

### Summary

The Deep-Water Working Group (DWWG) have not been provided acceptable acoustic snapshot data for the last 3 years for a variety of reasons, despite attempts to collect it. Reasons are likely mostly the shrinking size of aggregation and timing of spawning vs survey (note that the survey vessel (*Tomu Maru*) has undertaken acceptable acoustic surveys in many previous years).

No significant recruitment has been observed in the fishery via length frequency data for five years with the last major cohort arriving in 2011. Logical that stock must be declining in biomass due to no observed recruitment and natural and fishing mortality.

The TACC has been under-caught for the last three years. Without an estimate of abundance, the harvest control rule for management cannot be applied.

Fisheries New Zealand (FNZ) do not intend to review the fishery for 2021-22 year but will do so the following year; with no new information the review will drive a TACC reduction (precautionary).

### Background

NIWA presented information on three SBW fisheries (SBW 6B, 6I and 6R) at the DWWG Meetings in December 2020 and January 2021. While more information is pending regarding SBW 6I (Campbells), information for SBW 6B (Bounty) is completed, noting the following:

- The SBW 6B Bounty fishery monitoring and assessment process has been ongoing for several years with data collected used in the assessment and management processes. NIWA has been providing support to the survey (e.g., echosounder calibration, data analysis and assessment).
- Management of the fishery in terms of catch limits rests entirely on acoustic data feeding into a stock assessment and a Total Allowable Catch level developed from this.
- In recent years, notwithstanding a TACC increase to 3,145 t in 2018-19 after catches exceeded the TACC in 2017-18, the TACC was reduced by 10% for 2020 (from 3,145 t to 2,830 t). This reduction due primarily to the inability to obtain adequate acoustic data to support an assessment, was supported by DWG Shareholders. Note that the TACC has not been taken since 2017-18 (see Figure 1 below).

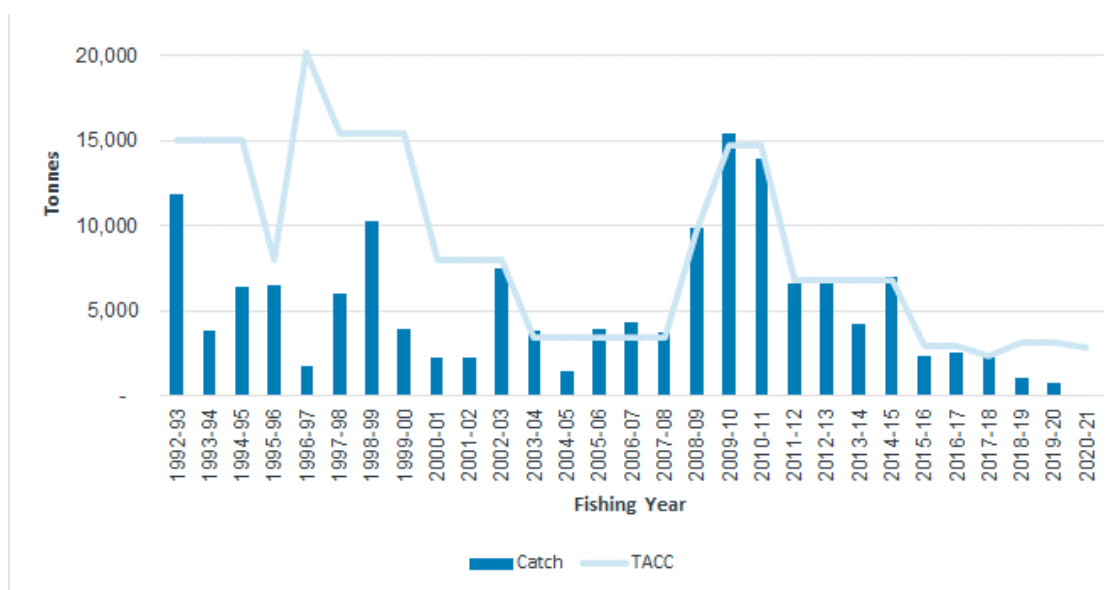


Fig 1: SBW 6B Catches (blue bars) against TACC (light blue line) from 1992-93 to 2019-20

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- The fishery has operated for many years dependent on very strong year classes especially 2002 and 2007 but also 2012. Since then, length frequency data has only shown one hint of emerging recruitment by 20 cm fish in 2019, there was no indication of any recruitment in 2020
  - In 2020 FV *Tomu Maru* was made available to undertake an acoustic survey of spawning aggregation(s) at Bounty. It was noted that as the stock has reduced it has become increasingly difficult to obtain robust acoustic snapshots of the spawning aggregation that are aligned with prescribed scientific protocols and method.
  - There will be a TACC of 2,850 t plus under catch available for this season
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## Discussion

On 19 February 2021, DWG met with a number of Southern Blue Whiting Bounty (SBW 6B) industry participants and representatives of FNZ to broadly discuss recent developments within the SBW 6B fishery and canvas ideas that could support a formalised options paper for shareholders and a clearer roadmap for the fishery in the short-term going forward.

The following was discussed and proposed:

- That in the absence of robust stock status estimates to support a TACC review, analysis of existing data would need to be undertaken. Firstly, consideration of an alternative assessment methodology using existing data to support the review next year rather than any adjustment being simply arbitrary and precautionary.
  - Further, it was suggested that it may be better to contract a stock assessment analyst to undertake an assessment of the stock using a proxy for MSY as a basis for management action in the short term. It was suggested that a suitable proxy might be Maximum Constant Yield (MCY), notwithstanding the likelihood that it may produce a conservative outcome (given the catch data from recent years). It was suggested that such an assessment could provide a more robust rationale for management and for any TACC adjustment.
  - It was also suggested that this assessment would be best coupled with a formalised recruitment monitoring plan that would provide the requisite information to support a survey (e.g. When adequate recruitment is detected, planning for the timing of the next acoustic biomass survey can be begin. The group considered that this should be embraced as a minimum from 2021-22 as can be undertaken in context of reduced fishing under current low TACC).
  - It was noted that there will be a TACC of 2850 tonnes plus undercatch available for this season and that it might be possible to undertake a survey again this year. Aurora advised that they intend to operate in the fishery again this season (ACE dependent approx 2,000 t) as in past and offer/wish to attempt another acoustic survey. that Independent Fisheries also advised that they intend to deploy a vessel to the fishery this season with their own ACE (500 t) which will collect L/F data based on usual observer protocols.
  - It was noted that many of costs associated with this work have not been provided for in DWG's 2020-21 Approved Budget and Business Plan for SBW 6B. Furthermore, FNZ advised that a 2020-21 survey would be outside the 2017-2021 SBW work program between FNZ and NIWA – subject to confirmation with FNZ, there may be some funds been available for the completion of some of the work by NIWA for 2020-21.
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## Proposed Staged Process and Costs

The following staged actions were proposed:

1. Development and cost an alternative analysis of existing data to provide an assessment of stock status using a proxy for MSY (e.g., MCY). Outputs of this assessment would provide requisite information that could assist in making future management decisions and support TACC review.
2. Development of a formalised recruitment monitoring plan.
3. In order to undertake a survey and support data collection from commercial catches this year (August 2021) the following are proposed:
  - 3.1 Seek FNZ assistance to analyse past observer data and define probability of spawning timing and “time and place” predictability of recruiting 20-30 cm fish in catches in order to optimise timing for any acoustic survey and commercial fishing that will collect L/F data.
  - 3.2 Engage with FNZ and Observer Programme regarding standard biological data collection and request additional sampling requirements.
  - 3.3 Formulate a monitoring plan based on 2 above that includes the ageing of otoliths collected from previous and future surveys, and a survey and an assessment strategy for the stock.
4. Provide these proposals to a meeting of SBW 6B Shareholder’s.

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## Recommendation

DWG makes the following recommendations for SBW 6B Shareholder and Directors’ consideration:

- The undertaking of an assessment of stock status using a proxy for MSY to better characterise the fishery in the absence of a stock assessment.
- The building of an ongoing monitoring and management plan for the of the Southern Blue Whiting Bounty (SBW 6B) fishery optimised for the monitoring of recruitment.
- Decision on whether to undertake a survey and support data collection from SBW 6B commercial catches this year (August 2021), or whether to undertake a survey later, after recruitment monitoring provides evidence of  $\geq 2$  years of recruitment.

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19 March 2021