CALIFORNIA COLLABORATIVE FISHERIES RESEARCH PROGRAM

Providing scientific data for fisheries management and the evaluation of MPA performance

Participant Handbook (2024)

This document is intended to provide information about the California Collaborative Fisheries Research Program (CCFRP) and outline the roles and responsibilities of all participants. Please take a moment to carefully read through the information below and contact us with any questions or concerns.

Program Information The California Collaborative Fisheries Research Program (CCFRP) is a community-based science program involving researchers from six California universities, the captains and crew of 36 sportfishing vessels, more than 2,100 volunteer anglers, and partnerships with conservation and resource management agencies. By combining the expertise and ideas of a diverse group, we have successfully established protocols to evaluate Marine Protected Areas (MPAs), the status of nearshore fish stocks, and how climate change is impacting marine resources in California.

In 17 years, we have conducted over 800 sampling trips, caught and released more than 230,000 fish from 98 different species, and tagged nearly 74,000 fishes. The project has generated estimates of relative abundance, length frequencies, biomass, diversity, community composition, and movements of fishes across 16 MPAs and associated Reference areas statewide and contributed data to stock assessments of 9 species.

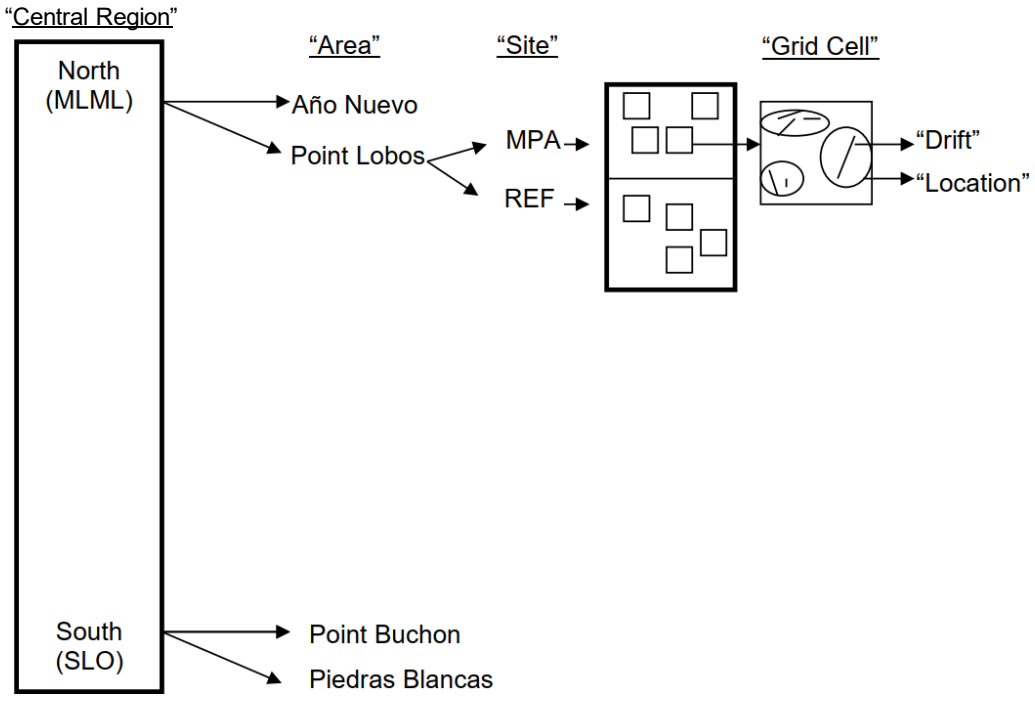
Project Objectives CCFRP aims to collect data on economically important, nearshore species to provide information for fisheries management and the evaluation of marine protected areas (MPAs). In order to do so, standardized hook-and-line surveys are used to catch, identify, measure, tag, and release fishes inside MPAs and associated reference (REF) sites. Each sampling trip provides information regarding species compositions, sizes, and catch rates of nearshore fishes across California that can be used to assess stock health and MPA performance.

Hook-and-Line Survey Logistics

Sampling Locations

CCFRP hook-and-line surveys span the California coast, and are broken up into 3 regions: North, Central and South. Using the Central region as an example, Moss Landing Marine Laboratories (MLML) surveys the northern part of the Central region and Cal Poly San Luis Obispo (SLO) surveys the northern part of the Central region. The 'areas' surveyed within these regions are Año Nuevo State Marine Reserve (SMR), Point Lobos SMR, Piedras Blancas SMR and Point Buchon SMR. Each area is further divided into 'MPA' and reference 'REF' sites, with MPA sites located within reserve boundaries and REF sites located outside reserve boundaries. REF sites are comparable to MPA sites in that they share similar size, habitat and oceanographic conditions with their respective MPA and were considered 'fishable' by industry representatives during initial planning workshops. Within each designated MPA and REF site, 500 m x 500 m 'grid cells' were created and used to delineate sampling locations. These grid cells, positioned in nearshore rocky habitats encompassing less than 40 meters of water (to limit fishing mortality due to barotrauma) and randomly selected for each survey, are further divided into 'drifts'. These drifts represent the specific locations of data collection chosen by charter boat captains, where volunteer anglers fish continuously throughout.

Diagram of CCFRP Spatial Terminology:



Sampling Protocols

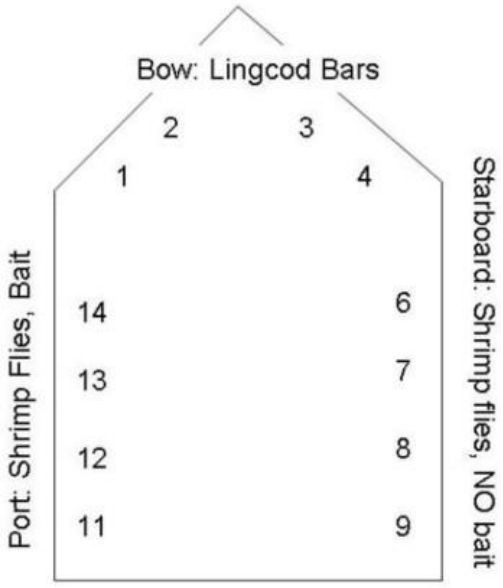
During each day of sampling, four grid cells are chosen at random and captains are instructed to locate three suitable fishing locations per cell (based on their experience and/or preference) to complete a drift totaling 15 minutes. If a single 15-minute drift is not possible for any one location, the captain has the freedom to choose to make several drifts for a combined total of 10

to 15 minutes per location. The overall objective is to fish three discrete locations within each grid cell for a total of 30 to 45 minutes.

At the beginning of every CCFRP cruise, volunteer anglers are assigned to a fishing station, which is organized by gear type. Gear types were selected to reflect gear commonly used in that region; thus, it varies slightly among sampling groups. The North region gear type includes swimbaits with a shrimp fly teaser, lead bars with a shrimp fly teaser, baited shrimp fly lures, and unbaited shrimp fly lures; the Central region gear type includes lead bars with a shrimp fly teaser, baited shrimp fly lures, and unbaited shrimp fly lures; the South region gear type includes swimbaits, baited dropper loop lures, and baited shrimp fly lures. Note that all hooks are crimped to promote survivorship.

Gear types used in this study. Note that not all gear types are used in all locations. Left to Right: Lingcod bars in various sizes, shrimp flies (unbaited and baited with squid mantle), swimbaits, and dropper loops (baited with squid mantle).

Generally, the lead bar gear type is fished at stations 1-4 on the bow, the baited shrimp fly gear type is fished at stations 6-9 on the starboard side on the vessel, and the unbaited shrimp fly gear type is fished at stations 11-14 on the port side. Note that this set-up only holds true for the Central coast region. HSU fishes on 6-pack boats and only have 4 anglers per trip. Groups in the south coast region fish with different gear types and their set-up is varied slightly from the figure to the right.



The placement of anglers on the vessel by gear type and station number. Note that this may vary by region.

Once on station, the captain signals the start of the drift and anglers commence fishing. During any drift, 6 to 12 volunteer anglers fish using rod and reel fishing gear.

When a fish is caught by a volunteer angler, it is identified to species, measured (using total length in cm) on a wooden v-board or flat plastic/metal L-shaped board, tagged with an external T-bar anchor tag (unless the fish is in poor condition or too small) and released. In order to reduce incidental mortality, care is taken during handling and the time spent onboard is minimized. If a high catch rate precludes rapid processing of captured fishes, anglers will be instructed to stop fishing so that those on deck can be processed. Any noticeable effects of barotrauma (the physiological effects from rapid changes in pressure that regularly occur during fishing) are ameliorated by venting the swim bladder with a hypodermic needle and/or releasing the fish at depth using a fish descending device (e.g., SeaQualizer, Ace Calloway (Black Tip), weighted milk crate, etc.). The location and depth where the fish is released, along with its condition, are recorded. If at any time during the drift an angler has a problem with gear, the deckhand or a member of the science crew will hand them a new rod so that fishing continues, uninterrupted. If an angler must stop fishing for more than one minute, that time is subtracted from the overall effort. In addition to catch information, weather conditions, water temperature/ clarity, wind speed/direction, swell height/direction, rugosity or relief measurements are recorded.

Participant Responsibilities

Volunteers

1. Meet each of the following CCFRP Volunteer Angler requirements:
    a. Be at least 16 years of age or older.
    b. Possess a fair amount of experience fishing in the marine environment.
    c. Be able to spend extended periods of time (8 to 10 hours/day) onboard a recreational fishing boat, in potentially rough waters.
2. Complete all of the following required forms once per year:
    a. Volunteer Liability Release (specific to the institution you are sampling with)
    b. CCFRP Volunteer Angler Survey
3. Arrive on time (i.e., 6AM) to all scheduled cruises and let CCFRP staff know if you are unable to attend a confirmed trip as soon as it is possible.
4. Take appropriate medication prior to boarding if there is a chance that you may experience any form of seasickness.
5. Follow all directions of captain and crew and adhere to U.S. Coast Guard safety regulations.
6. Use only CCFRP-approved fishing gear. You may choose to bring your own rod (spinning rods discouraged), but all tackle will be provided in order to comply with standardized protocols and ensure scientifically sound data collection. All personal rods must have a line strength of at least 30 lb. to minimize gear loss.
7. Wear appropriate fishing/boat apparel (i.e., layers for unpredictable weather and closed-toed shoes (rubber boots are highly recommended as the decks will be covered with water and tennis shoes tend to make for wet feet).
8. Refrain from alcohol consumption before and during all fishing drifts.
9. Notify crew when a fish is on the line or in a station tub for fast processing.
10. Comply with CCFRP's scientific collecting permits by renouncing all catch to members for the science crew for release.

Captain

1. Provide volunteer anglers with weights, bait and fishing rods.
2. Ensure that all fishing takes place only within grid cell boundaries.
3. Notify all participants of drift start and end times.
4. Provide depth, water temperature and relief information at each location.
5. Notify science crew of changes in conditions, angler stations, fishing effort, etc.

Deckhand(s)

1. Rig fishing rods with appropriate tackle (i.e. jigs, shrimp flies with and without bait) and ensure that there are enough rods for each station, plus spares.
2. Make sure that shrimp fly color is evenly distributed.
3. Inform science crew of weights used and if changes in gear type/size take place.
4. Free snags and replace rods, as needed.
5. Notify science crew of changes in conditions, angler stations, fishing effort, etc.
6. Refill station tubs and buckets with fresh seawater when needed.
7. Help anglers get fish off the hook and place it in their tub or, if the catch rate is slow, safely transport the fish to the tagging station.
8. If a fish is floating after release, notify a member of the science crew and, if possible, retrieve the fish with a net.

Science Crew

1. Recruit, train, and coordinate volunteer participation.
2. Contact all scheduled volunteers in the event of trip cancellation.
3. Provide grid cell information to captain.
4. Set up the fishing and tagging stations.
5. Help anglers get fish off the hook and place it in their tub or, if the catch rate is low, safely transport to the tagging station.
6. Carefully identify, measure, tag, and release caught fishes (ensuring minimal handling stress).
7. Record data.
8. Inform the captain when it is time to start and stop fishing, and when enough time has been spent in each location / grid cell.
9. Maintain constant communication with captain and crew.

Thank you for participating in the CA Collaborative Fisheries Research Program!
Your contributions are essential to the success of this project and make the collection of such vital, scientific data for fisheries management possible.