

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE REPORT ON METHODOLOGY
REVIEW– FINAL IMPACT MODEL TOPICS FOR REVIEW & FINAL STOCK
ASSESSMENT METHODOLOGIES FOR USE

CDFW recommends the Council add the California Cooperative Groundfish Survey (COOP) sampling design and the California Commercial Fishery Data (CALCOM) expansion methodology to the list of topics for methodology review in 2027. CDFW offers the following background and rationale in support of this recommendation.

The COOP is a collaboration between the National Marine Fisheries Service (NMFS), Pacific States Marine Fisheries Commission (PSMFC) and the California Department of Fish and Wildlife (CDFW). The COOP began sampling commercial groundfish landings in 1978. As described by [Pearson and Ralston \(1990\)](#), the survey was designed “to provide biological and catch data to assist in the management of California’s commercial rockfish fishery.” The COOP developed and today oversees the California commercial groundfish fishery sampling design and the [CalCOM](#) expansion methodology, which auto-generates revisions to the species composition and associated catch of each species. PSMFC oversees and directs the work of between 5-6 full or part-time field samplers in California that monitor commercial groundfish landings for species composition and collect biological data.

Program Background

Port samplers select landings within each port and market category, then take cluster samples of fish from each landing to determine species composition by weight and to collect lengths, sex and age structures. Because many groundfish trips produce landings that require itemization of catch using multiple market categories, the cluster samples are used to mathematically “expand” (or in other words, revise and re-create) the raw buyer-reported information on a fish ticket regarding the species and pounds landed. Over time the number of sampling strata has increased (i.e. sectors, gears, fish condition etc.). When reported landings within a stratum are not sampled (which is frequently the case), the expansion process relies on “borrowing” from other strata using pooling or sharing rules. All raw and processed data are stored in CalCOM, and the resulting species-specific catch become California’s final commercial landings information found in Pacific Fisheries Information Network (PacFIN).

Council Process Background

[Council Operating Procedure 25 \(COP 25\)](#) specifies the Council process for reviewing proposed new methodologies to inform groundfish management decisions. COP 25 considers two types of methodologies - those used in groundfish fishery impact analyses and those proposed for use in groundfish stock assessments.

[The Terms of Reference for the Groundfish Stock Assessment Review Process](#) state that new data collection efforts, research surveys and analytical methods in support of stock assessments may be reviewed through this process, so that the best scientific information available is used in assessments. COP 25 provides a general timeline for New Methodologies for Impact Analyses Proposed to Inform Decisions in the Biennial Specifications Process: “During the September meeting of even years or at other appropriate times, the SSC, in conjunction with the GMT, will identify methodology issues which need documentation and/or merit a full review.... At the November meeting during even years the SSC will inform the Council of the methodologies ready for review and recommend a review schedule. The SSC also will notify the Council of assistance needed from management entities and the GMT to accomplish the review.”

CDFW notes that this item was not scheduled on the September 2026 Council, GMT, or SSC agendas, perhaps in an effort to keep the September meeting “Groundfish-Light.” Furthermore, the COP appears to require individual members of the SSC or GMT to bring forward items of interest on behalf of their own agencies, presumably in September, for consideration and forwarded by the respective advisory body. In previous biennia this process has been a standing two-meeting agenda item in September and November to accommodate advisory body and SSC input to allow the Council to make recommendations and proceed with review workshops accordingly. This has been a successful process that has resulted in the Groundfish Subcommittee of the SSC reviewing methodologies for independent hook and live surveys ([Agenda Item G.4.a Supplemental SSC Groundfish Subcommittee Report 1 September 2022](#)), and a Video-Hydroacoustic survey ([Agenda Item H.4.a Supplemental SSC Groundfish Subcommittee Report 2 November 2022](#)) while also considering review of important projections models that rely on dependent data streams for sablefish ([Agenda Item H.4 Situation Summary November 2022](#)) and the Nearshore and Non-nearshore tools ([Agenda Item I.2.a Supplemental GMT Report 1 September 2024](#)).

CDFW is bringing this review request forward on its own behalf under this agenda item in November, noting that as described in COP 25, the reviews are intended to yield changes in methods that would be used to inform stock assessments conducted in 2029. CDFW finds the Council’s methodology review process provides the appropriate forum for review of the COOP survey design, sampling priorities, and CalCOM expansion methodology. The review could occur via a stand-alone meeting or workshop sometime in 2027 analogous to previous review processes noted above. The items fit squarely within the scope and intent of this agenda item as the model outputs inform fisheries impact analyses conducted by the GMT, CDFW and external and internal partners. Moreover, California commercial catch expansions and biological data such as lengths and age are essential to nearly every groundfish stock assessment off California and also for most stock assessments north of 40°10’ N. lat.

Previously Identified Concerns

CDFW has raised concerns with the CalCOM expansion process and the COOP survey design in prior reports to the Council.

- Under an agenda item in March 2020 to discuss Terms of Reference for groundfish stock assessment methodologies, [Agenda Item H.2.a](#), [Supplemental CDFW Report 1, March 2020](#) described the COOP sampling design, funding issues, sampling coverage and impacts to stock assessments from data gaps.
- September 2021 ([Agenda Item C.6.a](#), [Supplemental CDFW Report 1](#)): CDFW identified the 1991 CalCOM commercial catch of 51.17 mt of quillback rockfish as problematic. This value is 38.8 and 8.3 times higher than the 1990 and 1992 expanded catch, respectively. The 1991 outlier resulted from the expansion process converting mixed-species market categories into single species. Two Unspecified Rockfish samples from the Fort Bragg port complex that were 100 percent quillback rockfish drove the expansion, along with the practice of "borrowing" species compositions from adjacent ports. The borrowing from Ft. Bragg resulted in applying that sampled catch composition to all the Unspecified Rockfish catches made in Eureka and Crescent City, producing the unrealistic total for the year. CDFW had and continues to recommend caution when borrowing across the 40° 10' N. lat. line and continues to emphasize that CalCOM catch streams should receive detailed review before input data are finalized for use in assessments.

Rationale for Review

The CalCOM sample design and expansion methodology were developed in the 1980s. The California commercial groundfish fishery today bears little resemblance to the fishery of that era, yet to CDFW's knowledge the methodology has not undergone formal SSC review or re-examination in some time, if ever.

CDFW identifies the following issues for consideration in the review process:

Sample design no longer reflects the fishery. Since the COOP methodology was developed, the fishery has been reshaped by the Individual Fishing Quota (IFQ) program, electronic fish tickets, rockfish conservation areas, essential fish habitat, species sorting requirements and changes in sector composition — including consolidation of the trawl fleet under the IFQ program, the growing share of landings from open access, fixed gear and nearshore sectors, and the emergence of the live fish fishery — gear use, and revised stocks in the Fishery Management Plan. Port and market category stratification and sample allocation have not been re-evaluated against these changes. Additionally, many statutes, regulations, compliance and user guides have been enacted and implemented since the program's inception that require more specificity in the information recorded on fish tickets, logbooks and in other data streams.

IFQ trawl species: The IFQ sector has 100 percent monitoring through at-sea observers or electronic monitoring and catch monitors at landing. Non-IFQ sectors (open access, limited entry

fixed gear and nearshore) must rely far more on port sampling for species composition than the IFQ sector. However, 100 percent monitoring only provides catch accounting, not necessarily biological data from landed catch. CDFW recommends the review consider whether COOP sampling effort should be redirected to prioritize federal species in non-IFQ sectors, where the information need is greatest. The review should also confirm which COOP length and age data from IFQ landings remain necessary, and if it might be more efficient for other monitoring programs occurring in this sector to assume any necessary biological data collection activities.

Sampling overlap and data gaps with other commercial sampling programs: Several programs sample California's commercial groundfish fisheries. COOP conducts dockside sampling across sectors. Other programs focus on IFQ fisheries or on discards at sea. The COOP survey predates the IFQ program, and most of these other commercial survey programs. CDFW requests an evaluation of how COOP sampling overlaps, is redundant with, or complements other commercial sampling programs off California. It would be useful to evaluate if the program should narrow its focus to particular fisheries, sectors, gear types, and data types for which COOP is the main source of information while balancing data continuity of sampling programs.

Gear and regulatory changes are not reflected: Overfishing declarations in the early 2000's prompted the creation of numerous closed areas to minimize bycatch of overfished groundfish species or to protect groundfish habitat. Bottom trawling was severely restricted, the Cowcod Conservation Areas (CCA) were created and recently removed along with changes to trawl and non-trawl Rockfish Conservation Areas (RCA) limiting access to certain depths. All of these geospatial changes have altered the fishery, and it is unclear if the current COOP sampling design effectively keeps pace. Limited Entry Fixed Gear permit holders may now use all legal gear types under Amendment 36, and a new midwater gear code has been introduced. It is unclear how these changes, and upcoming changes under Phase 3 stock definitions will be incorporated into strata, borrowing rules and expansions.

As part of Phase 2 and Phase 3 actions on Stock Definitions, a number of very significant changes are in progress that will redefine the species and stock complexes managed under the Pacific Coast Groundfish Fishery Management Plan. These changes certainly will influence the federal priorities for data collection on specific species or fisheries. Review of the existing COOP survey sampling design would be beneficial to ensure the highest priority information is being collected to meet federal groundfish fishery management needs into the future.

Expansions: CalCOM expansions convert port samples into the species-specific commercial catch used in nearly every California groundfish stock assessment and in fishery impact analyses. To CDFW's knowledge, the methodology has never been formally reviewed by the SSC. The process involves several decisions, including stratification, applying sampled compositions to unsampled landings, and borrowing compositions across ports and periods. These decisions can strongly affect results, but they are not currently well documented or available for public review, and are not widely understood outside the small group that produces the expansions. The

progressive loss of funding and field staff over the years has increased the degree of borrowing needed in expansions, producing greater uncertainty as to whether the resulting pounds are precise.

Data access: CDFW receives expansion outputs but does not have back-end access to the CalCOM system and cannot independently review the raw sample data, nor can we recreate or evaluate the expansions. Although CalCOM is a cooperative program, CDFW as the state management agency that implements fish ticket reporting requirements, has virtually no ability to evaluate or contribute to the methods. This is due in part to the need to modernize the CalCOM website to facilitate data transfer and access while still meeting today's IT security requirements and sharing agreements between multiple agencies. CDFW staff have examined the CalCOM data and expansions in the past and would welcome the opportunity to contribute our expertise to a review.

Resource constraints: CDFW recognizes that reduced federal funding may affect the capacity to maintain and modernize the COOP sampling program, CalCOM database and website. A review would help prioritize limited resources toward the sampling and analytical improvements of greatest value to stock assessments and fisheries management. The COOP sampling program has lost a substantial number of field, supervisory and database management staff over the years. An evaluation of what ports are the most critical to sample given limited funding for field staff and what the minimum and ideal number of field staff should be to effectively sample the 1,100-mile California coast and its 50+ commercial groundfish ports would be beneficial.

The current documentation, sampling manual and CalCOM website are outdated and in dire need of modernization or replacement, and backend transfer and upload processes need review. At a minimum, updating the CalCOM website to grant CDFW data access would facilitate our agency's review of sample data and expansions.

Data Continuity: CDFW recognizes the importance of maintaining continuity in the historical catch time series used in stock assessments. CDFW is not proposing to discard or replace historical estimates. Rather, a review should evaluate how improvements to the sample design and expansion methods can be implemented going forward while preserving comparability with the historical record, and identify where historical estimates may warrant re-examination, as with the 1991 quillback rockfish example.

Summary of CDFW Recommendations:

CDFW recommends that the Council identify a review of the COOP survey design and CalCOM commercial catch expansion methodology as a methodology review topic. CDFW suggests the review consider:

1. Sampling design and priorities. Whether the current sample design, stratification and allocation of sampling effort reflect today's fishery and current state and federal

management needs. This includes federal species in non-IFQ sectors, and coordination with other commercial sampling programs.

2. Catch expansion methods. How expansions are produced, including borrowing rules. The review should also consider whether a collaborative review step could identify anomalies before estimates are used in stock assessments or management.
3. Documentation and data access. Updated documentation, sampling manuals and data systems that allow partner agencies to access sample data and review or reproduce expansions.
4. Resource prioritization. How to direct limited staff and funding toward the ports, fisheries and data types of greatest value to stock assessments and fisheries management.
5. Data continuity. Ways to put improvements in place while maintaining continuity with the historical catch time series used in stock assessments.

As a member of the COOP, CDFW is committed to working with the Pacific States Marine Fisheries Commission, the Southwest Science Center, Council staff and advisors to support this long-needed review of the program's methods, goals, and objectives in light of present-day stock assessment and fishery evaluation needs, data security standards and data sharing agreements.