

## CCFRP Participant Handbook

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.



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**Program Information** CCFRP is a partnership of people and communities interested in fisheries sustainability. By combining the expertise and ideas of fishermen and scientists, CCFRP has successfully established standardized protocols to gather information for fisheries management and the monitoring of local marine protected areas (MPAs).

This project is a collaborative effort among researchers from CA Sea Grant at Moss Landing Marine Laboratories (MLML) and SLOSEA / Center for Coastal Marine Sciences at Cal Poly San Luis Obispo as well as the captains and crew of F/Vs *Admiral*, *Caroline*, *Chubasco*, *Fiesta*, *Huli Cat*, *New Captain Pete*, *Pacific Horizon*, *Patriot*, *Princess*, *Queen of Hearts*, *Rita G*, *Salty Lady* and *Tigerfish*.

**Project Objectives** CCFRP aims to collect valuable data on economically important marine 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 nearshore fish species inside MPAs and associated reference sites (REF). Each fishing trip provides information regarding species compositions, sizes and catch rates of fishes in and around central California MPAs that will be used by resource managers to assess stock health and MPA performance in fisheries management.

**Project Summary** To date, CCFRP has successfully completed 244 days of standardized hook-and-line surveys and utilized over 24,000 volunteer hours from 717 individuals to catch 46,855 fish from 48 different species. Of those caught, 33,418 were tagged using external t-bar anchor tags in order to gain information about movement patterns and survivorship through recapture. From commercial trapping efforts, CCFRP has conducted an additional 78 days of fishing and tagged 3,782 fishes from 18 different species. The data collected along central California since 2007 are expected to be used by the California Department of Fish and Wildlife (CDFW) in stock assessments and the California Fish and Game Commission to evaluate the effectiveness of local MPAs in the near future.

# Hook-and-Line Survey Logistics

## Sampling Locations

CCFRP hook-and-line surveys span the central California coast, with Moss Landing Marine Laboratories (MLML) managing the 'North' region and CalPoly San Luis Obispo (SLO) managing the 'South'. The 'areas' surveyed within these regions are Año Nuevo State Marine Conservation Area (SMCA), Point Lobos State Marine Reserve (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.

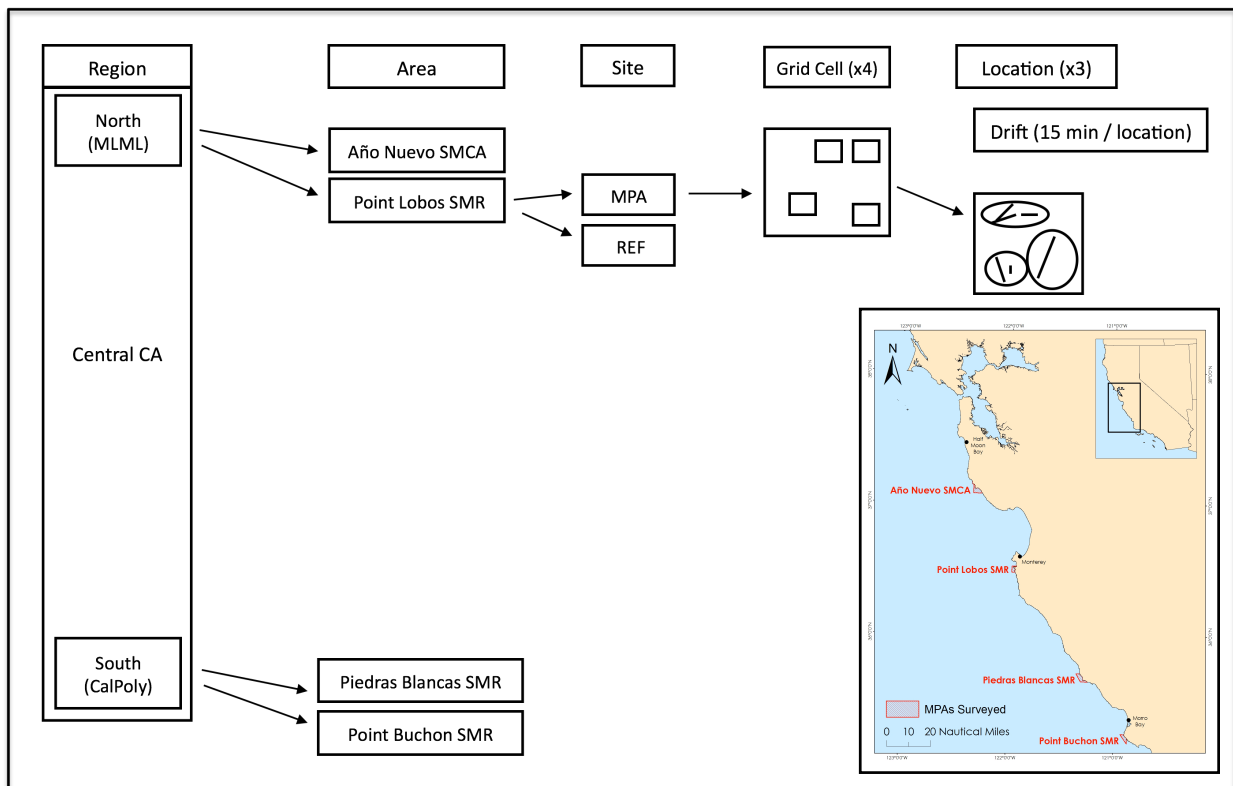
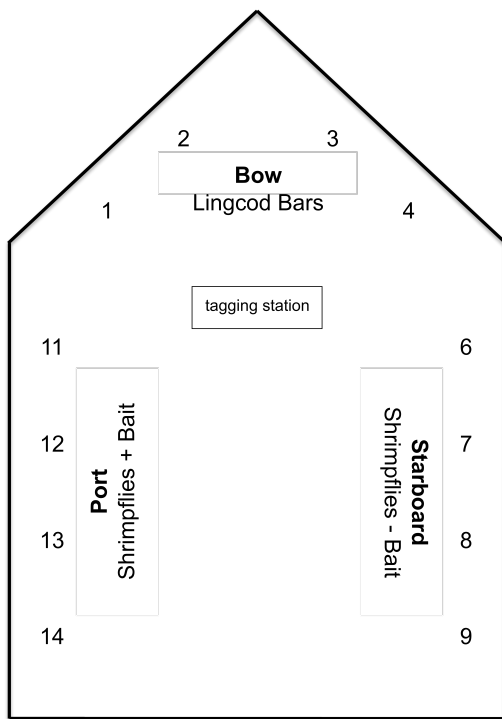


Diagram of CCFRP Spatial Terminology

## Sampling Protocols

To account for temporal variability, four sampling days are scheduled per month per area (2007: Aug/Sep/Oct; 2008: Jul/Aug/Sep; 2009: Aug/Sep/Oct; 2010: Aug/Sep; 2011: Aug/Sep), with each sampling day alternating between MPA and REF site. 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.



CCFRP Angler Stations

At the beginning of every CCFRP cruise, volunteer anglers are assigned a fishing station, which is organized by gear type.

Anglers on the bow (stations 1 through 4) fish using hard tackle (i.e. lingcod bars) at the terminal end and a shrimp fly teaser (a smaller lure used to entice and catch fish) above. Lingcod bars, ranging in color and weight (4, 6, 7, 8 or 10 oz), are rigged to poles with the lightest sinker needed to counteract the current and get the line to the bottom, as fast as possible. Hooks for lingcod bars are single and barbless.

Anglers on the starboard side of the vessel (stations 6 through 9) fish using two shrimp fly lures without bait while anglers on the port side (stations 11 through 14) fish using two shrimp fly lures baited with frozen squid. The shrimp fly lures are made of mylar, have single barbless 4/0 hooks, 30 lb hook line and 60 lb main line. Both red and white shrimp flies are used in order to accommodate for angler

preference. Shrimp fly anglers use 4 to 12 oz sinkers, depending on conditions and the captain's recommendation.

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. The number of anglers that fish at a given time is always divisible by three so that each gear type is fished with equal effort.

When a fish is caught by a volunteer angler, it is identified to species, measured (using total length) on a wooden v-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 Barotrauma Reversing Fish Release, weighted milk crate). 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. SJSU Volunteer Appointment Form
  - b. MLML Volunteer Liability Release
  - c. UCSD Volunteer Liability Release
  - d. 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.