

# Tag Recaptures: How Citizen Science Can Provide Information About Nearshore Fishes

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## Introduction

The California Collaborative Fisheries Research Program (CCFRP) works with scientists and the community to understand nearshore fish stocks. Through collaborative fishing surveys, our project aims to monitor and evaluate the effectiveness of 4 Central California marine protected areas (MPAs) (Año Nuevo, Point Lobos, Point Buchon and Piedras Blancas), and provide information about economically important species for conservation and fisheries management.

From 2007 to 2014, our project has:

- recruited 800 volunteer anglers to help catch, tag, and release nearshore fishes
- worked with 12 sportfishing vessels and 20 captains
- conducted 275 standardized hook and line surveys
- caught 57,290 fishes from 48 different species, of which 37,300 have been tagged (Fig. 2, 3A)

CCFRP relies on tag recaptures from commercial and recreational fisheries, and SCUBA divers to provide valuable information about movements of nearshore fishes. The creation of our tag-recapture database would not be possible without the participation of the local fishing community.



Figure 1. Volunteer angler and science crew member displaying a tagged Vermilion Rockfish

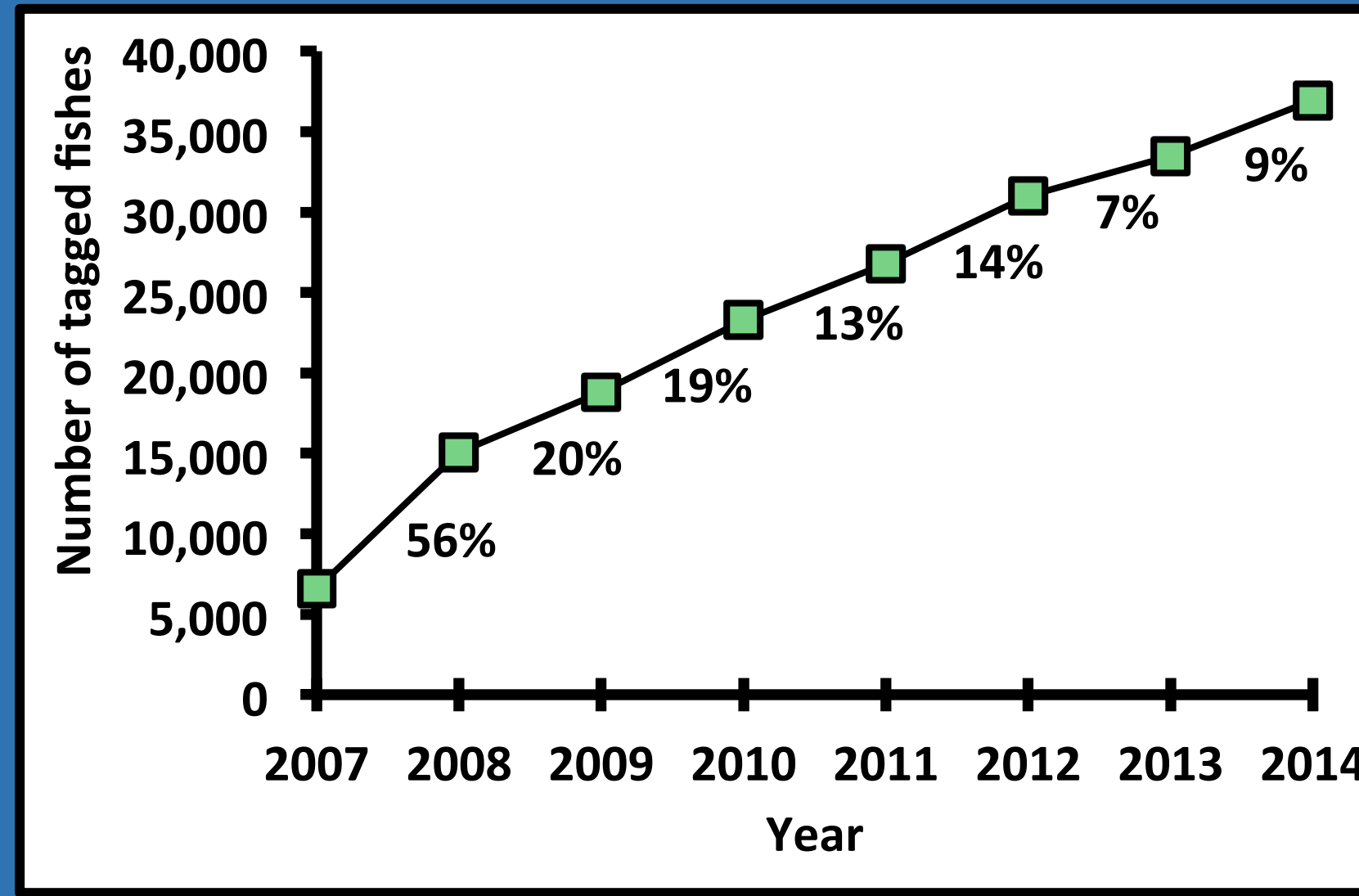


Figure 2. Total number of fishes tagged through 8 years of data collection, with percent increase by year

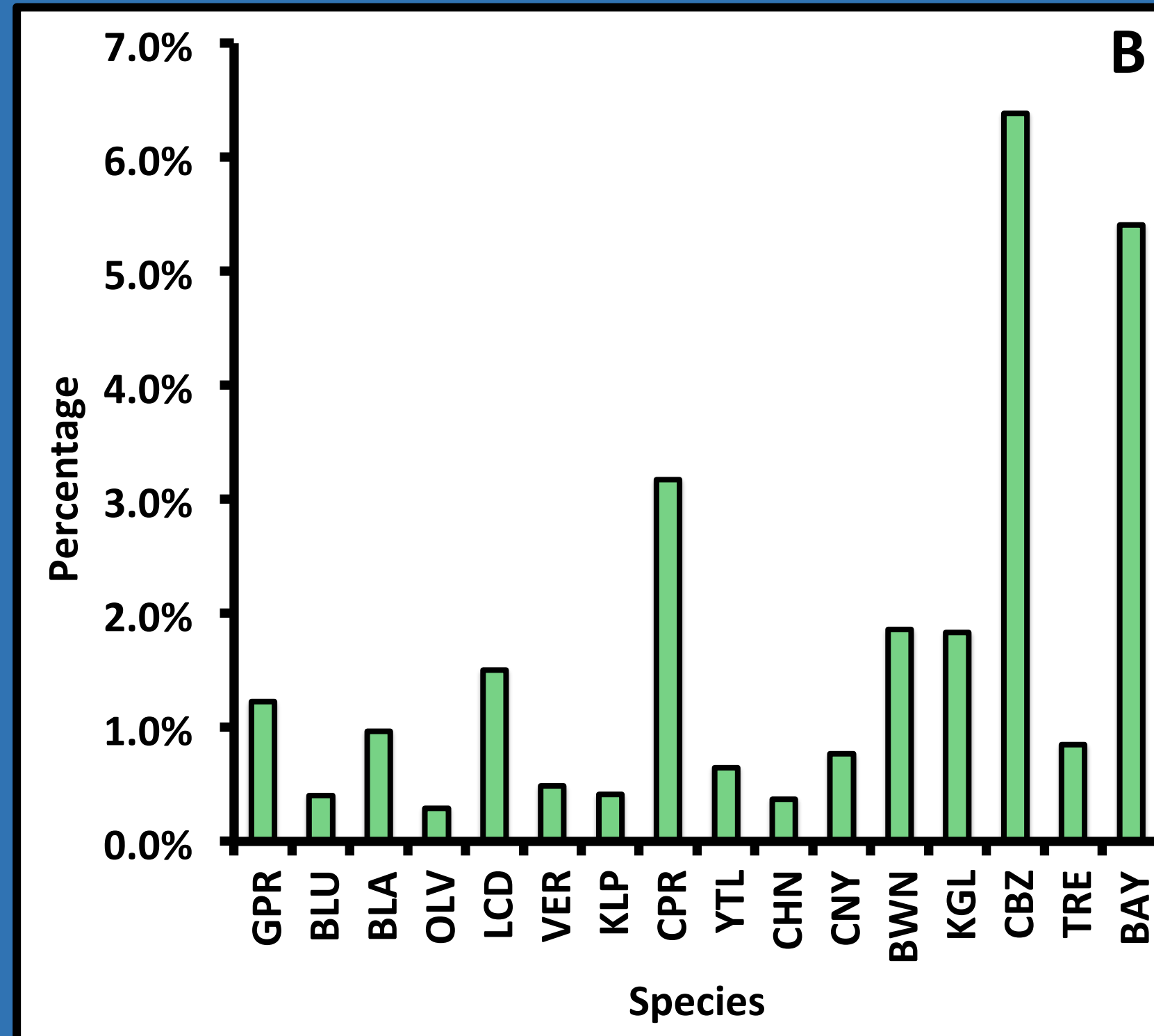
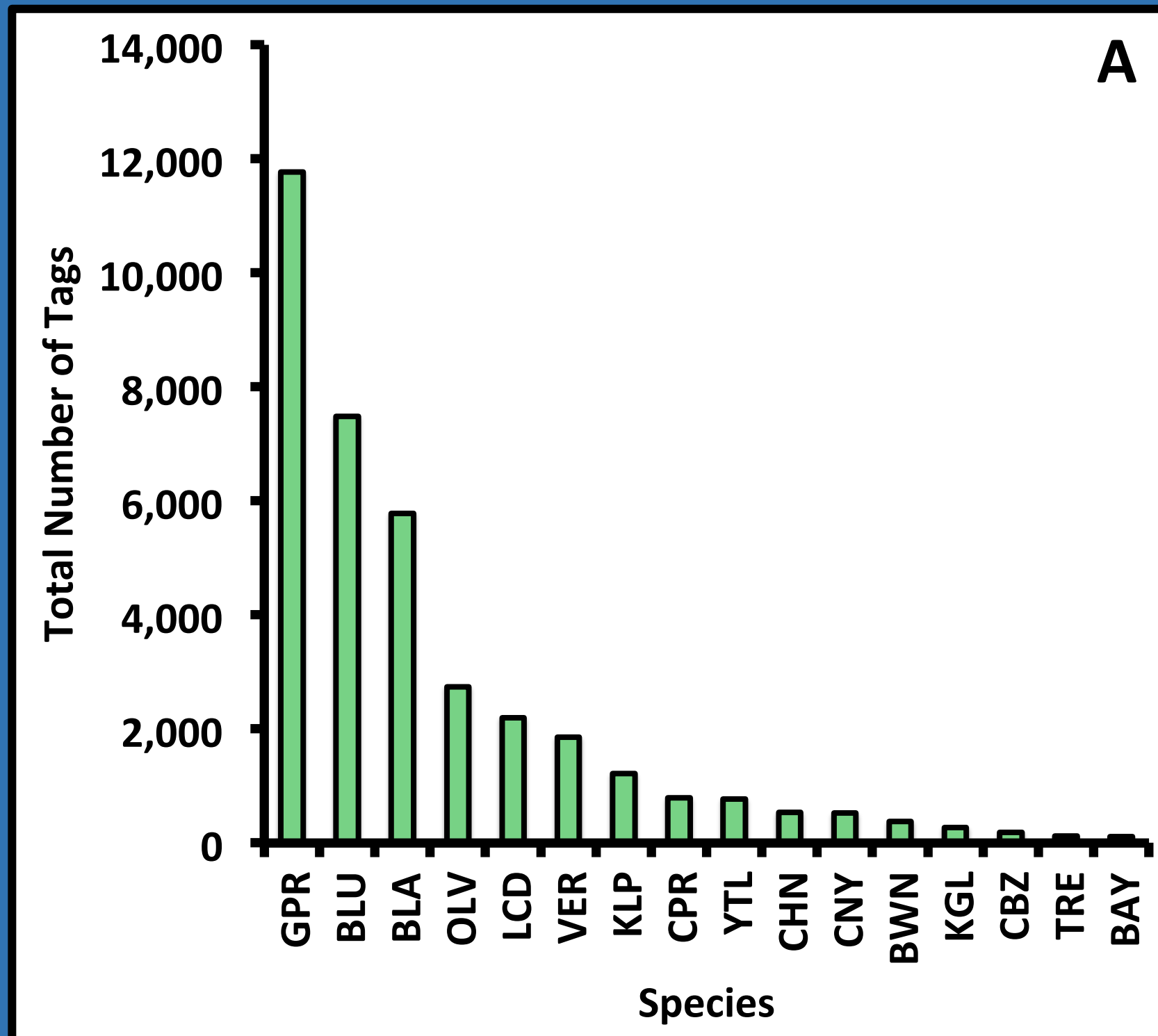


Figure 3. (A) Total number of tagged fishes by species (B) Percentage of recaptures by species

## Methods

In addition to collecting data about species composition, lengths, and catch rates of fishes aboard CCFRP sampling trips, information about movements, growth rates, and times at liberty can also be obtained through tagging efforts. A T-bar anchor tag with an ID number and our lab's phone number is placed just below the dorsal fin before the fish is returned to the water. If a tagged fish is recaptured, we ask that the angler provide information such as species (Fig. 3B), GPS coordinates of capture, fish length, and condition, in return for a monetary reward. Here, we present information from the tag recaptures compiled from 8 years of data collection.

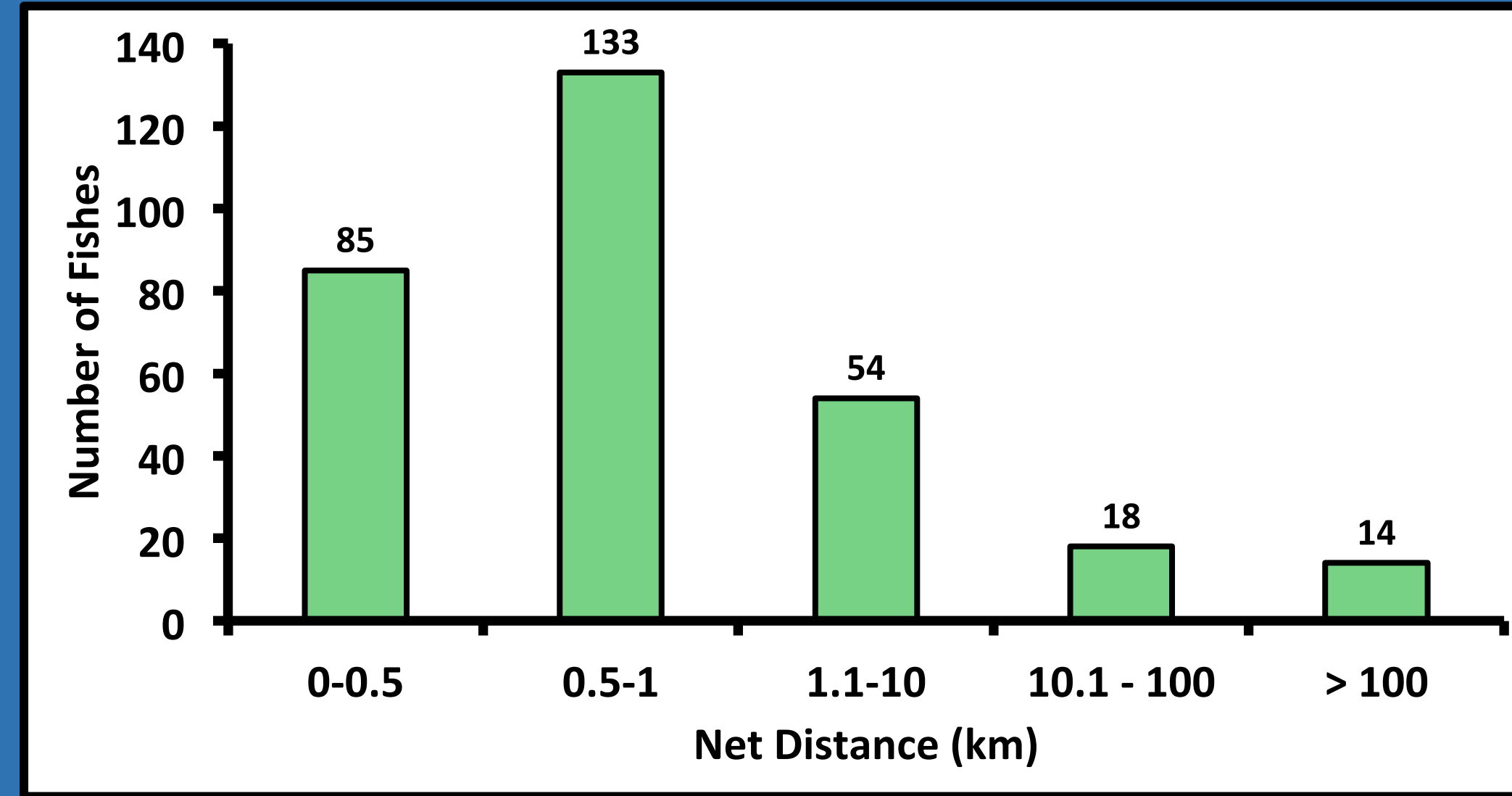


Figure 4. Net distance travelled by tagged fishes from their original tag location to where they were recaptured

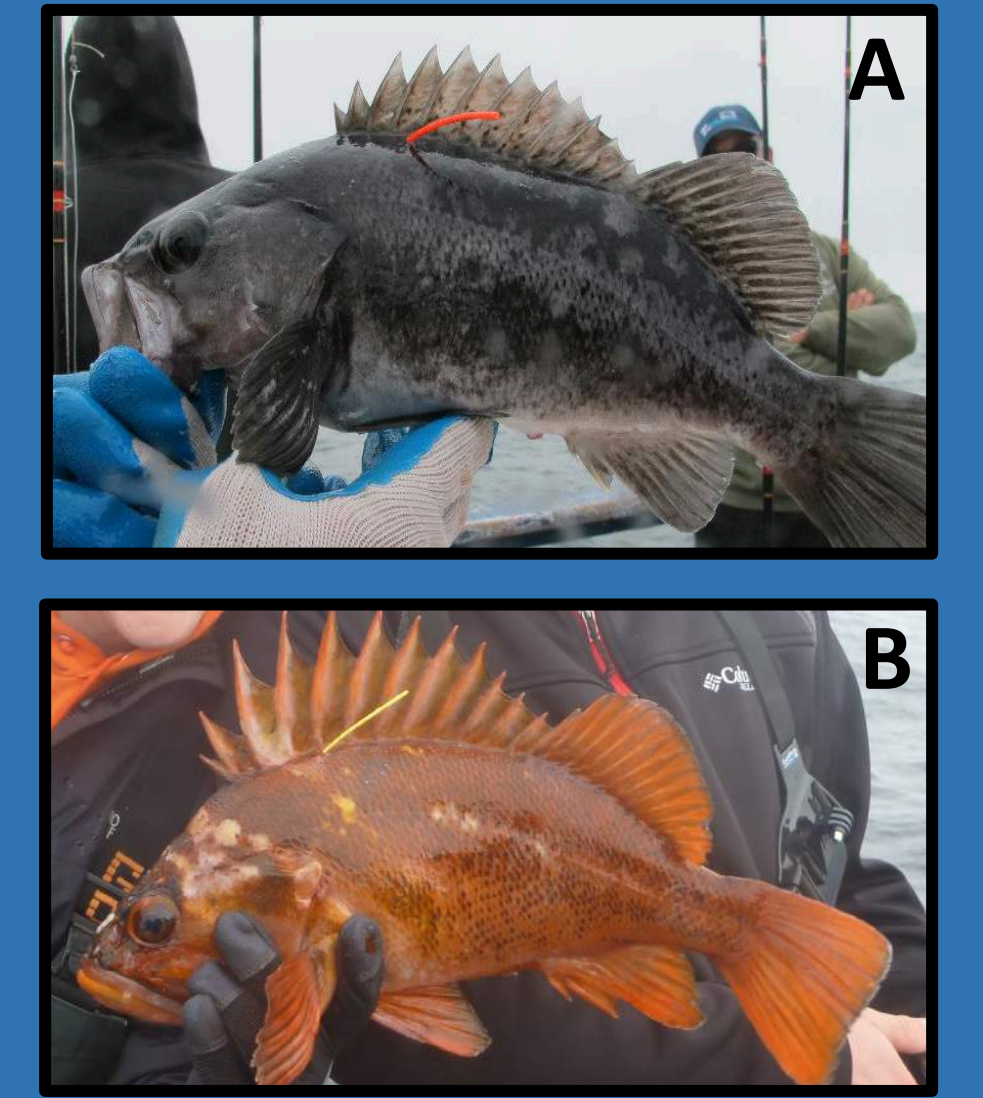


Figure 5. Tagged (A) Black and (B) Copper Rockfishes

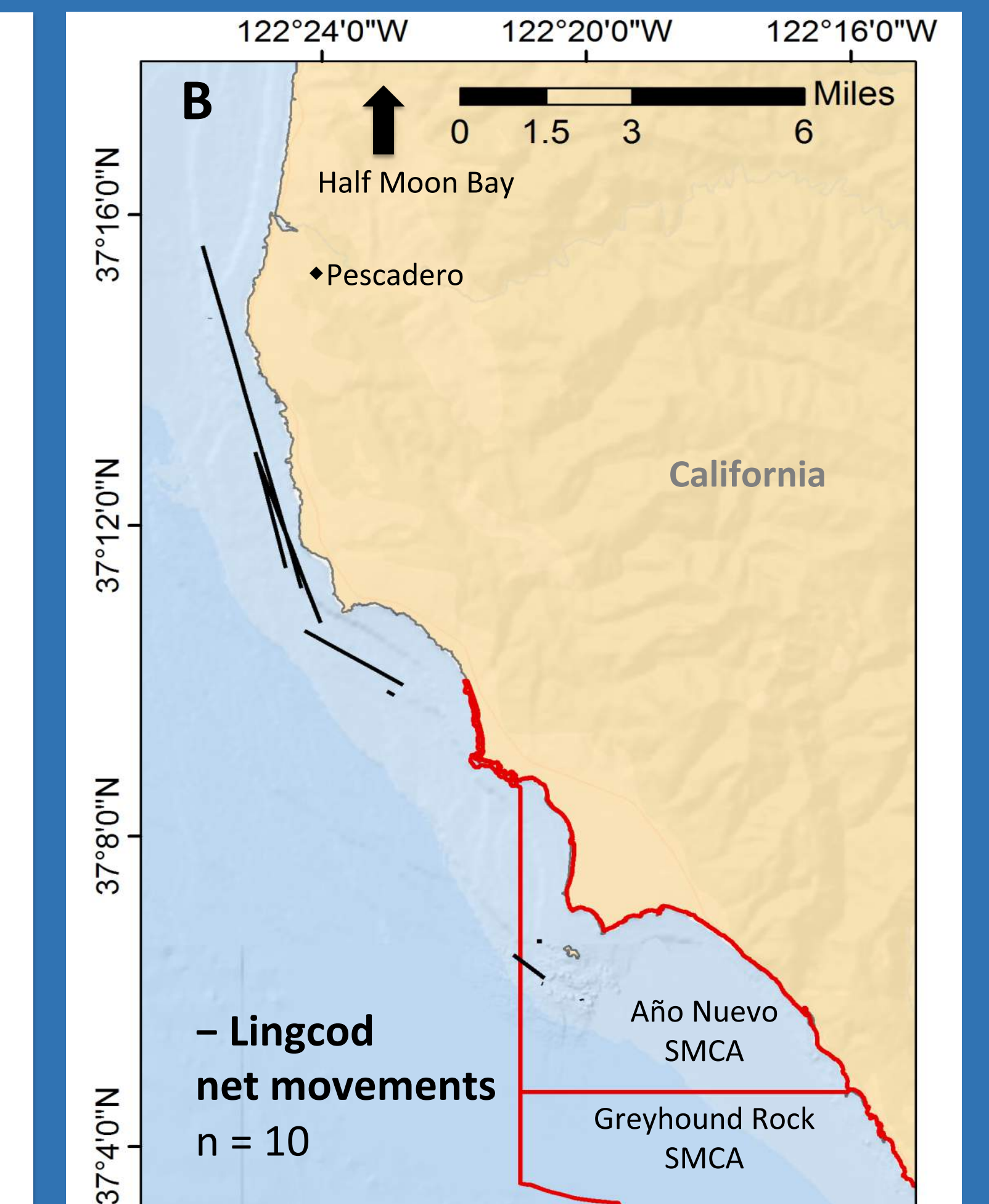
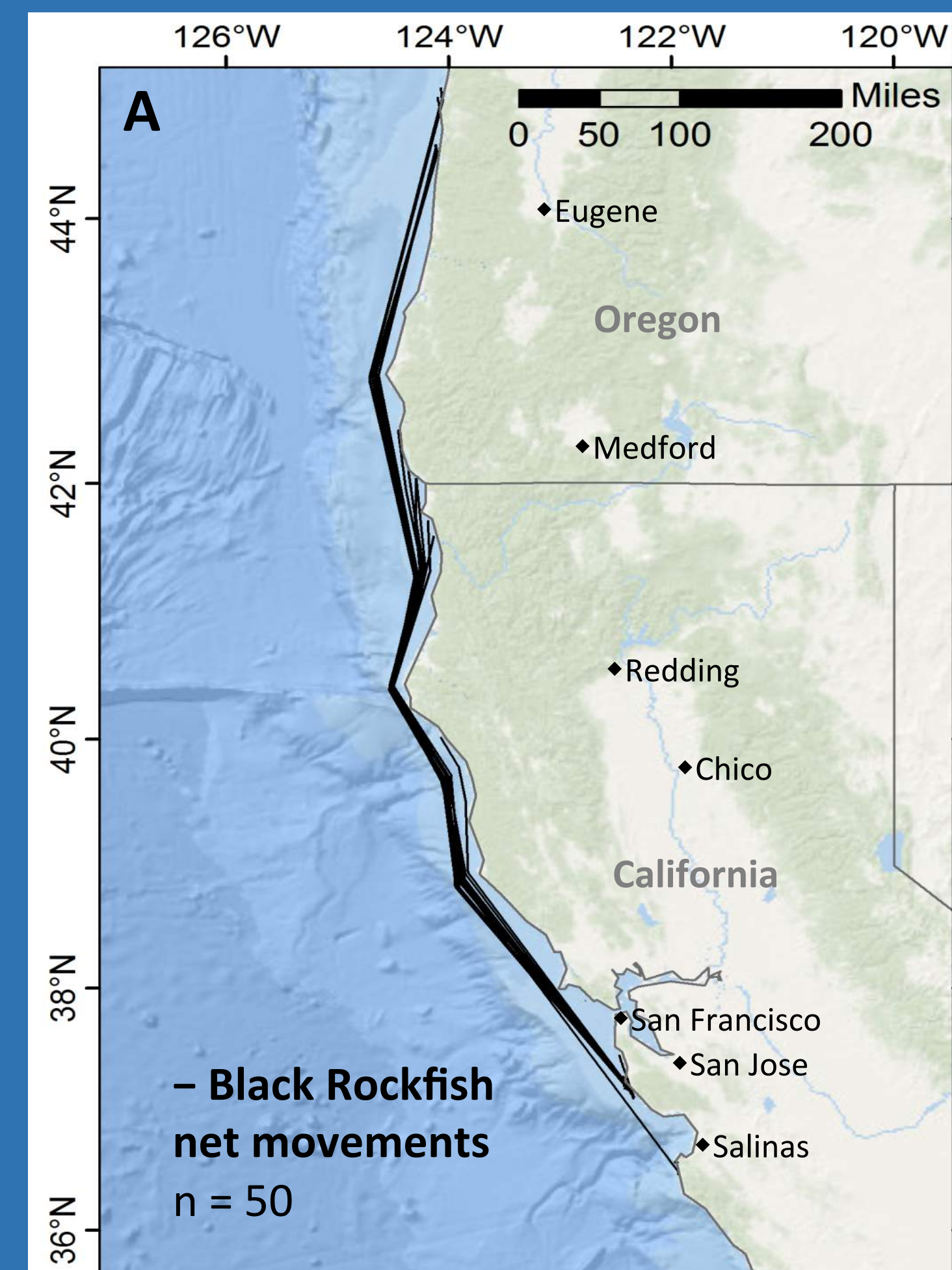


Figure 6. Net distances travelled by tagged (A) Black Rockfish and (B) Lingcod

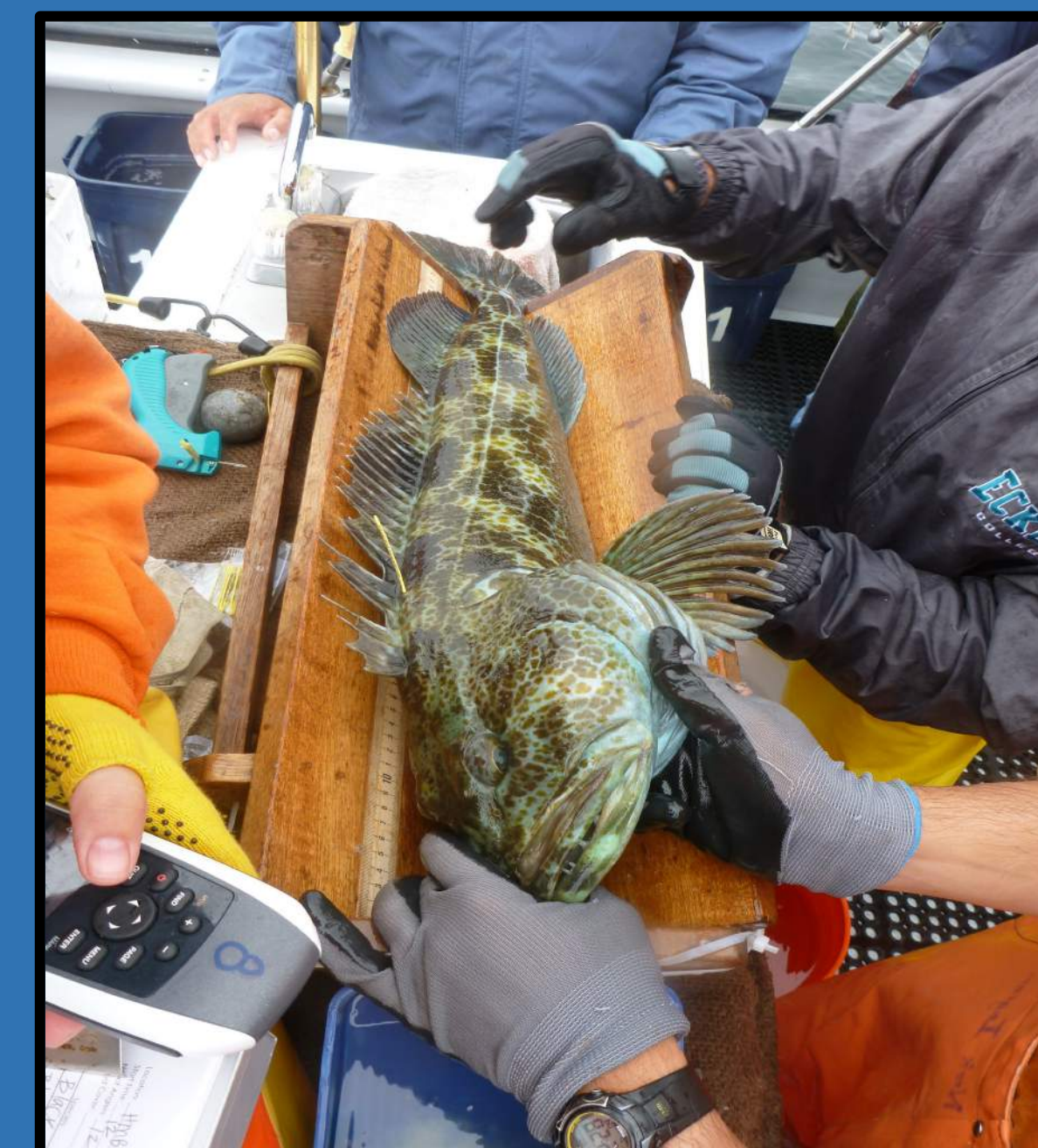


Figure 7. Tagging a Lingcod and collecting biological information prior to release

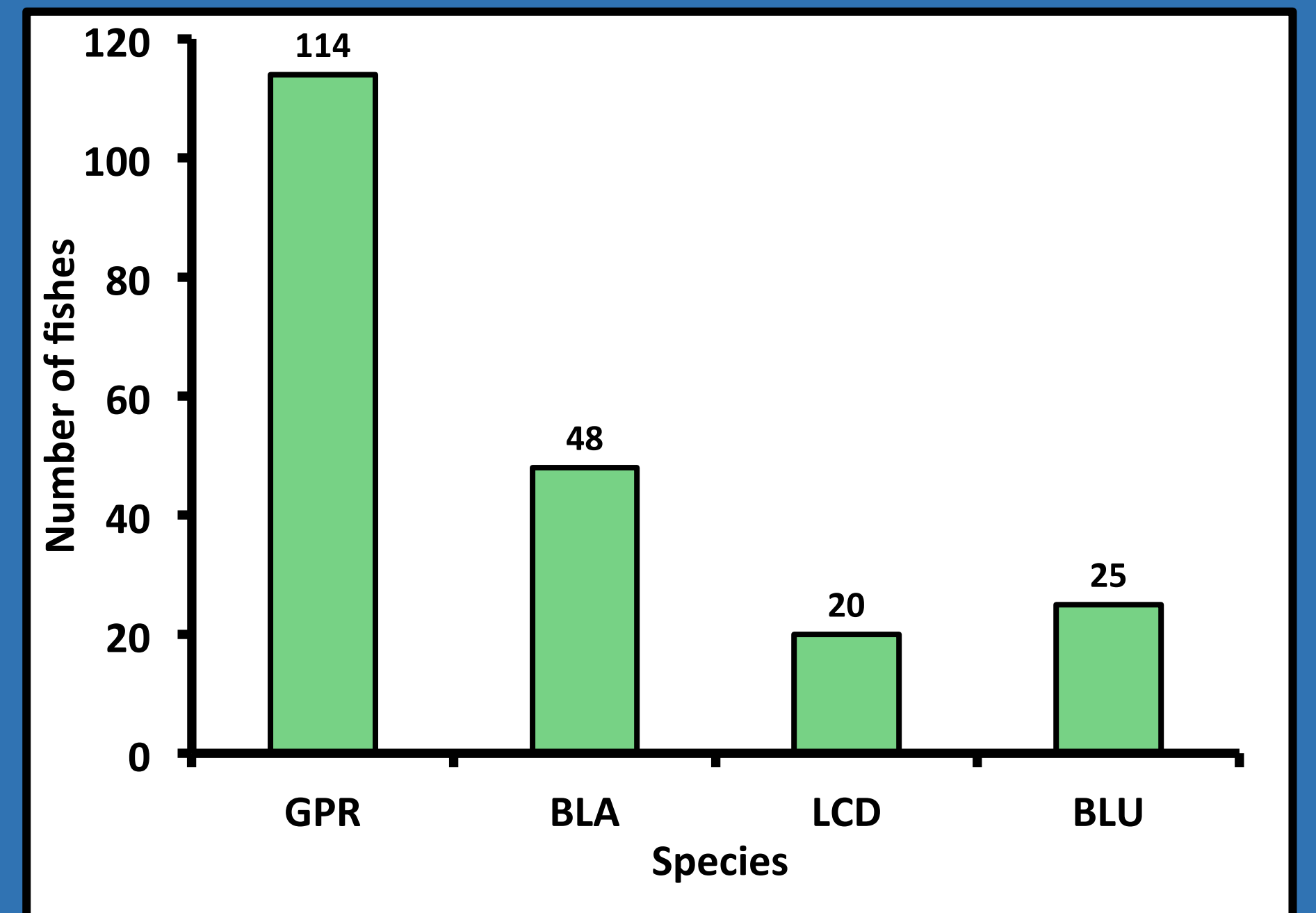


Figure 8. Number of fishes, by species, that were recaptured by anglers independent of CCFRP sampling trips

## Results

Most recaptured fishes had net movements between 0.5 and 1 km, however, some individuals travelled more than 100 km (Fig. 4).

Different species tend to have different home ranges. Tagged Black Rockfish from CCFRP have travelled more than 965 km into Oregon, while Lingcod tagged near Año Nuevo have been recaptured 2-16 km from their original tag location (Fig. 6A and 6B).

The local fishing community is key to building our tag return database. 79% of our database would not exist if anglers did not call us with information on tagged fishes they have caught (Fig. 8).

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