Overview

Stock Assessment Process

Pat Livingston

AFSC Stock Assessment Review
March 24, 2014
FMPs and Number of Stock Assessments

• Bering Sea and Aleutian Islands Groundfish FMP
  – 25 Assessments
    • 125 species – 8 complexes of more than one species

• Gulf of Alaska Groundfish FMP
  – 25 Assessments
    • 111 species – 10 complexes of more than one species

• Bering Sea and Aleutian Islands Crab FMP
  – 10 Assessments (AFSC has lead on 4 assessments)
    – Management is deferred to State of AK with Fed oversight

12 minor stocks managed using catch-only data
Table of Contents

Introduction ........................................................................................................... 3
Background Information ......................................................................................... 3
Overview of “Stock Assessment” Section ............................................................... 9
Appendix A: Pacific Halibut Community Development Quota Discard Mortality Rates ........................................................................................................... 40

Stock Assessment Section
1. Eastern Bering Sea Walleye pollock ................................................................. 41
   1a. Aleutian Islands Walleye pollock ................................................................. 139
   1b. Bogoslof Pollock ......................................................................................... 197
2. Pacific cod ........................................................................................................ 209
3. Sablefish .......................................................................................................... 329
4. Yellowfin sole .................................................................................................. 447
5. Greenland turbot ............................................................................................. 513
6. Arrowtooth flounder ...................................................................................... 563
7. Northern rock sole .......................................................................................... 627
8. Flathead sole .................................................................................................... 687
9. Alaska Plaice ................................................................................................... 755
10. Other flatfish .................................................................................................. 799
11. Pacific ocean perch ......................................................................................... 811
12. Northern Rockfish ......................................................................................... 815
13. Shortraker/Rugheye rockfish ......................................................................... 817
14. Other rockfish ............................................................................................... 821
15. Atka mackerel ............................................................................................... 825
16. Skates ............................................................................................................ 909
17. Squids ............................................................................................................ 931
18. Sharks ........................................................................................................... 1033
19. Octopus ........................................................................................................ 1081
20. Sculpins ......................................................................................................... 1117

Ecosystem Considerations ................................................................................. Bound Separately
Economic Status of Groundfish Fisheries off Alaska ........................................... Bound Separately
## Summary of Stocks use of FI/FD Data Sources

<table>
<thead>
<tr>
<th>Species (# of stocks)</th>
<th>Fishery Independent (Surveys)</th>
<th>Fishery Dependent Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottom trawl</td>
<td>Acoustic</td>
</tr>
<tr>
<td>Pollock (4)</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Pacific cod (2)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Sablefish (1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Flatfish (14)</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Rockfish (13)</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Atka mackerel (2)</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Crab (4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-targets (10)</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>
Tiers for ABC/OFL control rules

For each stock

Upper
- Biomass estimates
- Life history
- Stock recruitment (& uncertainty)

Middle
- Biomass
- Life history

Lower
- Average catch (OFL)
Groundfish OFL Tier system

Tier 1: Reliable stock-recruitment relationship (S/R)

Tier 2: Life history information, estimates of maturity, recruitment, mortality

Tier 3: Some limited life history information

Tier 4: Estimated $F_{OFL}$ applied to model biomass

Tier 5: $F_{OFL}$ is computed using the sloping control rule

Tier 6: OFL = average catch

ABC specified relative to the FMSY (Tier 1) uncertainty or as an offset (Tiers 2-6)
Current BSAI Crab OFL Tier system

- **Tier 1**: Reliable stock-recruitment relationship (S/R) precision of estimates
- **Tier 2**: Estimated $F_{OFL}$ applied to model biomass
- **Tier 3**: $F_{OFL}$ is computed using the sloping control rule
- **Tier 4**: Some limited life history information
- **Tier 5**: Reliable catch information

**ABC**:
- Specified as either % buffer below OFL (Alt 2) or ABC calculated annually based upon $P^*$ approach (Alt 3)
North Pacific Fishery Management Council

Research survey
Abundance data

Biological data:
Catch at age, size
Life history

Biological data:
Food habits, nontarget species

Physical data:
Climate, Habitat indices

Fishery data:
Effort, gear, nontarget catch

AFSC Stock assessment

Plan Team Review
Initial ABC OFL

Advisory Panel
Initial TAC

Scientific & Statistical Committee
Final ABC OFL

North Pacific Fishery Management Council

Public input

Final TAC specifications

AFSC Stock Assessment Process
# Timing of Annual Process

<table>
<thead>
<tr>
<th>BSAI Crab</th>
<th>BSAI and GOA Groundfish</th>
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<tbody>
<tr>
<td>• Spring - Models reviewed and approved</td>
<td>• Sep/Oct  New Models and assessments reviewed and approved</td>
</tr>
<tr>
<td>• 15 Aug - EBS summer trawl survey estimates available (10 days after survey ends)</td>
<td>• Sep/early Oct - Trawl survey estimates available</td>
</tr>
<tr>
<td>• 30 Aug  SAFE chapters for internal AFSC review</td>
<td>• 30 Oct  SAFE chapters submitted for internal AFSC review</td>
</tr>
<tr>
<td>• 6 Sept  SAFE chapters for NPFMC CPT/SSC review</td>
<td>• 12 Nov SAFE chapters sent out for NPFMC groundfish plan team meeting</td>
</tr>
<tr>
<td>• 18-21 Sep NPFMC CPT meeting</td>
<td>• 25 Nov Final SAFE chapters to NPFMC</td>
</tr>
<tr>
<td>• 24 Sep Final SAFE chapters to NPFMC</td>
<td>• 9 Dec NPFMC SSC sets ACLs</td>
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<tr>
<td>• 1 Oct  NPFMC SSC sets ACLs</td>
<td></td>
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Timing of Annual Process-Groundfish

**Summer**
- Surveys
- Age reading
- Data

**September**
- 1st Plan Team
- New data
- Modeling

**October**
- Council meeting
- Presentation of reviews

**November**
- 2nd Plan Team meeting
- Full assessment

**December**
- Council meeting
- Final TAC specification

SAFE Report
Timing of Annual Process—crab

- **Winter**
  - Model development
  - Workshop

- **Spring**
  - Model development
  - Workshop
  - Plan Team meets
  - Models reviewed and approved

- **Summer**
  - Aug 15 survey estimates available
  - Aug 30 internal review

- **September**
  - 2nd Plan Team
  - Final SAFEs

- **October**
  - SSC sets ACLS
  - Council meeting

SAFE Report
Strengths/Challenges/Solutions

• **Strengths**
  – Data availability for most assessments is recent year
  – Review process is transparent, open, multidisciplinary and multiorganizational
  – Good communication between NPFMC, AKR, and State of AK
  – Good internal communication between data providers, ecosystem scientists and stock assessment leads
  – Responds to NPFMC, State of AK and stakeholder needs

• **Challenges**
  – Data turnaround time is quick
  – Assessment and Review process is similarly compressed

• **Solutions**
  – Continue to refine automated error checking and data validation processes
  – More assessment staff to reduce number of assessments that must be produced in short time period
  – Continue to prioritize the most important data for near-real time inclusion by assessment