Witch Flounder \((Glyptocephalus cynoglossus)\)

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NEFSC

Groundfish Operational Assessment Review Meeting
Woods Hole, MA
September 11-15, 2017
Witch Flounder

Background

Last assessed in 2016 (SARC 62 Benchmark assessment)

VPA and ASAP models were not accepted due to a major retrospective pattern

Empirical Approach used for catch advice

USA total catch (landings and discards) for 1982 to 2015

NEFSC Spring and Autumn survey indices used to estimate population biomass used catchability (0.291) from August 2016 gear efficiency study

2015 Stock Status:
- SARC 62: unknown relative to BRPs
- NMFS: overfished and overfishing unknown in 2015
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Current assessment

Landings    Updated 2015, added 2016
            LAA 1982 -2016

Discards    Updated 1989 - 2015, added 2016
            DAA  1982 – 2016

NEFSC Surveys: Updated Spring and Autumn series;
Added Autumn 2016 and Spring 2017
Used TOGA criteria for 2009 onward
used catchability (0.291) from August 2016 gear efficiency study

Maturity - annual ogives are based on NEFSC spring 5-yr pooled data for
1937-1959 provisional landings taken from Lange and Lux (1978)
Discards from 6 fleets: large-mesh otter trawl, small-mesh otter trawl, scallop dredge, gillnet, and GM shrimp trawl.
Witch Flounder

Year

Percentage
0 20 40 60 80 100

PeeWee
Small
Medium
Large
Jumbo
Uncl.

Smalls: 33 – ~47 cm ages 4-10
Mediums: ~43 – ~53 cm ages 8-11+
Largers: ~48 – 60 cm ages 9-11+

NOAA Fisheries
Landings at age (in numbers), 1982-2016;

11+
Witch Flounder

Discards at age (in numbers), 1982-2016;

11+

2013 yc is age 3 in 2016
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Catch at age (in numbers), 1982-2016;

selected cohorts (1985, 1993, 1998, and 2004 year classes) are indicated with diagonal lines.
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NEFSC bottom trawl survey offshore strata 22-30, 36-40

1963 to 2008
no significant survey conversion factors;

2009 onward
Significant vessel conversion factors
Constant CFs = 3.2572
Used TOGA haul criteria

Black = ALB units
Red = uncalibrated
1985, 1993, 1998, and 2004 cohorts are identified by the diagonal lines; 2013 cohort appears strong (age 3 in 2016 Fall survey, age 4 in 2017 Spring survey)
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Empirical Approach
uses catchability (0.291) from August 2016 gear efficiency study

Steps Used:

SUBPLOT A  NEFSC survey catch per tow (stratified mean kg/tow)
Convert Bigelow to Albatross units using 3.257201 (Miller et al. 2010)

SUBPLOT B  Calculate Minimum Swept Area Biomass (mt)
Area of survey
Tow footprint (wingspread)  ALB = 0.038  BIG = 0.024
(A/a)/1000 (kg to mt)
ALB = 2015  BIG = 3190

SUBPLOT C  Calculate Population Biomass (BIG q = 1)
BIG does not change, ALB accounts for BIG:ALB conversions AND relative size of tow footprint

SUBPLOT D  Population Biomass (BIG q = 0.291)
A  Catch per tow
NEFSC SPRING SURVEY

C  Biomass (Bigelow q=1)

B  Minimum Swept Area Biomass

D  Biomass (Bigelow q=0.291)
<table>
<thead>
<tr>
<th>Year</th>
<th>NEFSC Autumn</th>
<th>NEFSC Spring</th>
<th>Catch Advice Year</th>
<th>Avg mt</th>
<th>Exploitable Biomass (mt)</th>
<th>Est. OFL mt (75% of 0.060)</th>
<th>Actual catch (mt)</th>
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Witch Flounder

• Short term projections cannot be computed using the empirical approach

• 2017 exploitable biomass is estimated to be 19,202 mt
  average( 2016 Fall biomass  22,391 mt and
  2017 Spr biomass 20,281 mt) = 21,336 mt * 0.90 = 19,202 mt

• Using the January 2017 PDT/SSC approach for catch advice,
  application of mean exploitation rate (0.060 based on 9 years 2007-2015)
  and the 3 year moving average (2015-2017) of the exploitable biomass
  (16,543 mt) results in an estimated catch for 2018 of 993 mt.
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Summary Points

Catch is at time-series low; discards are estimated to be a minor component

Truncation of age structure remains; mid-2000s and mid-2010s expansion but did not continue (evident in both commercial and survey)

NEFSC survey indices are below their time-series average

Recruitment Age 3 in NEFSC surveys appears strong (above the TS mean). Not expected to fully recruit to the directed fishery until 2020 at age 7; Should start to appear in the LMOT discards in 2017 at age 4.

Uncertainty in catch given recent reports/allegations of dealer misreporting

Projections for witch flounder are not possible using empirical approach
Questions?