SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON PACIFIC SARDINE ASSESSMENT, HARVEST SPECIFICATIONS, AND MANAGEMENT MEASURES-FINAL ACTION

Dr. Kevin Hill (Southwest Fisheries Science Center) presented the 2018 sardine update assessment (Agenda Item C.5, Attachment 1, April 2018) to the Scientific and Statistical Committee (SSC). As with the 2017 full assessment (Agenda Item G.5.a, Stock Assessment Report, April 2017), the Stock Assessors Team (STAT) provided a model-based (ALT) and an acoustic-trawl survey-based (AT) assessment approach in the 2018 update assessment document. The ALT assessment model was the approach used in the 2017 full assessment to inform management, and therefore the update of the ALT approach was evaluated for use to inform management for the upcoming fishing year (2018/19). The SSC CPS subcommittee reviewed a draft of the 2018 update assessment on March 6, 2018 (report appended).

The SSC agreed that the 2018 update to the sardine assessment satisfies the Terms of Reference for Update Assessments. The results are consistent with the previous assessment given the new data, and hence represent the best available science for management of the northern subpopulation of Pacific sardine.

The projected stock biomass for the 2018/19 management period is 52,065 mt for July 2018, which is above the Minimum Stock Size Threshold (50,000 mt). The update assessment is designated as a category 2d assessment with a sigma of 0.72 for calculating the acceptable biological catch (ABC) buffer. A category 2d was assigned due to major uncertainties associated with:
- recent recruitment shows a strong retrospective pattern;
- the most recent recruitment is taken from the stock-recruitment curve rather than being estimated;
- population age structure, because a large proportion of the estimated population is composed of recent recruits, the estimates of which are highly uncertain, and could be biased given retrospective recruitment patterns; and
- the lack of recent fishery age composition data now spanning three years.

The SSC endorses the 2018/19 Pacific sardine overfishing limit (OFL) of 11,324 mt, which is shown in Table 15 of the assessment document.

SSC CPS Subcommittee Report to the SSC on the 2018 Assessment of the Northern Subpopulation of Pacific Sardine

General

Drs. Kevin Hill (SWFSC), Paul Crone (SWFSC), and Juan Zwolinski (UCSC) presented the 2018 sardine update assessment to the SSC CPS subcommittee on March 6th, 2018. As with the 2017 full assessment (Agenda Item G.5.a, Stock Assessment Report, April 2017), the STAT provided a model-based (ALT) and an acoustic-trawl survey-based (AT) assessment approach in the 2018 update assessment document. The ALT assessment model was the approach used in the 2017 full assessment to inform management, and therefore the update of the ALT approach was evaluated for use to inform management for the upcoming fishing year (2018-19). The SSC CPS subcommittee expresses appreciation to the STAT for a complete and well documented update assessment.

New data included in the 2018 update proposed by the STAT include: 1) landings data for 2016, with preliminary landings data for model year 2017 (which includes catch data for the first half of 2018); and 2) a new ATM biomass index and associated age composition from the summer 2017 survey. There was no spring survey (or associated spring abundance estimate) for sardine during 2017. The methodology used to calculate acoustic-trawl survey biomass in 2017 was the same as in the 2017 full assessment. There were no fishery age-composition data for 2017 in the update assessment because no directed fishery took place. Changes to model structure were within the Terms of Reference for update assessments, and included estimating one additional recruitment deviation and updating the recruitment bias ramp, both as a direct result of the additional year of data. The habitat model was also re-run to partition total 2017 landings to the northern subpopulation.

Total catch has generally been low in recent years, with the exception of an increase in catch (~8,000 mt) from the Ensenada portion of the MexCal fleet during early 2017. The summer 2017 ATM survey produced a biomass index of 36,644 mt (CV = 0.30, ln(SE) = 0.29). Projected stock biomass for the 2018/19 management period is 52,065 mt for July 2018.

Recruitment

Retrospective patterns in estimated annual recruitment deviations continue to be apparent in the 2018 update assessment, as observed in previous sardine assessments, with recruitment proving to have been overestimated based on subsequent information. The estimate of the 2016 recruitment from the update assessment is nearly one-third the size of that estimated in the 2017 full assessment, transitioning from an above average to a below average estimate of recruitment. The 2017 recruitment estimate is currently estimated to be twice that for 2016. The estimate of 2017 stock biomass decreased by half, from 86,586 mt last year to 43,483 mt this year, primarily driven by the updated estimate of 2016 recruitment, which is a consequence of the summer 2017 acoustic-trawl survey biomass estimate. During the forecast period (2018-19), recruitment was taken from the stock-recruitment relationship.

Conclusion

The SSC CPS subcommittee agreed that the 2018 update to the 2017 sardine assessment satisfies the Terms of Reference for Update Assessments. The results are consistent with the previous

assessment given the new data, and hence represent the best available science for management of the northern subpopulation of Pacific sardine. The biomass estimate and management quantities for this model are shown in Table 15 of the assessment document. The SSC CPS subcommittee recommends endorsing the 2018/19 Pacific sardine OFL of 11,324 mt in that table. If the assessment is considered to be a category 1 assessment, a sigma of 0.415 should be used to calculate the ABC buffer because the model-estimated uncertainty associated with the January 2019 spawning stock biomass estimate (sigma = 0.415) is higher than the category 1 default (sigma = 0.360).

PFMC
04/07/18