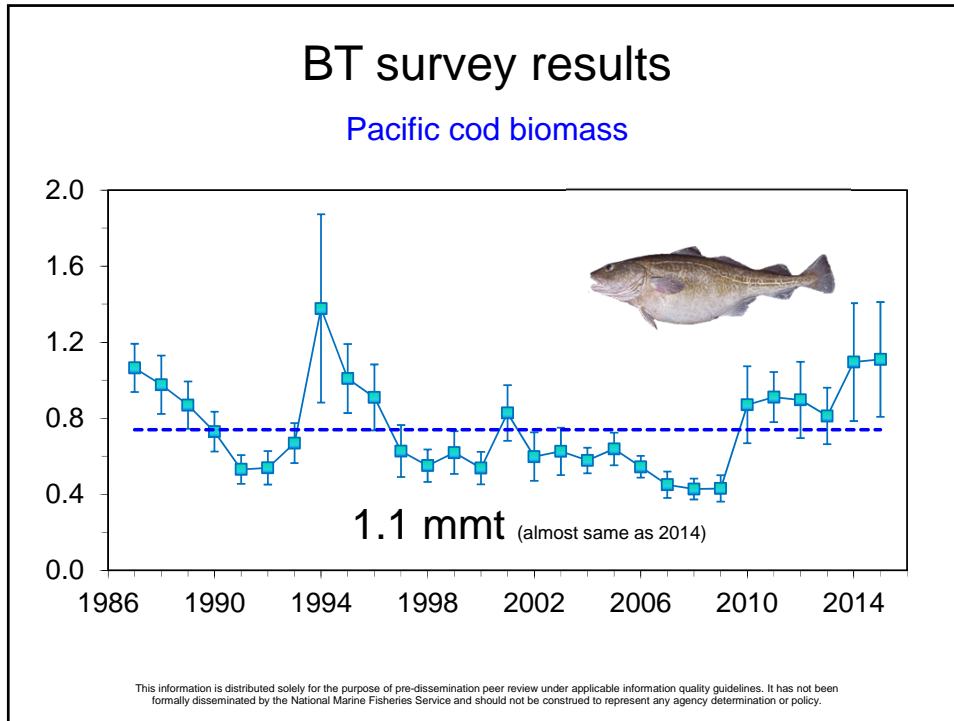
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## Distribution and Abundance

### Walleye pollock

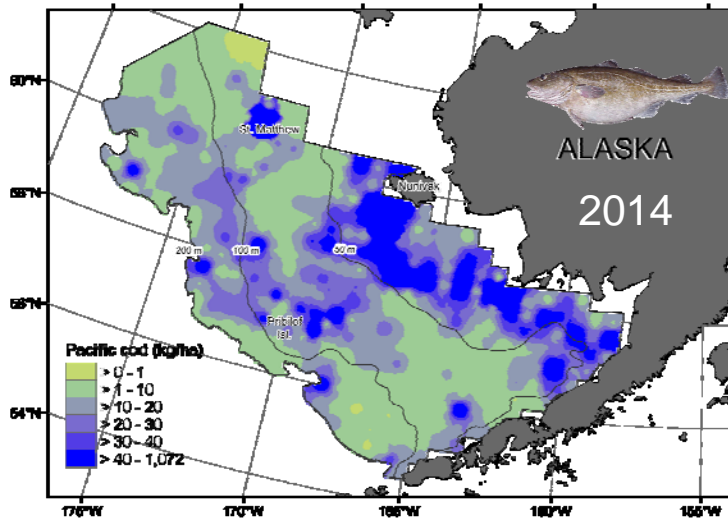


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## Distribution and Abundance

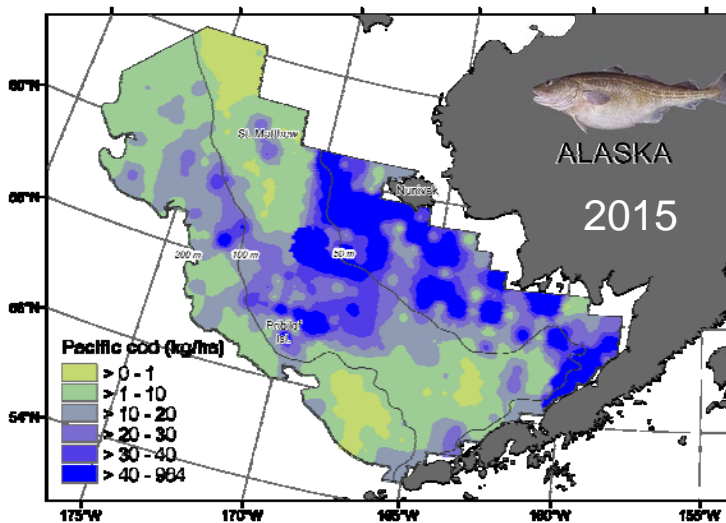
### Pacific cod



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## Distribution and Abundance

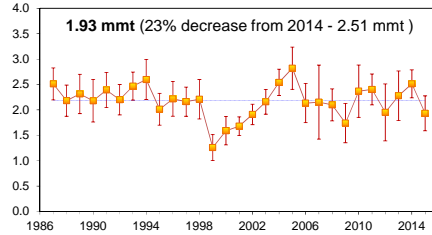
### Pacific cod



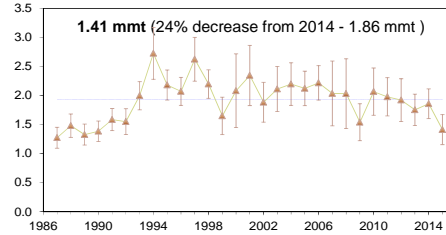
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## BT survey results - biomass

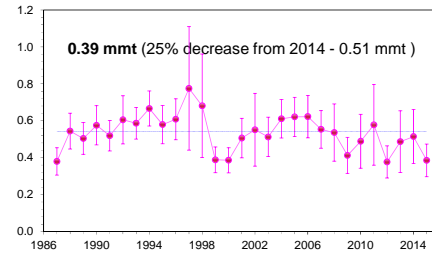
### Yellowfin sole



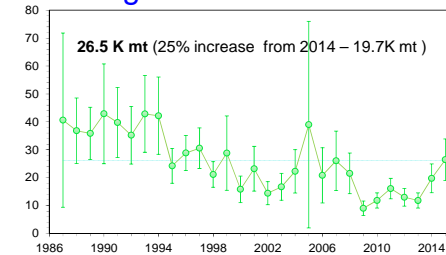
### Northern rock sole



### Flathead sole



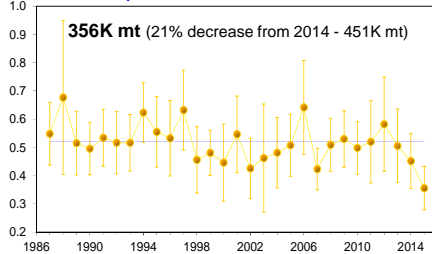
### Bering flounder



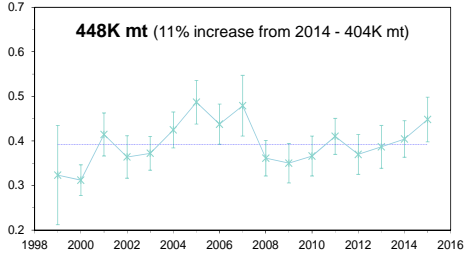
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## BT survey results

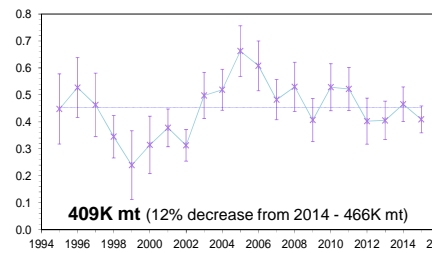
### Alaska plaice



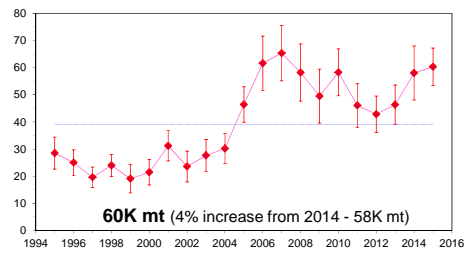
### Alaska skate



### Arrowtooth flounder



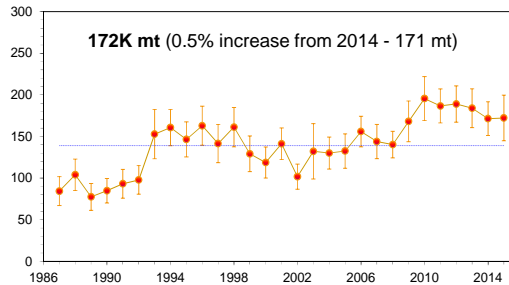
### Kamchatka flounder



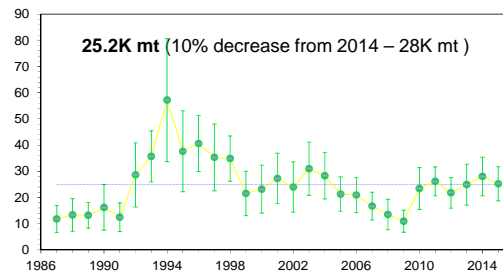
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## BT survey results

Pacific halibut



Greenland turbot



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# Report of the September 2015 BSAI Groundfish Plan Team meeting

C-2 Groundfish Specifications  
Council October 2015

## Meeting overview

- Dates: September 22-24
- Place: AFSC Seattle lab
- Leaders: Dana Hanselman (BSAI co-chair), Grant Thompson (BSAI co-chair), Diana Stram (BSAI coordinator)
- Participation: 14 Team members present, plus numerous AFSC and AKRO staff and members of the public
- File containing minutes includes Joint, BSAI, GOA



## Agenda (action items in red)

- EBS pollock stock structure
- Blackspotted/rougheye rockfish stock structure
- Ecosystem
- Forage fish
- Bering Sea Pacific cod
- Aleutian Islands Pacific cod
- 2016/2017 harvest specifications recommendation



## EBS pollock stock structure

- Stock structure template completed
- Range of comparisons presented on genetic structure and spatial distribution
- The Team and author recommend a determination of “little or no concern” regarding EBS pollock stock structure
- Evidence for some population structure at finer scales than current management/assessment units, but also evidence of mixing across existing boundaries and synchronous responses to environmental factors
- Bogoslof pollock was not included in this analysis, and will be scheduled for a future meeting



## Blackspotted/rougheye structure (1 of 5)

- The Team previously determined there to be “strong concern” regarding the fishery’s impact on the structure of this stock complex
- The 2015 WAI catch was 62 t, which was over the “maximum subarea species catch” (MSSC) of 46 t
- Amendment 80 cooperatives that were aware of the MSSC caught only 44 t, which was their lowest since 2008, but other fisheries removed more than usual in 2015
- Mean age and length are declining in the western areas
- A new measure ( $U_{ABC}$ ) was introduced in this update: the exploitation rate that would have resulted from taking the ABC for a given year from the *current* estimate of biomass for that year
  - Since 2009, the WAI and EBS catches have exceeded  $U_{ABC}$  in all but one (WAI) or two (EBS) years





## Blackspotted/rougheye structure (2 of 5)

- Author reviewed Team/SSC minutes from 2013/2014 indicating, among other things, the need for a “scientifically-based and transparent process for determining subarea harvest recommendations and allow better tracking in meeting the management goals” (SSC, December 2014)
- maximum subarea species catch is not reported in the harvest specifications table;
  - thus comparisons between MSSC and harvest are not easily available to the public
- Regional Office intended to add the MSSC to the weekly catch reports, and is willing to do so in future years
- SSC minutes refer to the MSSC and the industry was aware of it as a guideline limit
- Currently no additional management measures triggered nor an in-season response mechanism when MSSC is exceeded



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## Blackspotted/rougheye structure (3 of 5)

- Author stated that he did not think we have clarified what tools or actions, if any, are available to us under such a situation because the Council has yet to explicitly define them
- SSC previously recommended establishment of a group to work on this, but the Council has not formed one yet
- If there were an area ABC, there would be an area TAC, which, if exceeded, would move the complex to PSC status and the additional catch would be forced to be discarded
- If a region-wide ACL is exceeded more than once in 4 years, this would trigger re-evaluation of accountability measures
- If catch approached OFL, then closures designed to prevent overfishing will be issued



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## Blackspotted/rougheye structure (4 of 5)

- Given the complex's "strong concern" designation, the Team's and SSC's understanding is that steps 2 and 3 of the Council's process must be implemented:
  2. *"With input from the agency, the public, and its advisory bodies, the Council (and NMFS) should identify the economic and management implications and potential options for management response to these findings and identify the suite of tools that could be used to achieve conservation and management goals. In the case of crab and scallop management, ADF&G needs to be part of this process.*
  3. *"To the extent practicable, further refinement of stock structure or other spatial conservation concerns and potential management responses should be discussed through the process described in recommendations 1 and 2 above."*



## Blackspotted/rougheye structure (5 of 5)

- Concerns were expressed that the Council's process for spatial management was not adequately followed
- The Council could implement step 2 more fully by establishing additional tools and examining management implications
- **The Team recommends that the Council process be followed more closely and endorses the SSC's recommendation that a subgroup of Team, SSC, and Council members be formed to address the questions regarding stock structure and spatial management posed in both the November 2013 and November 2014 Team minutes, as well as to work on additional tools or potential management actions to address findings of "moderate" or "strong" concern**



## Ecosystem

- Ecosystem report for the September meeting included:
  - Updates of ecosystem indicators through 2014
  - Introduction to new multispecies model (CEATTLE)
    - Quantifies effects of climate, trophic interactions, and fisheries
    - Forecasts abundance of pollock, Pacific cod, and arrowtooth
    - Temperature affects growth and rates of predation
    - Results will be included in this year's EBS pollock assessment
- Ecosystem report for the November meeting will focus on 2015 info
  - SSC will receive full presentation in December
- The Team agreed with the presenter that any CEATTLE model results presented in November would be used as supporting ecosystem information only; however, the Team recommends that an initial review of the CEATTLE model be conducted in September 2016 to assess its potential inclusion as a candidate/alternate assessment model for EBS pollock, Pacific cod, and arrowtooth flounder



## Forage fish

- BSAI forage fish assessment is updated in odd years
- This is a preliminary assessment; final assessment due in November
  - Will include data from the 2015 BASIS survey
- Main objectives:
  - Investigate trends in abundance and distribution of forage species
  - Describe interactions between federal fisheries and forage species
- Highlights:
  - Format has been altered to better reflect its purpose
  - "Data gaps and research priorities" section has been added
  - Enhanced analysis of trends in abundance and distribution of capelin, eulachon, and Pacific herring
  - Bycatch section contains much more detail, especially w.r.t. herring
  - Responses to 5 SSC comments
- The Team recommends that the SSC review this report



## Bering Sea Pacific cod

- Comments on the author's five issues (continued on next slides):
  1. Weighting of composition data:
    - The Team did not have a favorite method
    - This issue did not affect the Team's choice of a candidate model
  2. Survey catchability and selectivity:
    - The fixed  $Q$  (0.77) used in Group A has become less and less credible as evidence from field experiments mounts
    - A higher  $Q$ , as estimated by the other models, therefore seems more plausible and prudent
    - The Team favored having a model for November that included an estimated rather than fixed value of  $Q$
    - The estimated dome-shaped survey selectivity in all models is also controversial, because of the same RACE work
    - On the other hand, all of the models estimate some degree of dome, so domed survey selectivity seems nearly inescapable



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## Bering Sea Pacific cod

- Comments on the author's five issues (continued):
  3. Temporal variation in survey selectivity:
    - One issue is how much to allow; the Team generally favors as little as needed
    - The other issue is how to estimate the standard deviations
    - Author uses the Thompson-Lauth method in Models 2-4 but has found it difficult to apply and therefore uses new methods presently in development for Models 5 and 6
    - The Team is reluctant to adopt a model (i.e. 5 or 6) that relies on the new methods until they have been fully tested and approved
  4. Large gradients:
    - The appearance of large values in the final gradient vector in fits of Model 5 remains a puzzle although there are some suspects
    - As long as this behavior is not fully understood, the Team prefers to reject Model 5



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## Bering Sea Pacific cod

- Comments on the author's five issues (continued):
  5. Review procedure:
    - The cod assessment will get a CIE review in 2016, and with that in the offing it may be reasonable to stay with the base Model 0
    - But the Team believes, as it said last year, that the low fixed  $Q$  in Group A is no longer defensible
  - Discussion and recommendation:
    - For November, the base Model 0 is a required candidate despite its highly suspect  $Q$  and poor retrospective performance
    - The Team would reject Model 3 because of its unacceptable U-shaped estimate of survey selectivity, and would reject Models 5 and 6 because they use untested tuning methods
    - That leaves Models 2 and 4, and the Team prefers Model 2 because it is well known and Model 4 is hardly different
- **The Team recommends that Models 0 and 2 be brought forward in Nov.**



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## Aleutian Islands Pacific cod

- **Age-Structured models:**
  - Neither the author nor the Team were enthusiastic about bringing any of the age-structured models forward in November, but the Team still hopes that an age-structured model can be developed eventually for specifications
  - Some suggestions for further work for next September were:
    - Adding the AFSC longline survey as an abundance index
      - Unlike the AFSC trawl survey, the longline survey can and does fish rough bottom
      - In the long term, the IPHC longline survey may also be useful, but at present length composition data are available for only one year
    - Constraining recent  $F$  to a value equal to some multiple of the Bering Sea value, if a sensible multiple can be developed



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## Aleutian Islands Pacific cod

- For November, the Team recommends three models:
  - Model 0 (random effects)
  - Model 2, also a random effects model but with the IPHC longline survey CPUE added as a second time series
  - Model 3, same as Model 3 seen at this meeting but with enough equality constraints imposed on survey selectivity to cure the U-shape (e.g., the Bering Sea Model 5 where selectivity is estimated only to age 8)



## 2016/2017 harvest specifications

- The Team recommends adoption of the proposed 2016/2017 BSAI OFLs and ABCs that were published in the Federal Register for 2016 for the purpose of notifying the public of potential final harvest specifications

