

2018
Volunteer Appreciation
Event & Data Workshop



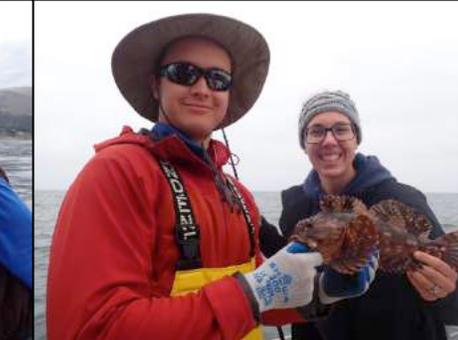


Raffle time!!!!



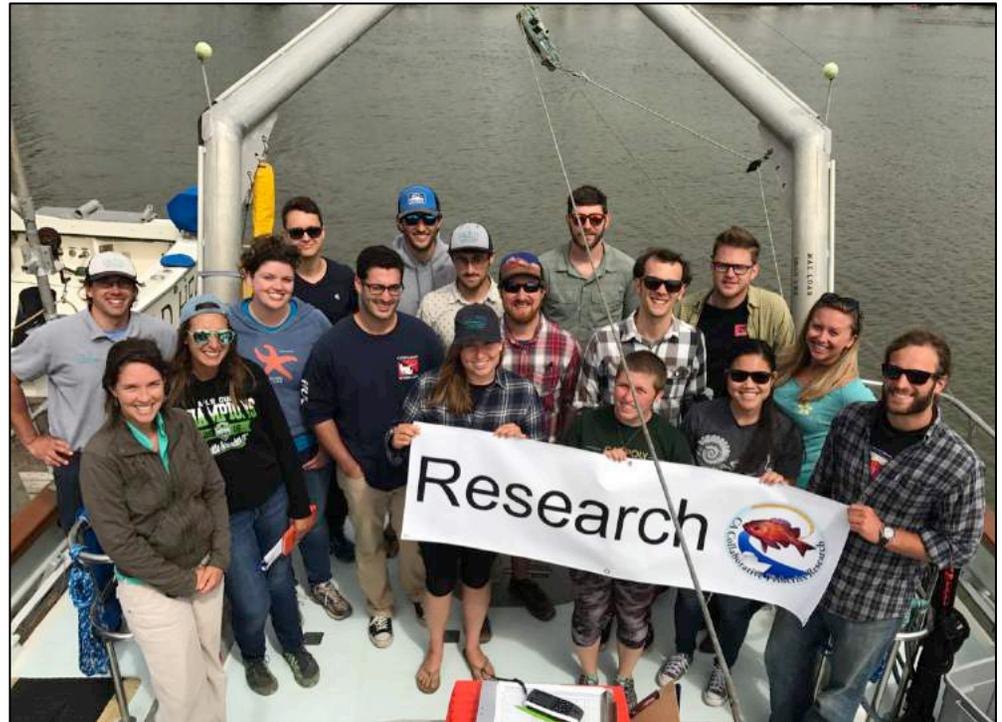
Outline

- Introductions
- Project background
- Statewide expansion
- MLML data summary (2007 – 2017)
- General trends in MPA performance
- 2018 CDFW regulations
- Tag recapture stories
- Updates from CCFRP staff



Introductions

1. Name
2. Affiliation (e.g., captain, deckhand, science crew, volunteer angler, agency staff, interested volunteer)
3. Number of years involved in the project
4. Where is your favorite place to fish?

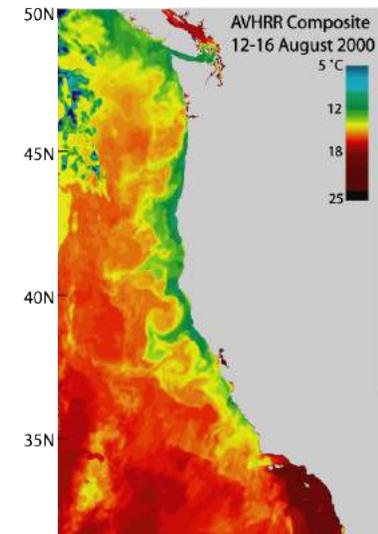
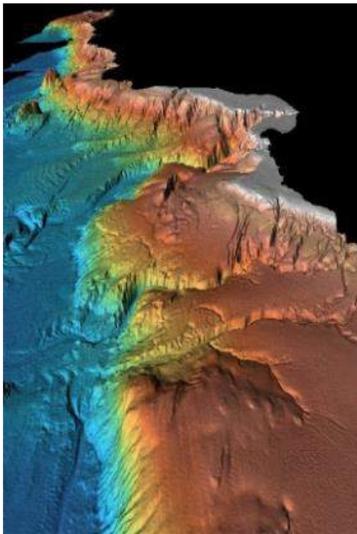




Raffle time!!!!

Marine Life Protection Act (MLPA)

- Passed in 1999
- Mandated the creation of a network of marine protected areas (MPAs) to protect diversity and ecosystem function





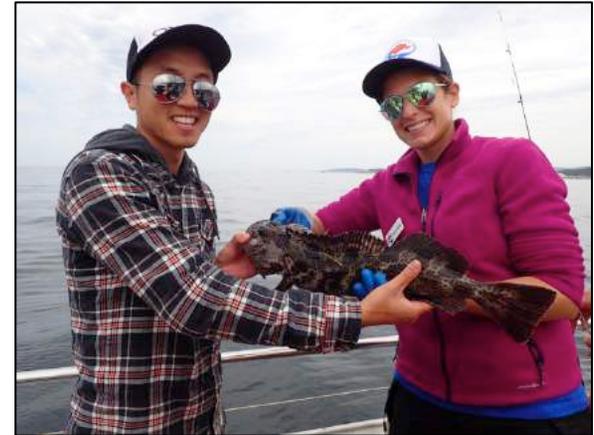
Why Evaluate MPAs?

1. It is a priority adopted by Central Coast regional stakeholders
2. It is required by MLPA (ensure MLPA goals are met)
3. Critical to enabling adaptive management



The Benefits of Collaboration

- Engage stakeholders in both science and management
- Utilize different areas of expertise to develop protocols and collect data
- Create a shared understanding of resources and facilitate communication among user groups
- Reduce costs associated with data collection
 - more information gathered for MPA monitoring and fisheries management



California Collaborative Fisheries Research Program (CCFRP)

- fishery-independent (catch-and-release) study that combines the expertise and ideas of:

- the fishing community
- academic scientists
- resource managers



Rick Starr



Dean Wendt

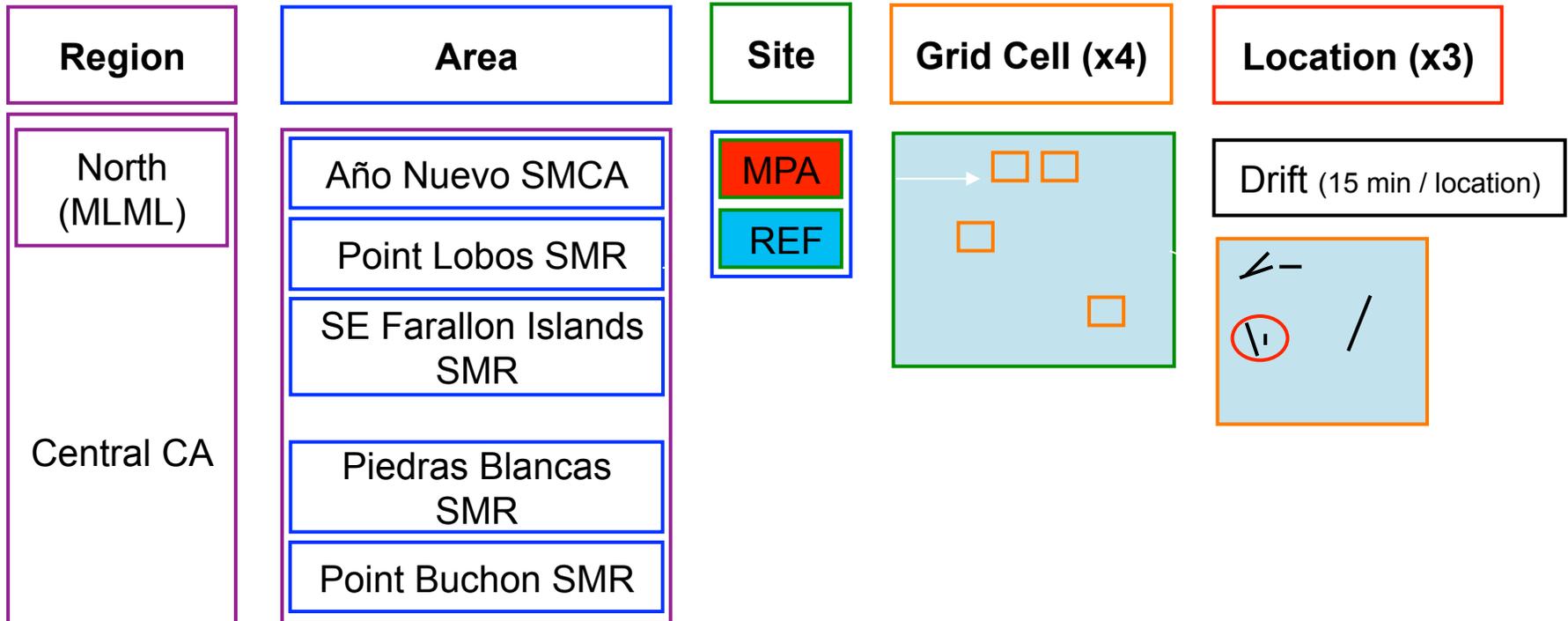
- conducts scientifically rigorous data collection and analyses for MPA monitoring and fisheries management





Raffle time!!!!

Sampling Design



Data collection during fishing

California Collaborative Fisheries Research Program (Hook-and-Line) Year: 2012 Page: 8 of 14

Location: Monterey Vessel: Caroline Date: 8/9/12 Area: Pt. Lobos Site (circle one) (MP) / REF Grid #: 9 Drift #: 1

Start Time: 10:27:58 End Time: 10:42:58 Start/End Depth: 79 / 115 ft Start Lat/Long: 36° 20.884' / 121° 57.371'

No. of Anglers: 9 Recorder: AL Tag Crew: CB, AT Sur. Water Temp (°F): 52.2 End Lat/Long: 36° 20.758' / 121° 57.219'

Cloud Cover: 3 Relief: 3 No. Seals/Sea Lions: 0 / 1 Wind Speed/Direction: 5-10 NW Swell Height/Direction: 3-5 Weights/Bars: 8 / 8 oz

Species	Stn #	Tag ID	TL (cm)	Sex	Cond.	Depth (ft)	Lat: 36°	Long: 121°	WP #	Comments
Gopher	2	---	25		1,5					
N. BIVE.	11	---	22		4,5					HD → eye
KEIP RF	7	---	30		0					dropped on deck
KEIP RF	2	29212	35		0		30.856	57.338	123	Fin clip
KEIP RF	2	29211	34		1		30.797	57.257	124	Fin clip
Ling	3	29226	74	F	0					
Gopher	12	29227	31		5					
Gopher	13	29394	30		5					
Gopher	13	29228	29		5					
VERM	11	29229	36		5					damage to the eye
Ling	8	29230	56	M	0		30.747	57.207	125	

Notes: kelp, percaids, lots of cut-tags / Angler #6 = RYD

DO NOT TAG if: < 24 cm; crystallized eye

Catch Data

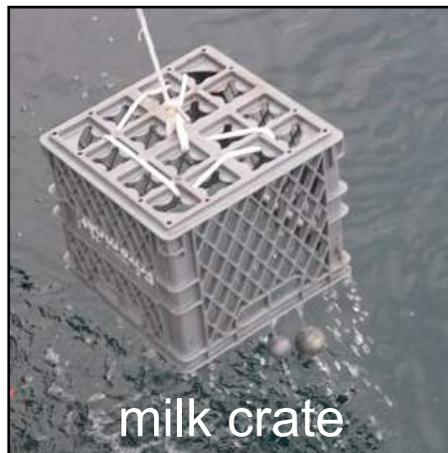
- angler number
- species
- total length (cm)
- fish condition
- tag number
- start/stop times
- GPS coordinates

Rockfish are diverse & long-lived!

- ~70 northeast Pacific species
 - 100+ world-wide
- max depth: 2,830 m (9,285 ft)
- Yelloweye Rockfish can live to 120 years;
Shortraker Rockfish at least 157 years



Maximizing Survivorship

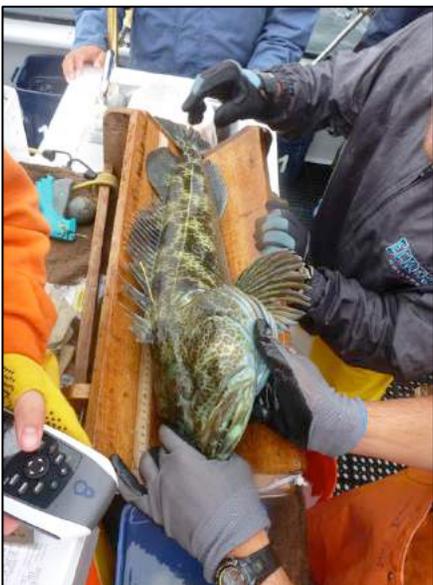


- sample \leq 120 feet
- fish without barbed hooks
- use careful handling techniques
- keep surface time \leq 5 min
- descend fishes, when necessary
- regularly replace seawater
- only tag fishes in good condition

CCFRP Summary (2007 to 2016)

MLML and Cal Poly

- ☑ 12 CPFVs, 20 skippers, 4 harbors
- ☑ 325 sampling days at sea
- ☑ 901 volunteer anglers
- ☑ 11,700 hours of fishing
- ☑ 82,457 fishes (52 spp.)
- ☑ 40,368 fishes tagged and released





Male CA Sheephead



CA Scorpionfish



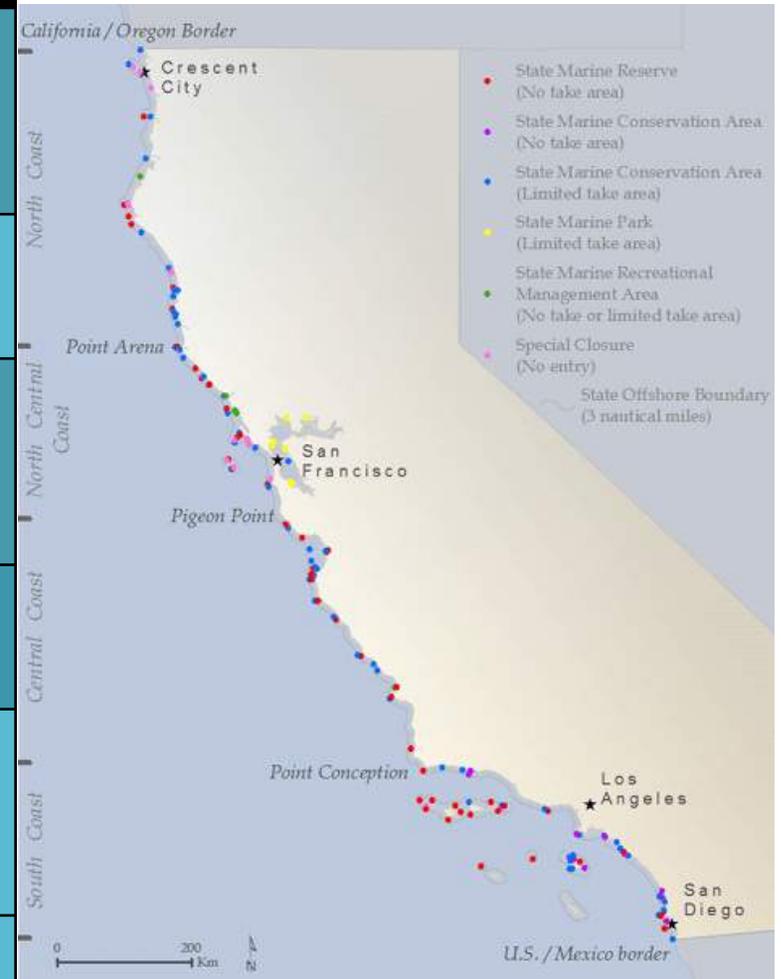
Scripps Crew



Kelp Bass

Statewide Expansion of CCFRP

Region	Institution	MPAs
North	Humboldt State	South Cape Mendocino SMR, Ten Mile SMR
North Central	Bodega Marine Labs	Stewarts Point SMR, Bodega Head SMR
Central	Moss Landing Marine Labs	SE Farallon Islands SMR, Año Nuevo SMR, Point Lobos SMR
	Cal Poly	Piedras Blancas SMCA, Point Buchon SMCA
South	UC Santa Barbara	Carrington Point SMR, Anacapa Island SMR & SMCA
	Scripps Institution of Oceanography	Crystal Cove SMCA, Swami's SMCA, South La Jolla SMCA



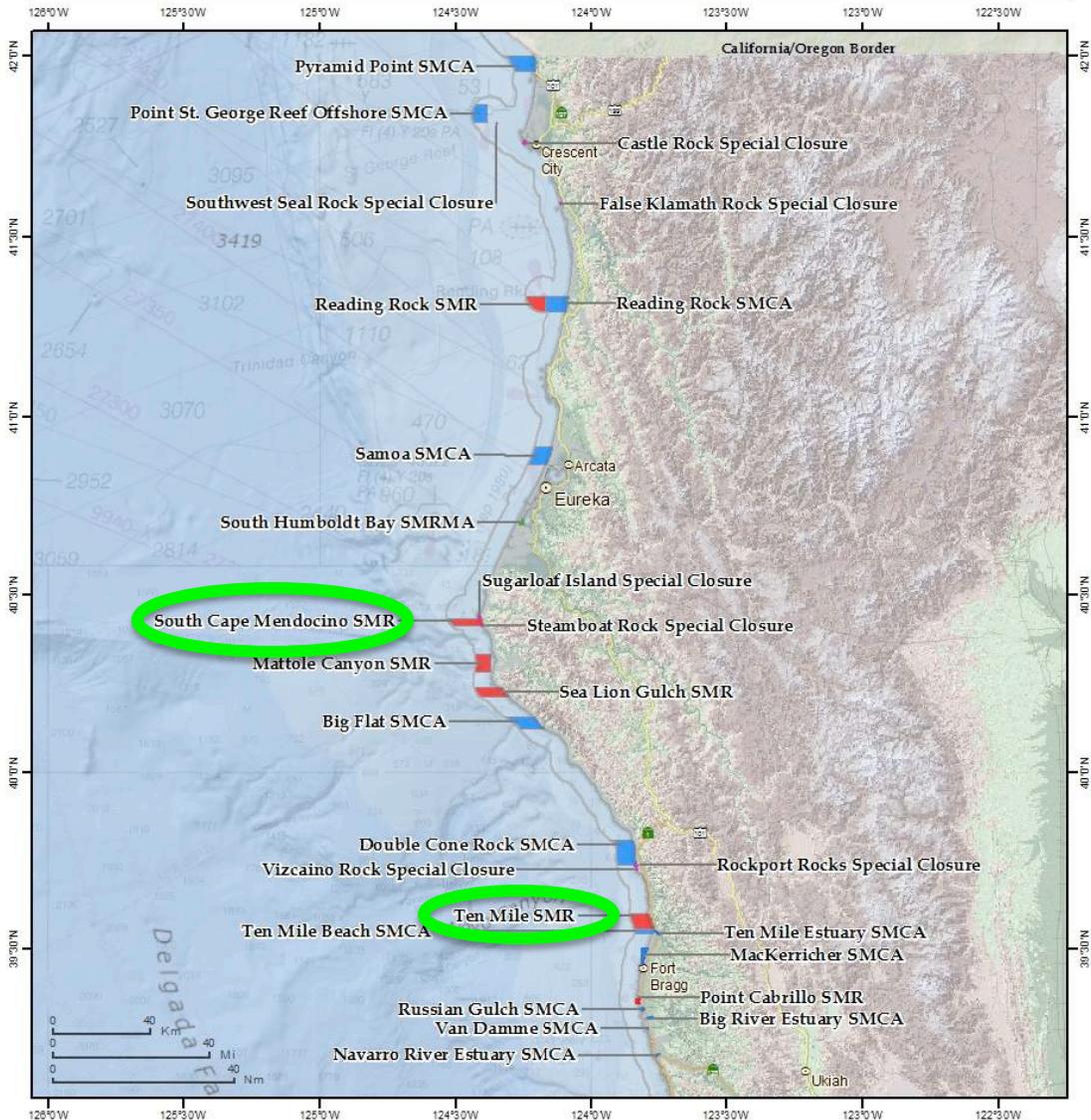
Statewide Expansion of CCFRP

Region	Institution	MPAs
North	Humboldt	South Cape Mendocino SMR T... MR
North Central	Bodega Marine Lab	
Central	UCLA	
South	UC Santa Barbara	San Marcos SMR & ...
	Scripps Institution of Oceanography	Crystal Cove SMCA, Swamp SMCA, South L...olla SMCA

6 Academic Institutions
12 Ports
14 MPAs
71 Sampling Trips
25,080 Fishes Caught and Released
in the 2017 Season



California North Coast MPAs



THIS CHART DOES NOT REPLACE THE LEGAL DESCRIPTION FOUND IN TITLE 14, CALIFORNIA CODE OF REGULATIONS

<ul style="list-style-type: none"> ■ State Marine Reserve (SMR) ■ State Marine Conservation Area (SMCA) 	<ul style="list-style-type: none"> ■ State Marine Recreational Management Area (SMRMA) ■ Special Closure 	<ul style="list-style-type: none"> ■ Three Nautical Mile Maritime Limit (State Water Jurisdiction)
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1:2,100,000
 (@ print size 8.5" x 11")

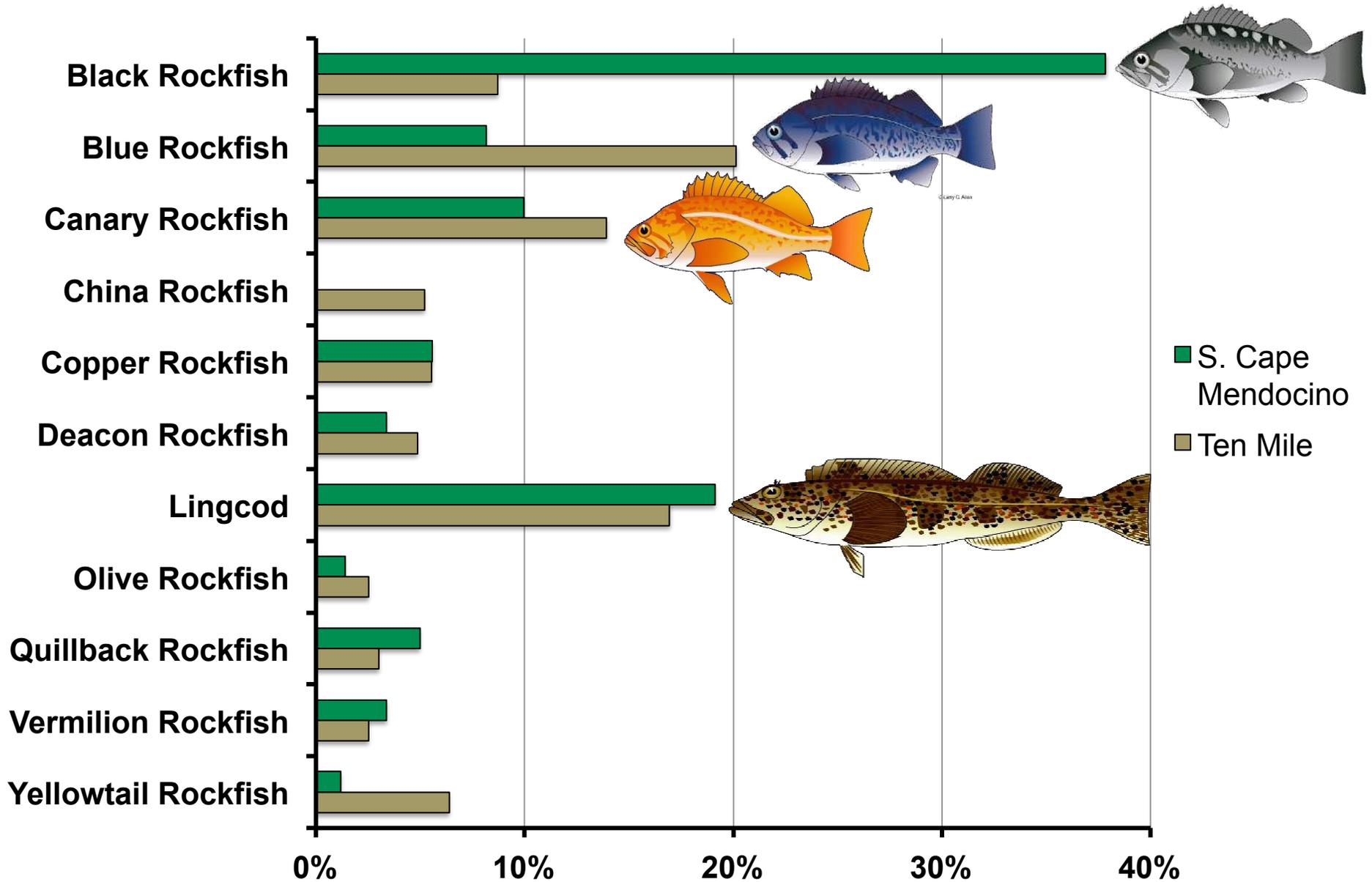
Humboldt State University

Area	Number of Trips	Total Fish Caught	Number of Species
South Cape Mendocino	6	499	15
Ten Mile	8	593	22
TOTALS:	14	1,092	24

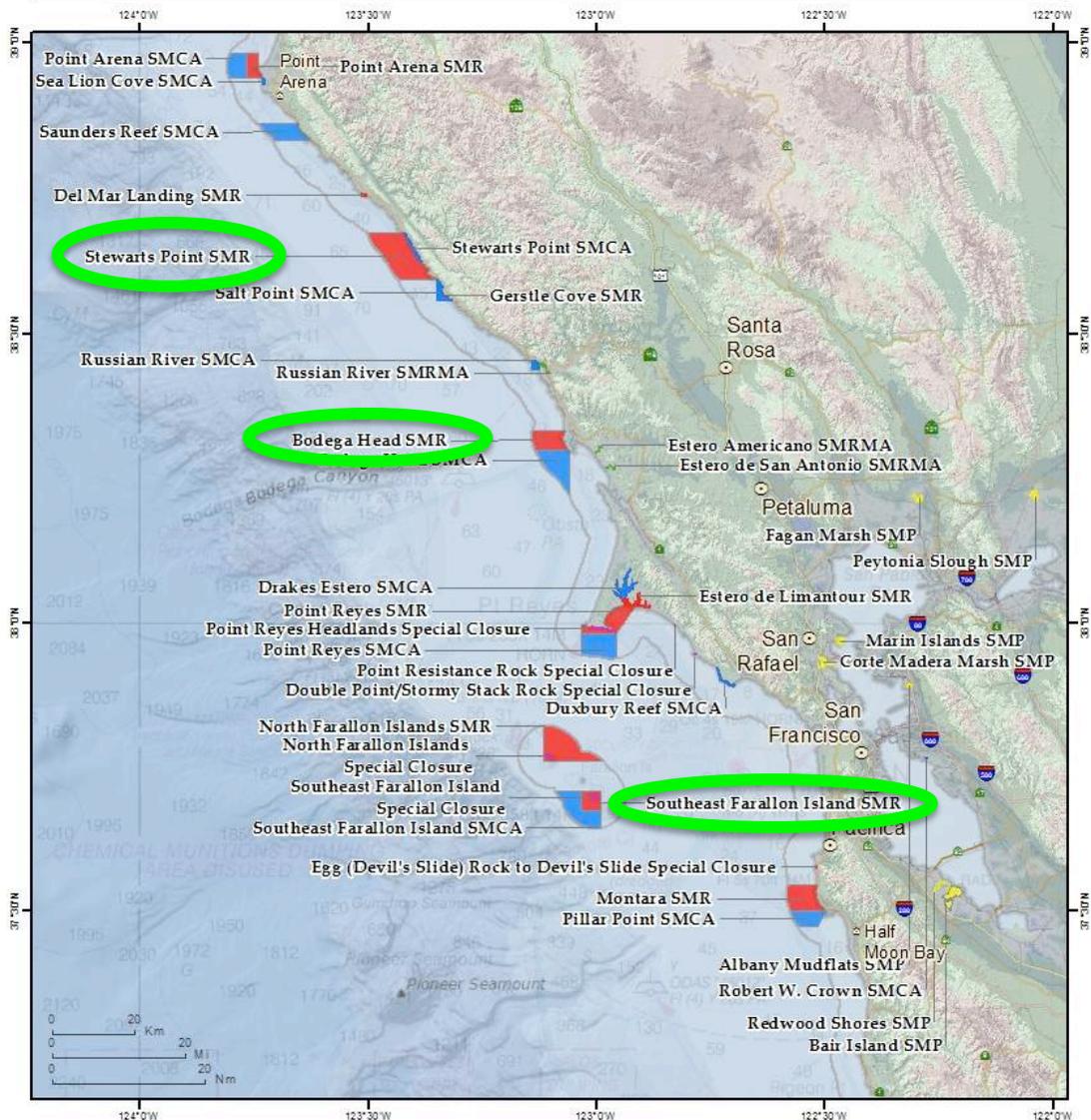
Total angler participation: 20

List of all 24 species caught: Black Rockfish, Blue Rockfish, Brown Rockfish, Cabezon, Canary Rockfish, China Rockfish, Copper Rockfish, Deacon Rockfish, Gopher Rockfish, Kelp Rockfish, Lingcod, Olive Rockfish, Pacific Sanddab, Petrale Sole, Quillback Rockfish, Rock Sole, Rosy Rockfish, Starry Rockfish, Topsmelt, Yelloweye Rockfish, Yellowtail Rockfish, Vermilion Rockfish, Unknown Flatfish

HSU / North Coast



California North Central Coast MPAs



THIS CHART DOES NOT REPLACE THE LEGAL DESCRIPTION FOUND IN TITLE 14, CALIFORNIA CODE OF REGULATIONS

State Marine Reserve (SMR)	State Marine Recreational Management Area (SMRMA)	Three Nautical Mile Maritime Limit (State Water Jurisdiction)
State Marine Conservation Area (SMCA)	State Marine Park (SMP)	
Special Closure		

Scale: 1:1,250,000 (@ print size 8.5" x 11")

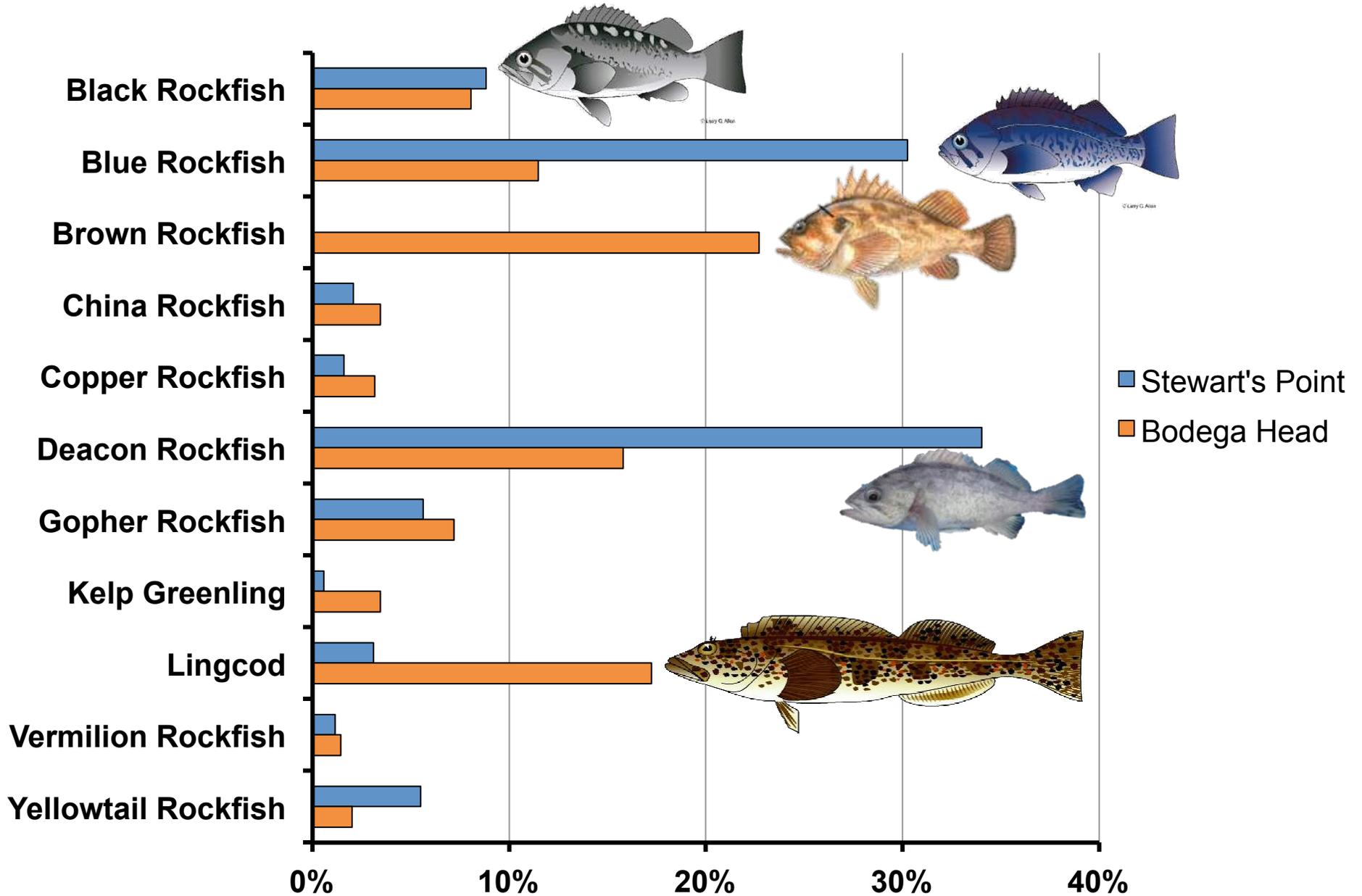
Bodega Marine Labs

Area	Number of Trips	Total Fish Caught	Number of Species
Stewarts Point	2	812	19
Bodega Head	3	435	17
TOTALS:	5	1,247	21

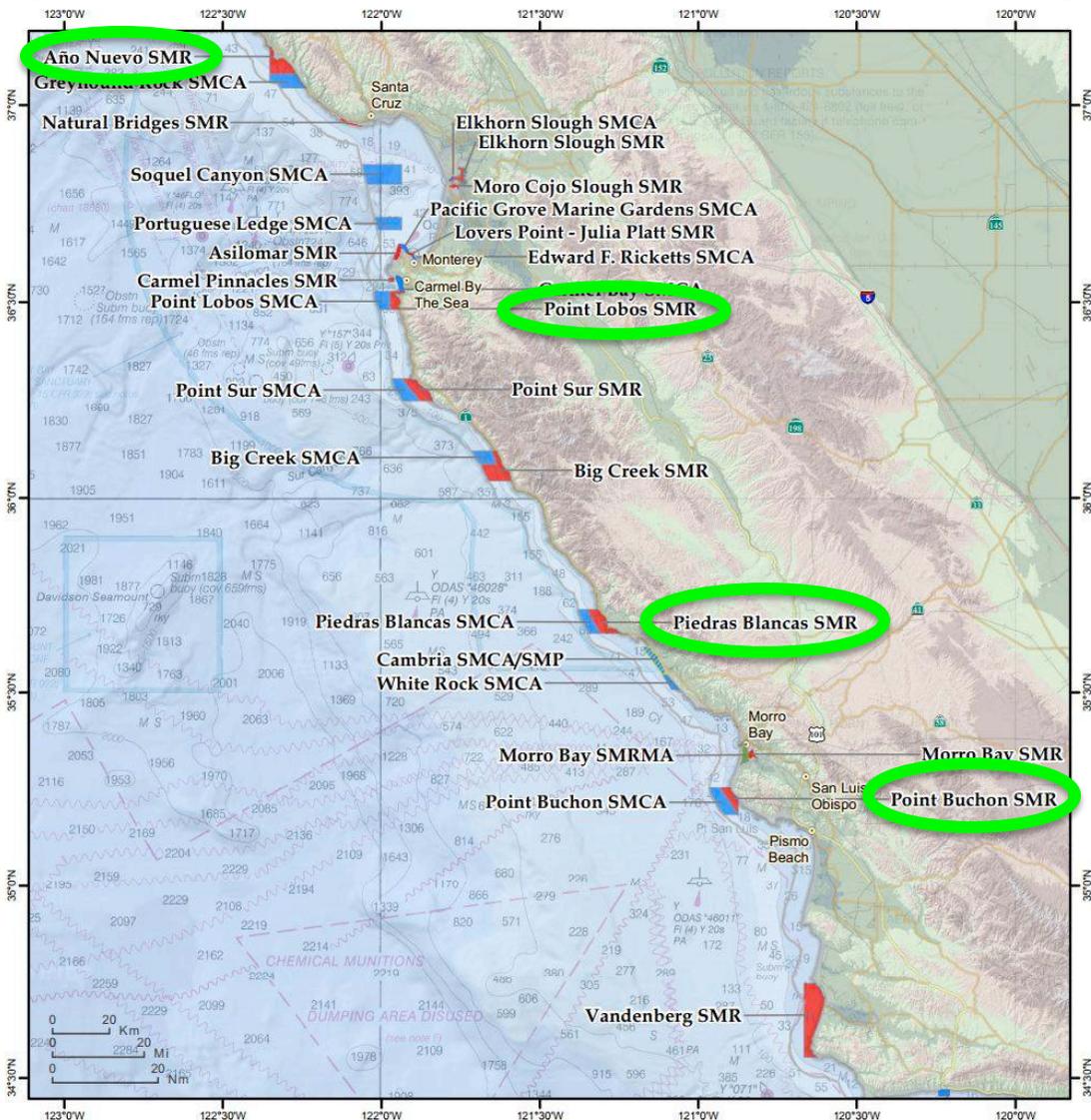
Total angler participation: 48

List of all 21 species caught: Black Rockfish, Black and Yellow Rockfish, Blue Rockfish, Brown Rockfish, Buffalo Sculpin, Canary Rockfish, China Rockfish, Copper Rockfish, Deacon Rockfish, Gopher Rockfish, Kelp Greenling, Lingcod, Olive Rockfish, Pacific Sanddab, Quillback Rockfish, Rosy Rockfish, Square spot, Tiger Rockfish, Vermilion Rockfish, Yelloweye Rockfish, Yellowtail Rockfish

BML / North Central Coast



California Central Coast MPAs



THIS CHART DOES NOT REPLACE THE LEGAL DESCRIPTION FOUND IN TITLE 14, CALIFORNIA CODE OF REGULATIONS

<ul style="list-style-type: none"> State Marine Reserve (SMR) State Marine Conservation Area (SMCA) 	<ul style="list-style-type: none"> State Marine Recreational Management Area (SMRMA) 	<ul style="list-style-type: none"> Three Nautical Mile Maritime Limit (State Water Jurisdiction)
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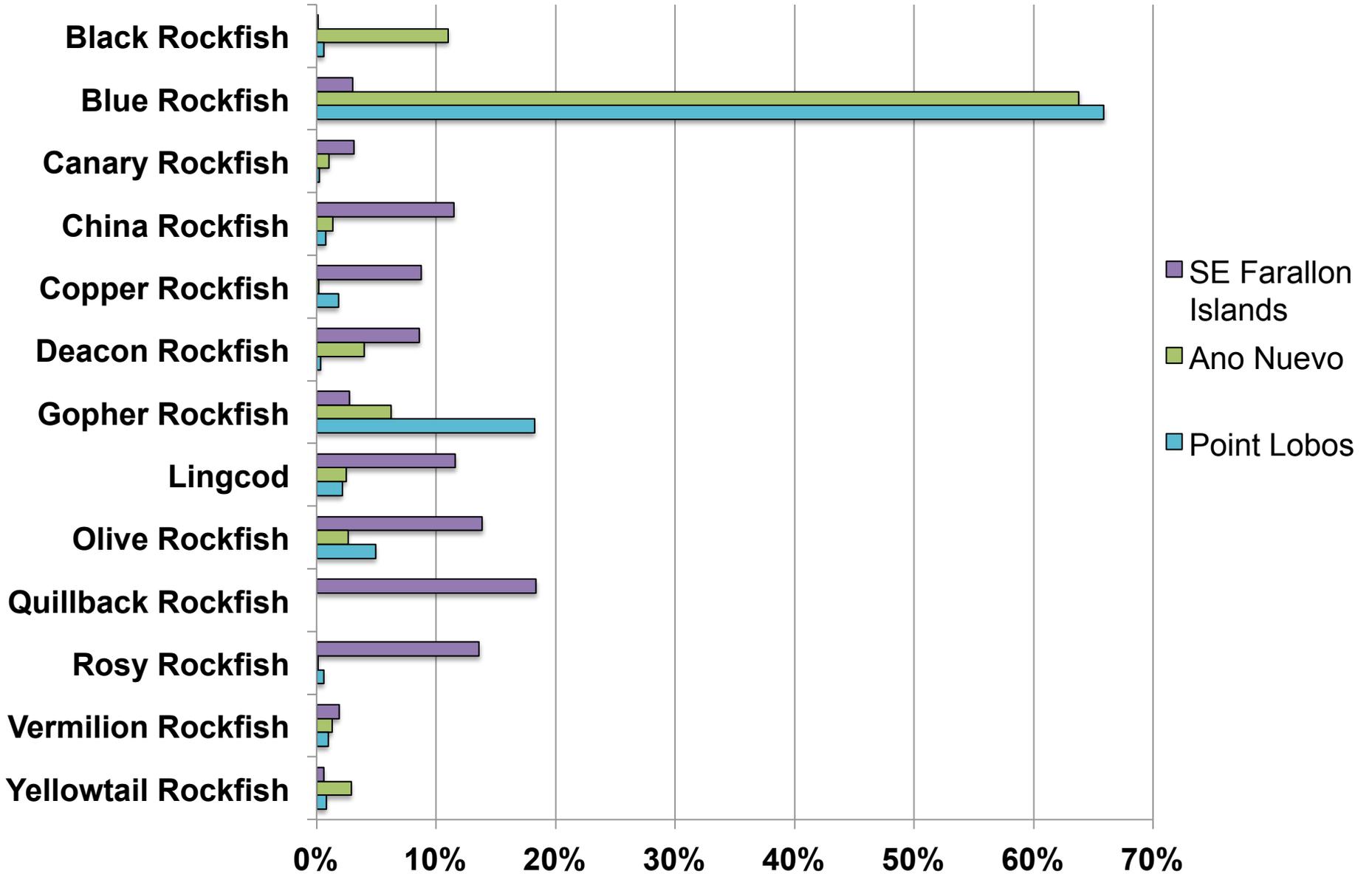
Moss Landing Marine Labs

Area	Number of Trips	Total Fish Caught	Number of Species
SE Farallon Islands	5	799	20
Año Nuevo	7	4,178	17
Point Lobos	6	3,800	19
TOTALS:	18	8,777	24

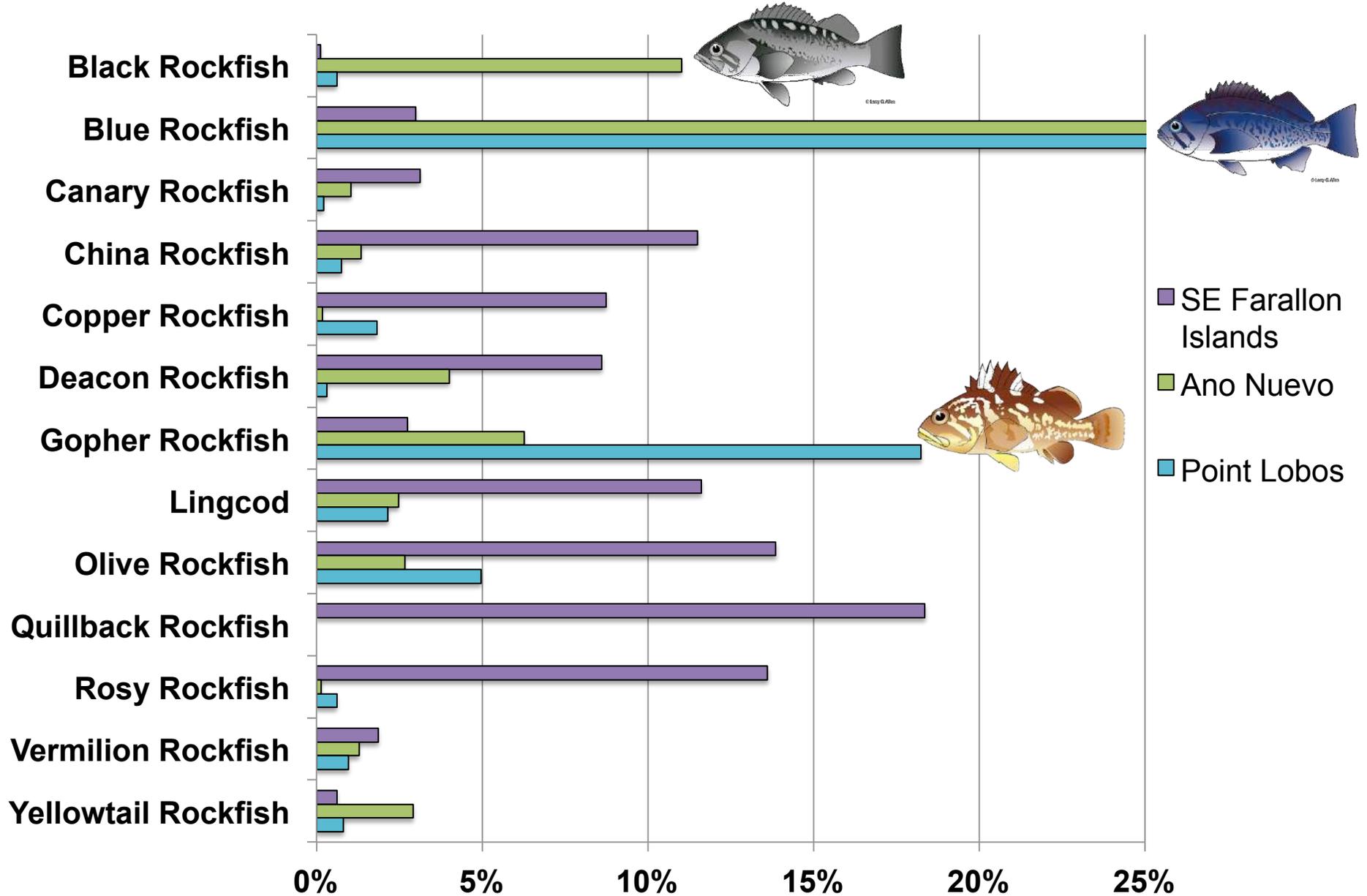
Total angler participation: 100 volunteers (35 new, 65 returning)

List of all 24 species caught: Black Rockfish, Black and Yellow Rockfish, Blue Rockfish, Bocaccio, Brown Rockfish, Cabezon, California Halibut, Canary Rockfish, China Rockfish, Copper Rockfish, Deacon Rockfish, Gopher Rockfish, Kelp Rockfish, Kelp Greenling, Lingcod, Olive Rockfish, Quillback Rockfish, Rosy Rockfish, Starry Rockfish, Treefish, Vermilion Rockfish, Wolf Eel, Yelloweye Rockfish, Yellowtail Rockfish

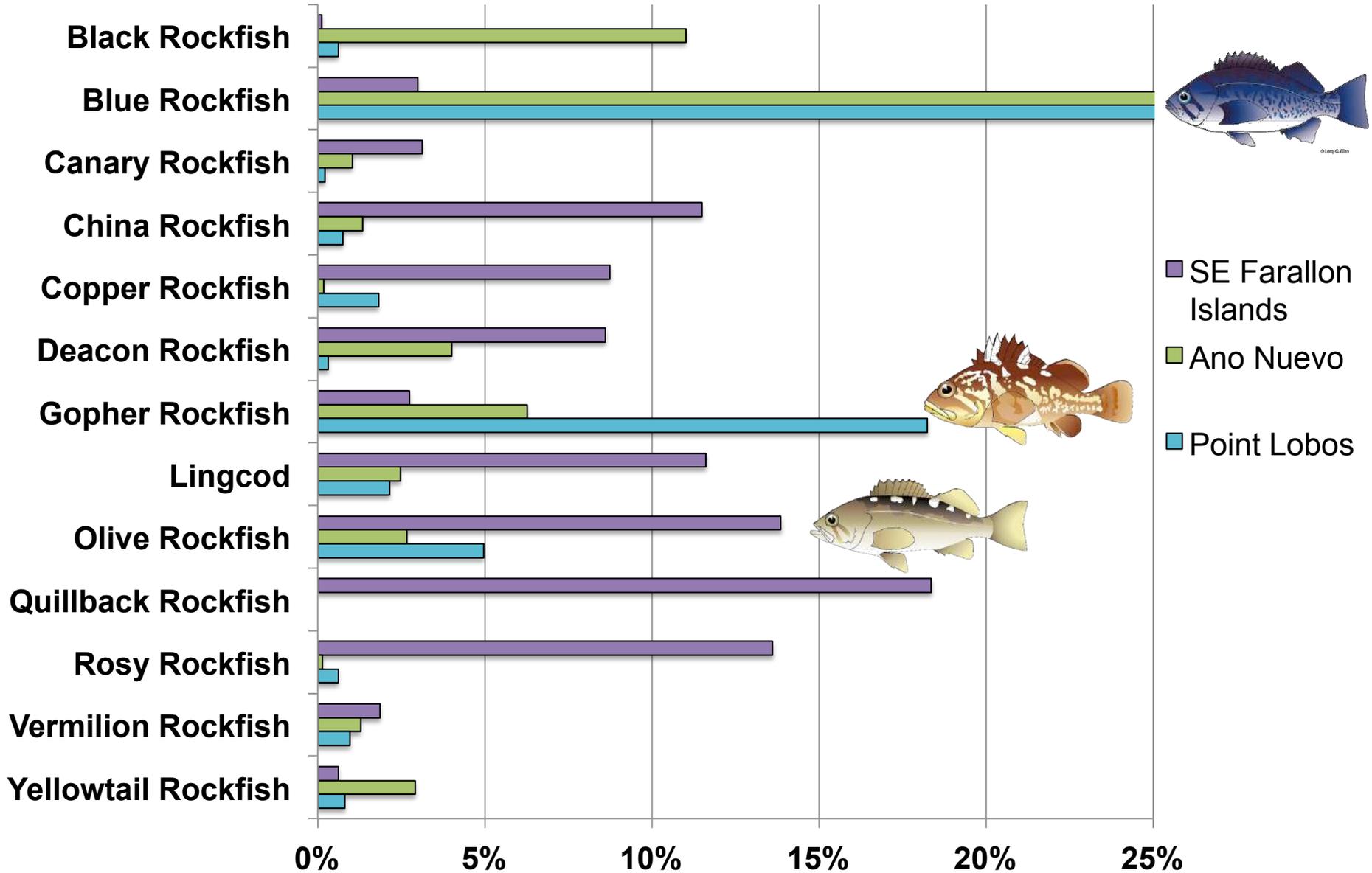
MLML / Central Coast



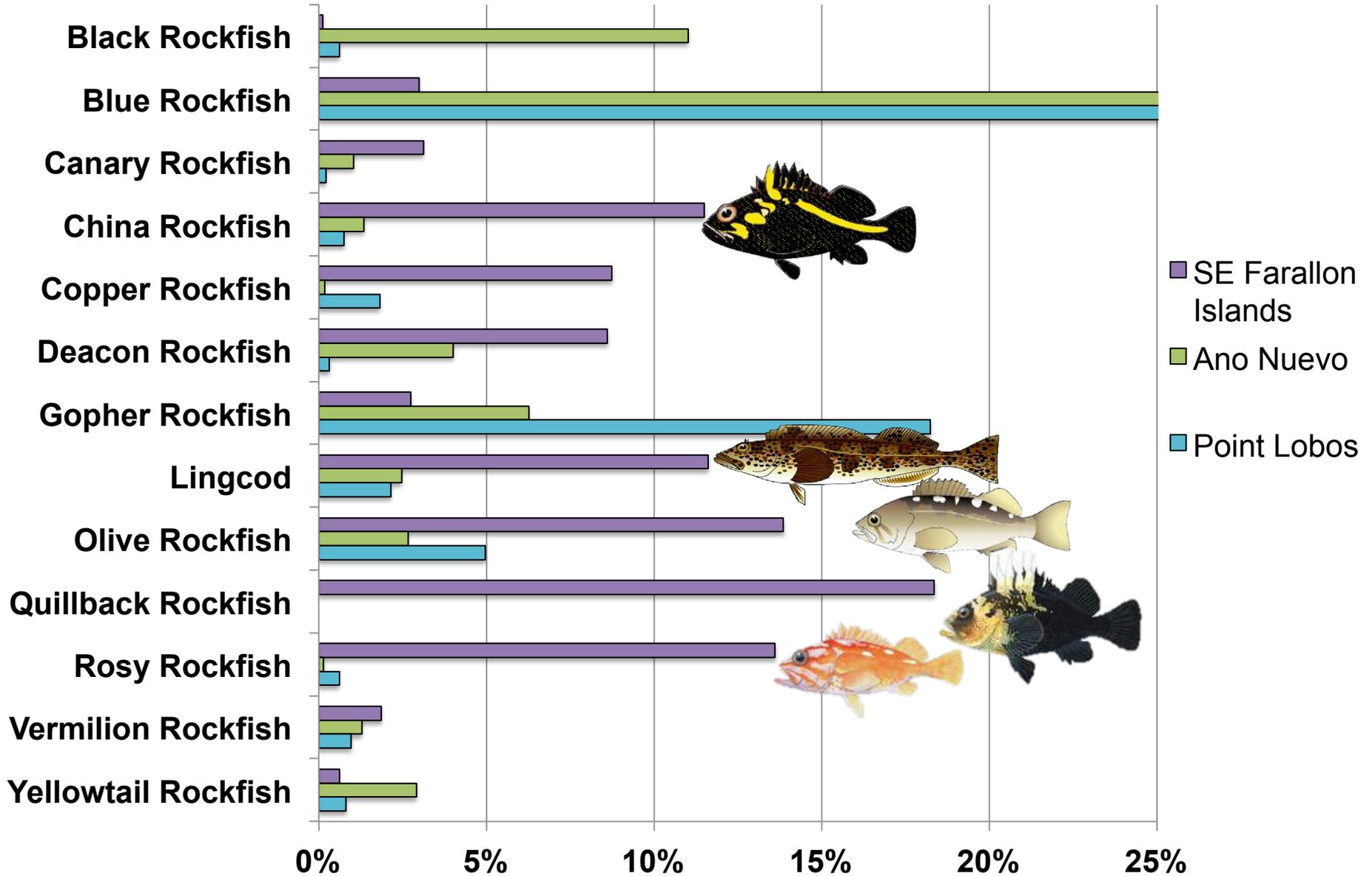
MLML / Central Coast



MLML / Central Coast



MLML / Central Coast



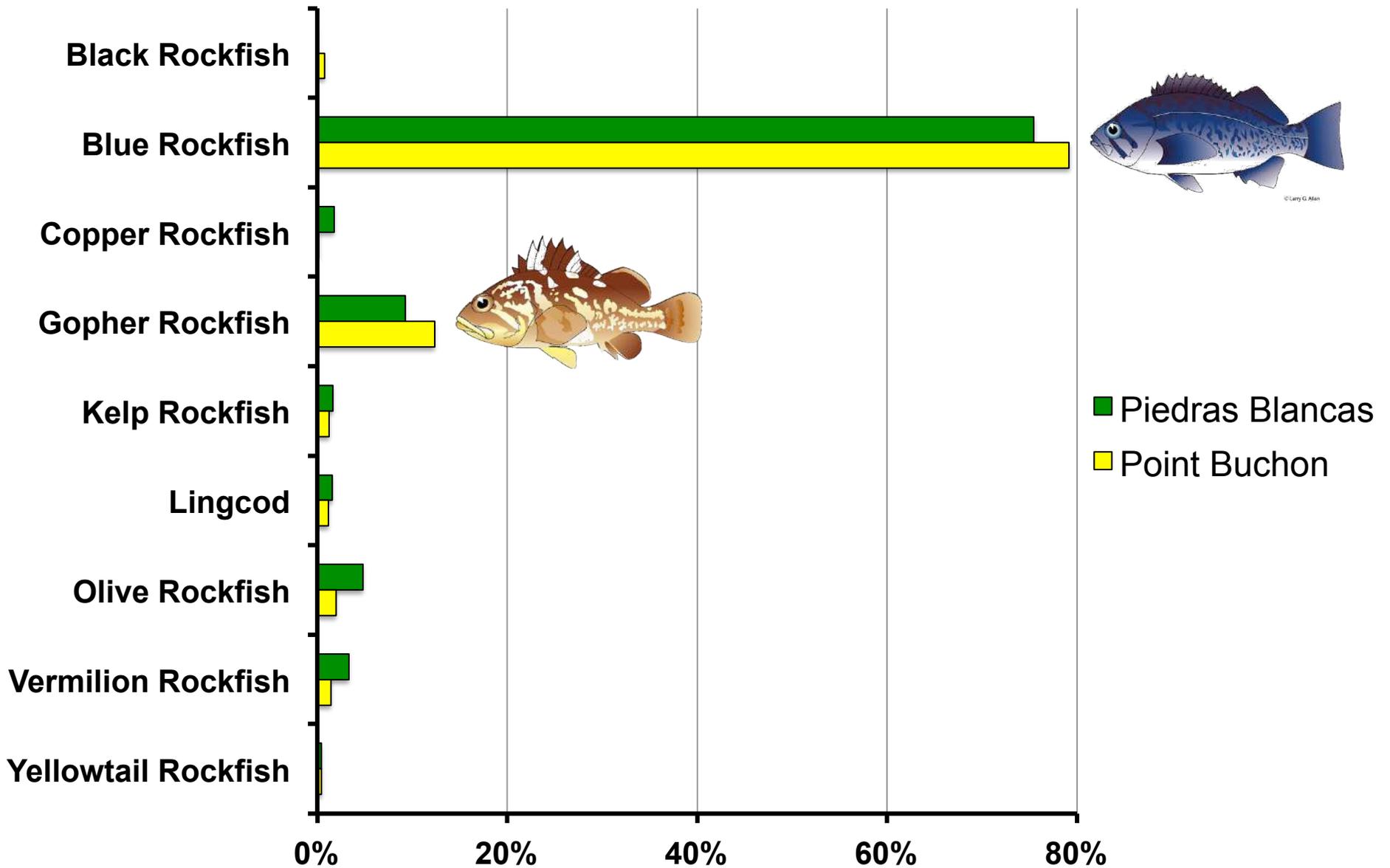
Cal Poly

Area	Number of Trips	Total Fish Caught	Number of Species
Piedras Blancas	8	4,741	26
Point Buchon	8	5,833	27
TOTALS:	16	10,574	32

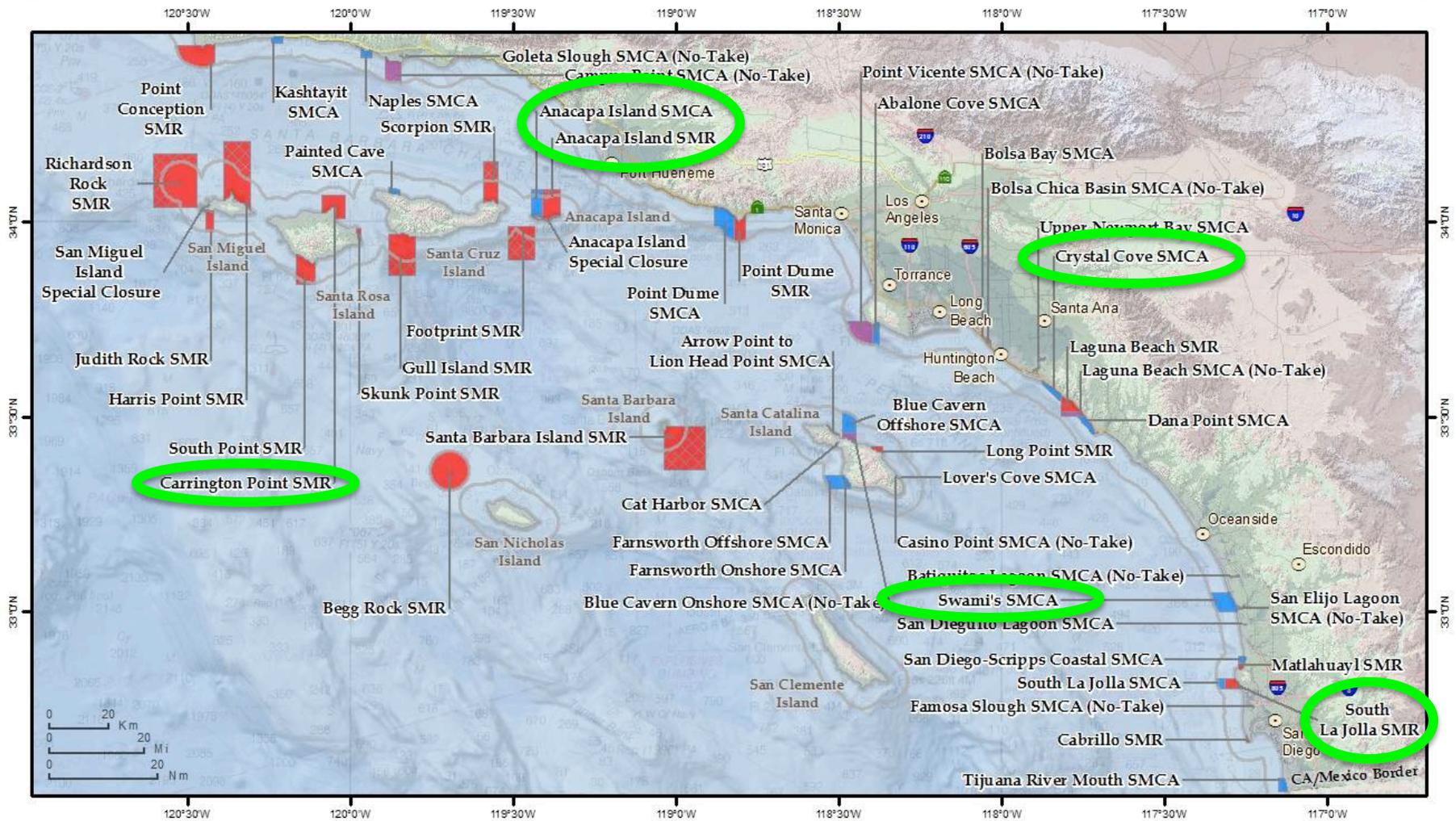
Total angler participation: 40-50

List of all 32 species caught: Black Rockfish, Black and Yellow Rockfish, Blue Rockfish, Boccacio, Brown Rockfish, Cabezon, Calico Rockfish, Canary Rockfish, Chillipepper Rockfish, China Rockfish, Copper Rockfish, Deacon Rockfish, Gopher Rockfish, Jack Mackerel, Kelp Greenling, Kelp Rockfish, Lingcod, Ocean Whitefish, Olive Rockfish, Pacific Mackerel, Pacific Sanddab, Painted Greenling, Petrale Sole, Rock Sole, Rosy Rockfish, Sheephead, Speckled Sanddab, Spiny Dogfish, Starry Rockfish, Treefish, Vermilion Rockfish, Yellowtail Rockfish

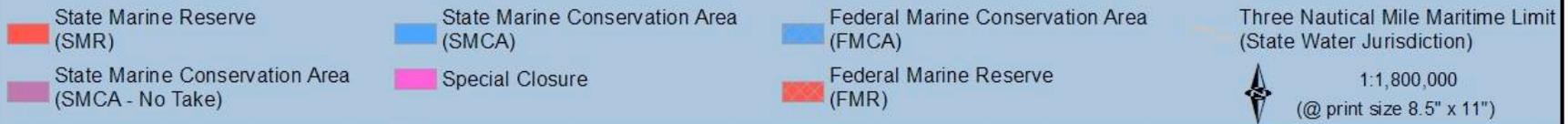
Cal Poly



California South Coast MPAs



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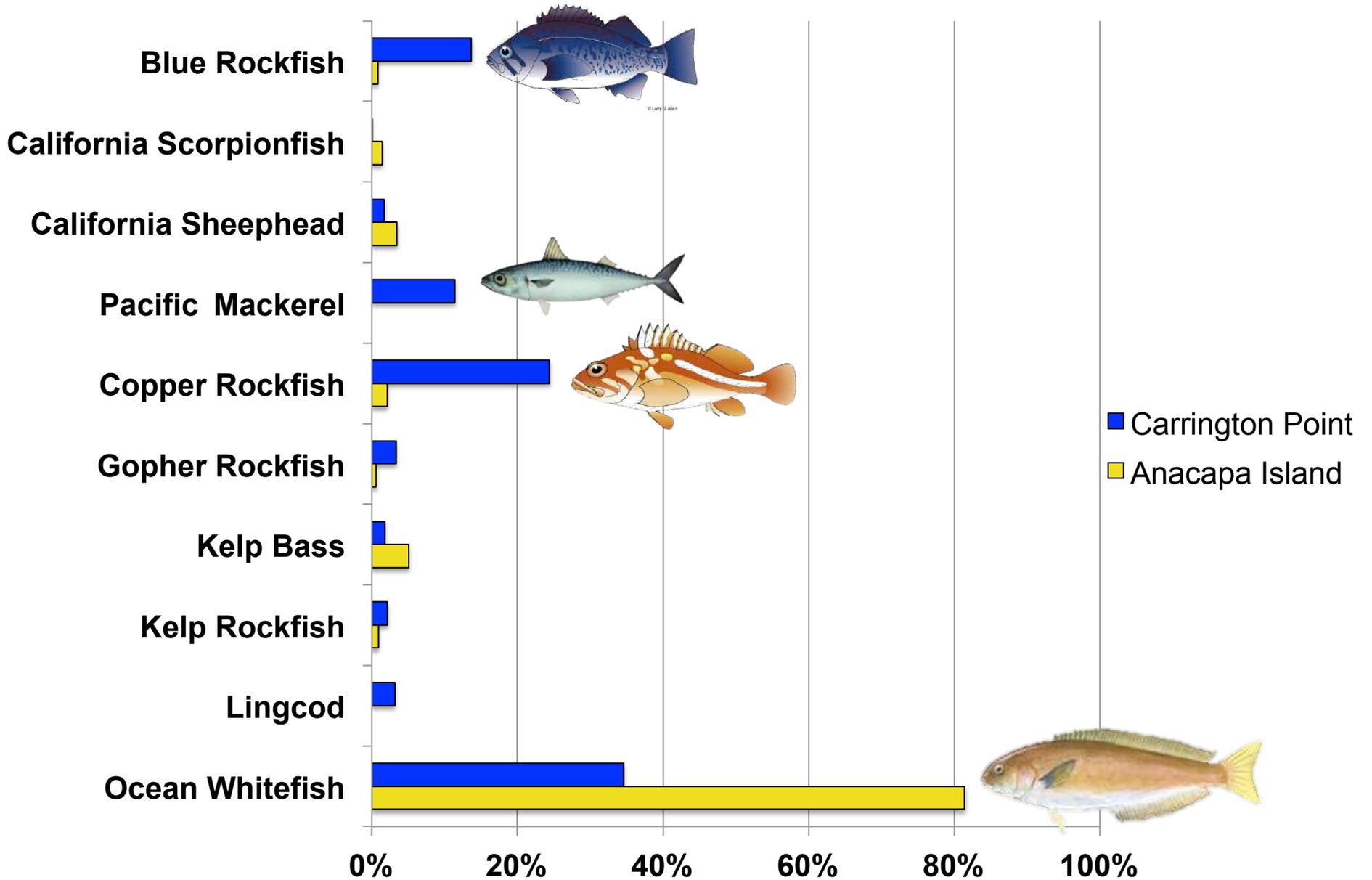
UC Santa Barbara

Area	Number of Trips	Total Fish Caught	Number of Species
Carrington Point (Santa Rosa)	3	1,209	21
Anacapa Island	3	984	20
TOTALS:	6	2,193	28

Total angler participation: 15 (plus 6 deckhand, 3 science crew)

List of all 28 species caught: Black and Yellow Rockfish, Blacksmith, Blue Rockfish, Brown Rockfish, Cabezon, California Scorpionfish, California Sheephead, Chub Mackerel, Copper Rockfish, Gopher Rockfish, Halfmoon, Jack Mackerel, Kelp Bass, Kelp Rockfish, Lingcod, Ocean Whitefish, Olive Rockfish, Opaleye, Pacific Sanddab, Rosy Rockfish, Rubberlip Surfperch, Sarcastic Fringehead, Sharpnose Surfperch, Squarespot Rockfish, Starry Rockfish, Treefish, Vermilion Rockfish, Yellowtail Rockfish

UCSB / South Coast



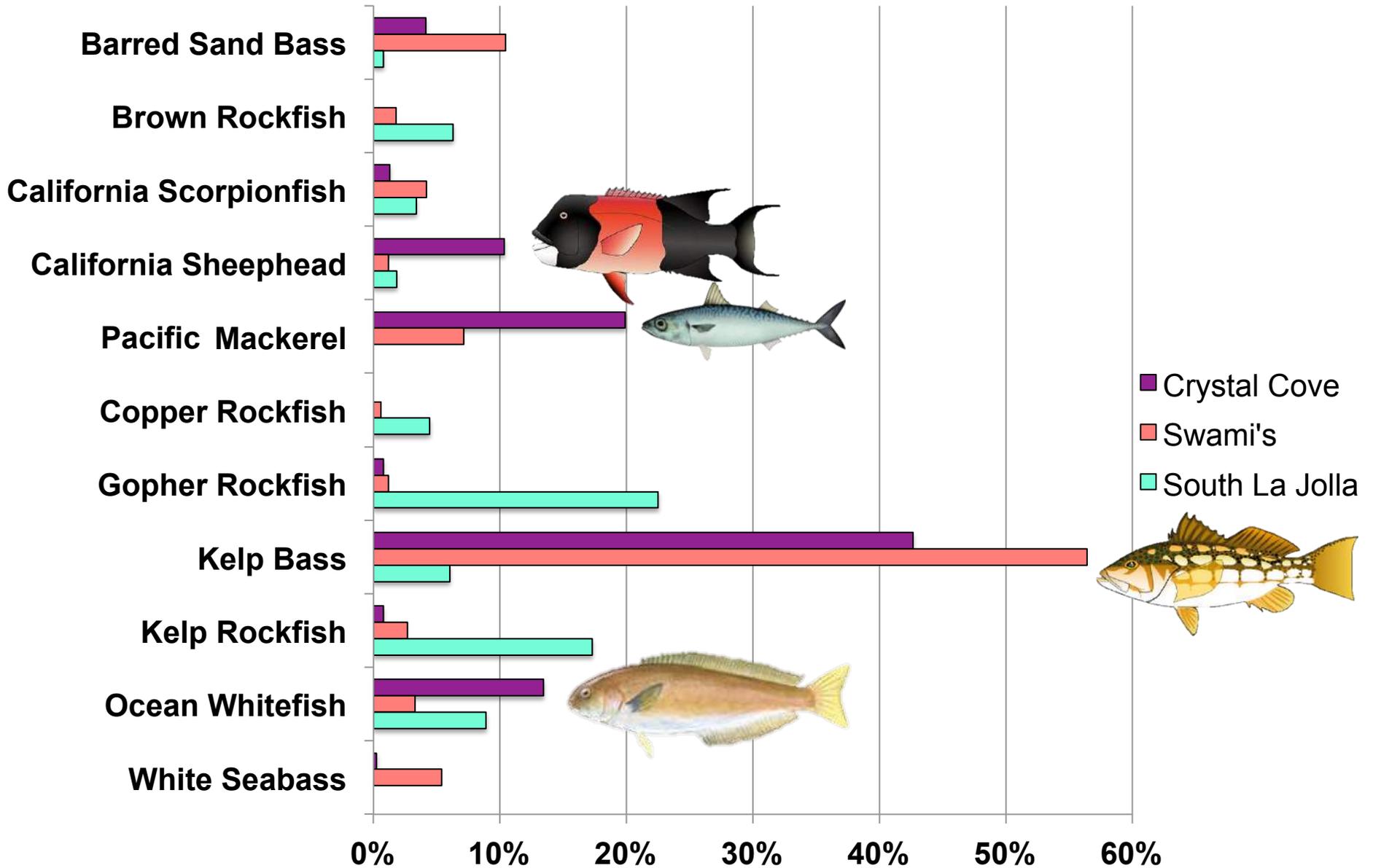
Scripps

Area	Number of Trips	Total Fish Caught	Number of Species
South La Jolla	4	379	23
Swami's	4	538	20
Crystal Cove	3	280	16
TOTALS:	11	1,197	33

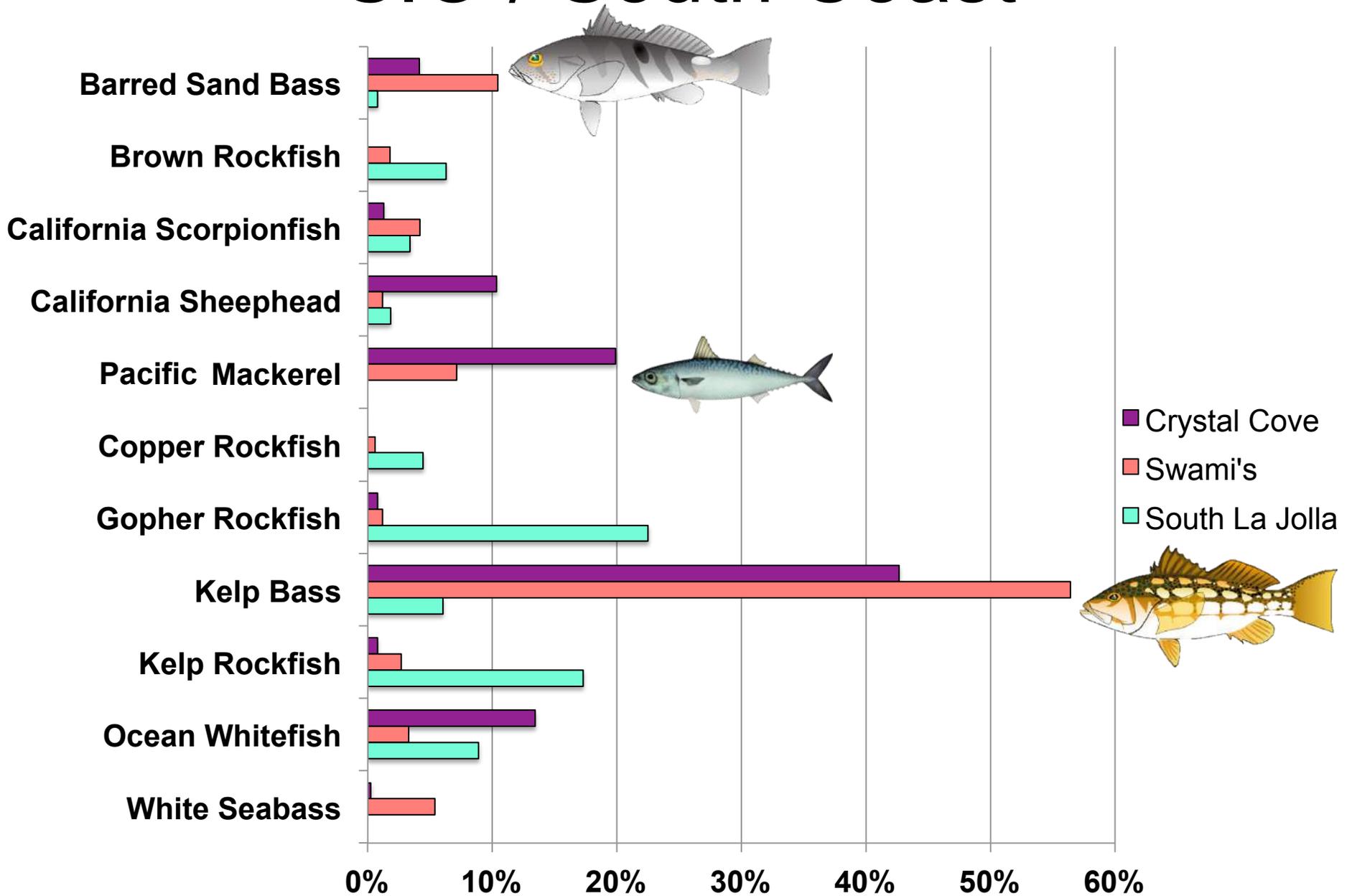
Total angler participation: 93

List of all 33 species caught: Barred Sand Bass, Black and Yellow Rockfish, Blacksmith, Blue Rockfish, Brown Rockfish, CA Halibut, CA Lizardfish, CA Scorpionfish, CA Sheephead, Calico Rockfish, Copper Rockfish, Fantail Sole, Gopher Rockfish, Halfmoon, Honeycomb Rockfish, Jack Mackerel, Kelp Bass, Kelp Rockfish, Lingcod, Ocean Whitefish, Olive Rockfish, Pacific Mackerel, Pacific Barracuda, Pacific Bonito, Pacific Sanddab, Rosy Rockfish, Salema, Señorita, Starry Rockfish, Topsmelt, Treefish, Vermilion Rockfish, White Seabass, Yellowtail Rockfish

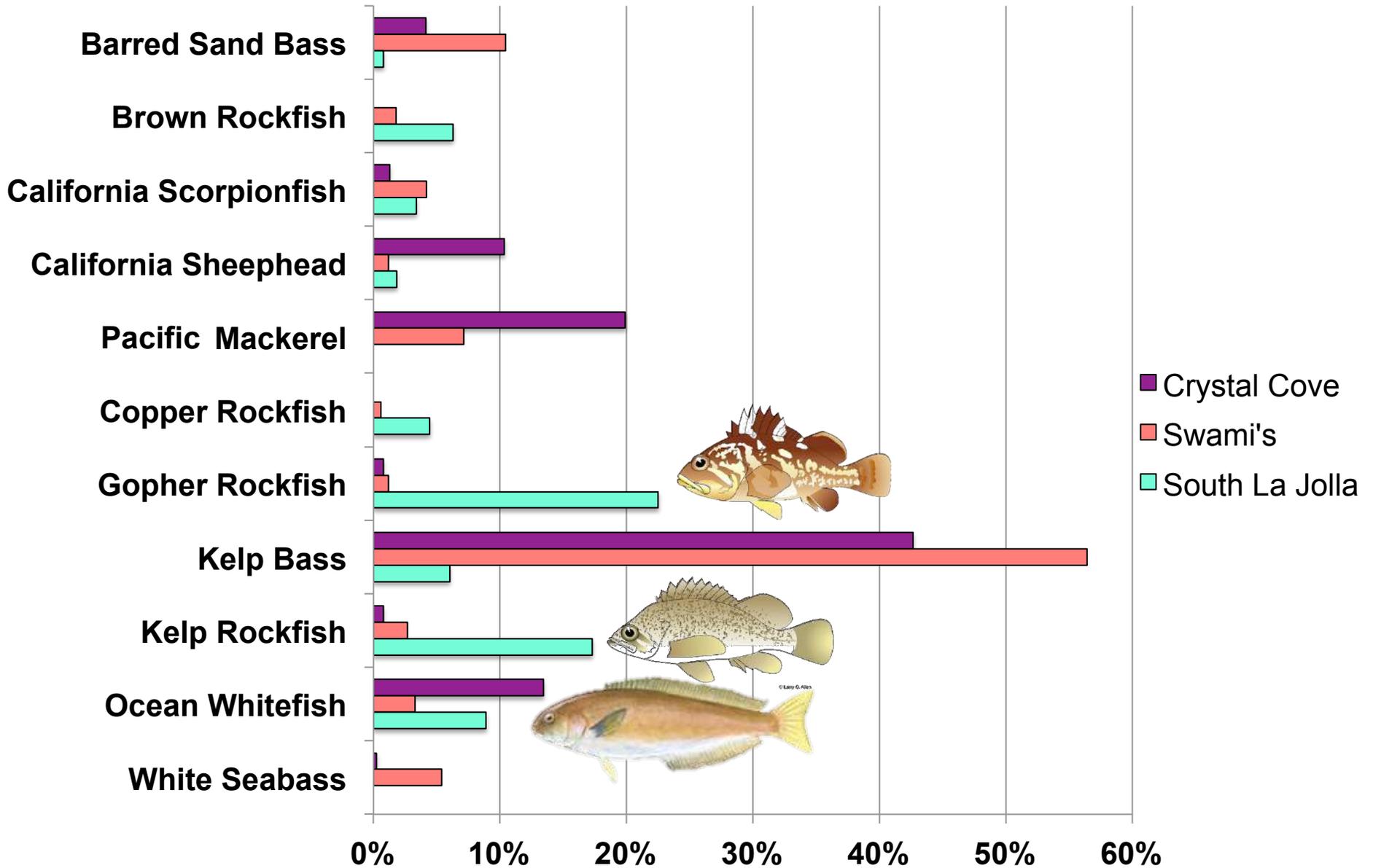
SIO / South Coast



SIO / South Coast



SIO / South Coast





Bodega Marine Lab Crew



Quillback Rockfish



Treefish



Salema

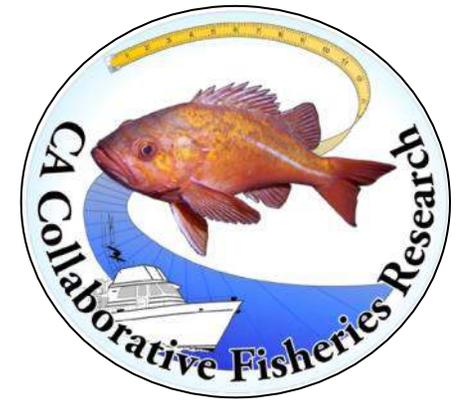


Raffle time!!!!

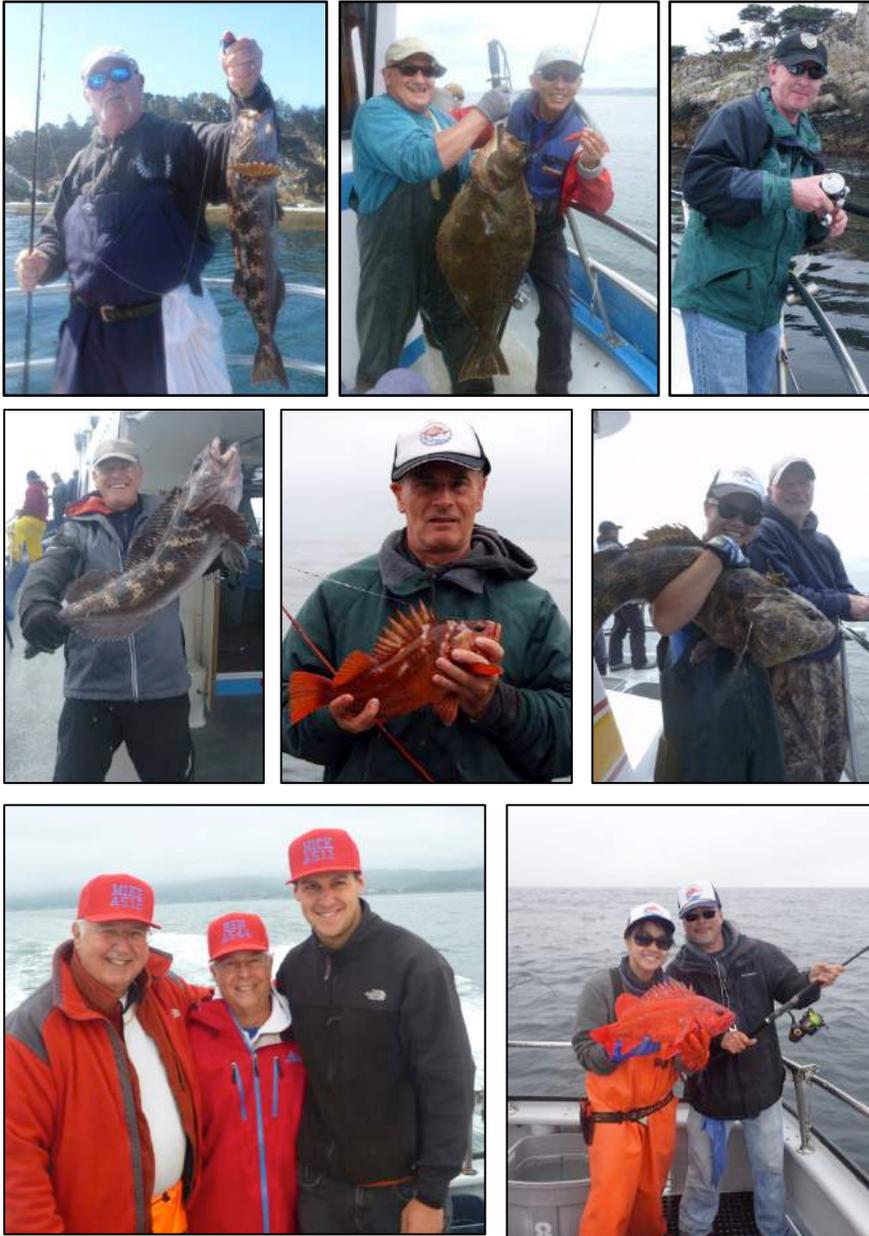
- CCFRP catch and release video

MLML CCFRP Summary (2007 to 2017)

- ☑ 8 CPFVs, 12 skippers, 3 harbors
- ☑ 186 sampling days at sea
- ☑ 556 volunteer anglers
- ☑ 5,465 hours of fishing
- ☑ 58,043 fishes (51 spp.)
- ☑ 20,172 fishes tagged and released



Total Number of Caught Fishes (1000+)



Rank	First Name	Last Initial	Total # of Caught Fishes
1	Darrell	B	2955
2	David	K	2280
3	Nick	I	1961
4	Ken	Y	1649
5	Lester	Y	1593
6	Mike	I	1428
7	Matt	M	1338
8	Ben	R	1283
9	Ed	M	1079
10	Bob	S	1050



Top 10: Average No. Fishes Caught per Trip

(3 trips min)

Rank	First Name	Last Initial	Average # of fishes/trip
1	Carol	J	83
2	Andrew	T	80
3	Bill	S	78.8
4	Ryan	B	73
5	Josh	A	70.4
6	Ron	S	66.3
7	Manuel	P	65
8	Chris	A	64.6
9	Pius	M	55
10	Richard	K	54.8



REF

Fish per Trip by REF/MPA

MPA

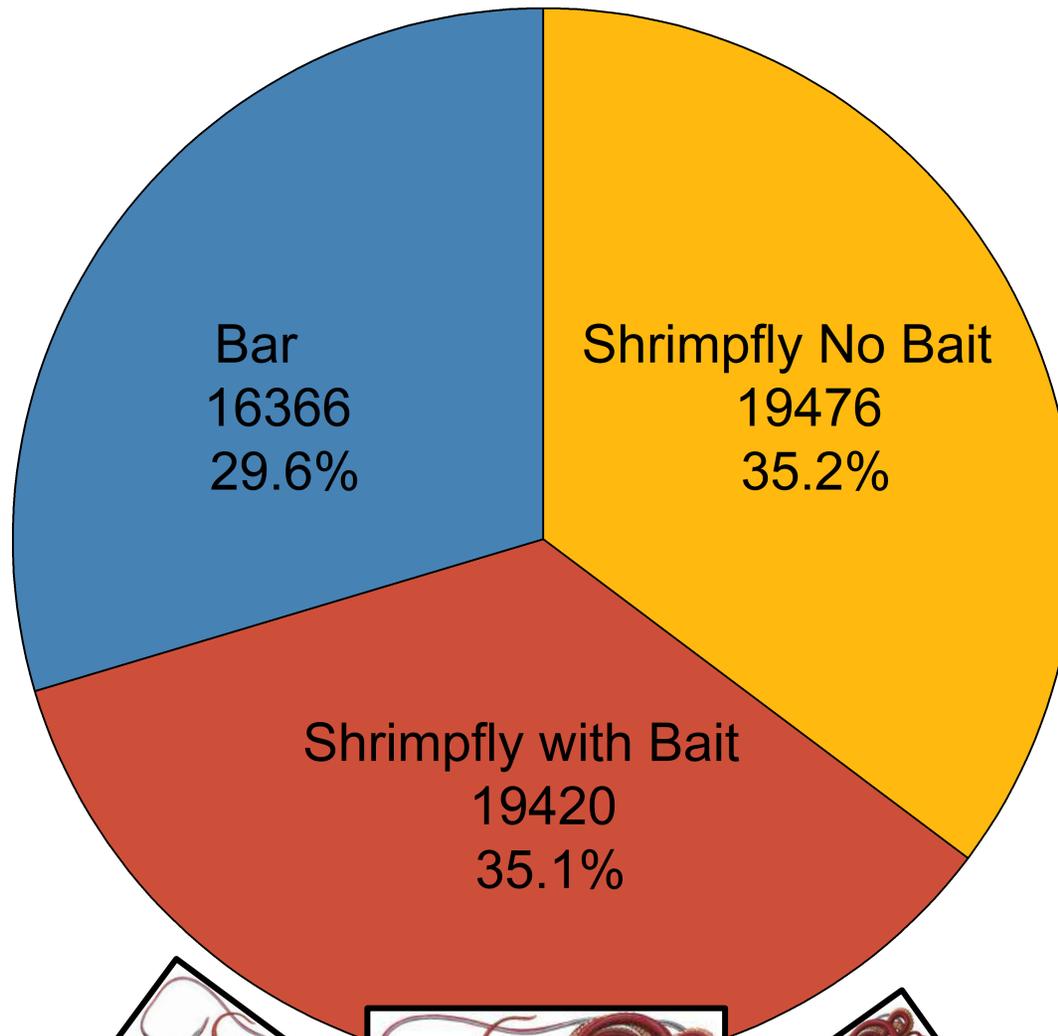
(3 trips min)

Rank	First Name	Last Initial	Average # of fishes/trip
1	Bill	S	68.2
2	Chris	A	65.6
3	Manny	P	59.3
4	Richard	K	54.8
5	Michael	N	51.3
6	Kris	H	49
7	Juan	LP	46.5
8	Andy	Y	45
9	Dayton	L	44.4
10	Danny	A	44

Rank	First Name	Last Initial	Average # of fishes/trip
1	Josh	Am	103.6
2	Bill	S	73.6
3	Manny	L	55.5
4	Manny	P	51
5	Eddie	G	51
6	Nick	I	48.9
7	Ben	R	47.4
8	Darrell	B	46.5
9	Ben	E	46
10	Ben	S	46

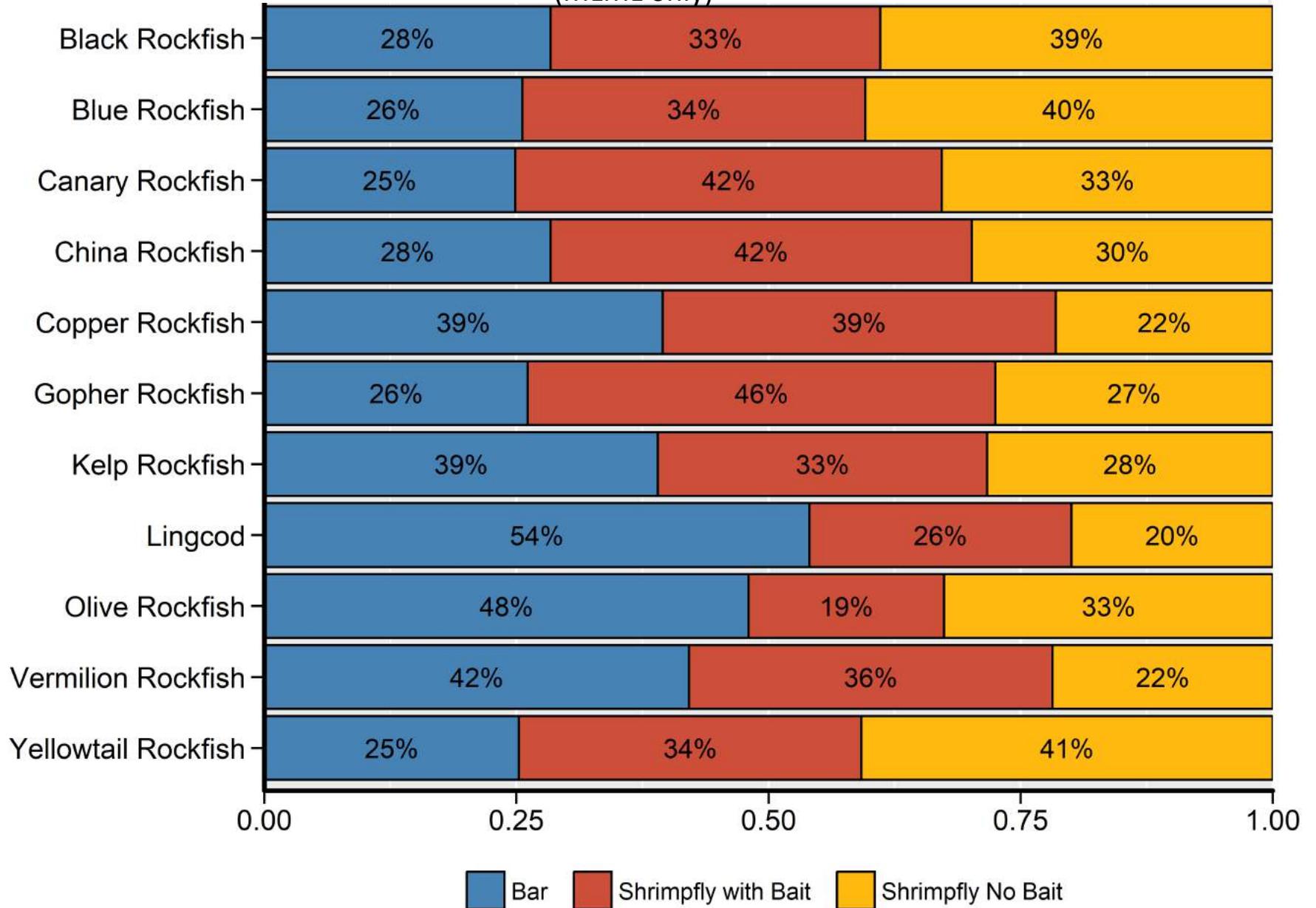
How many fish caught by gear type?

(All species combined: MLML only)



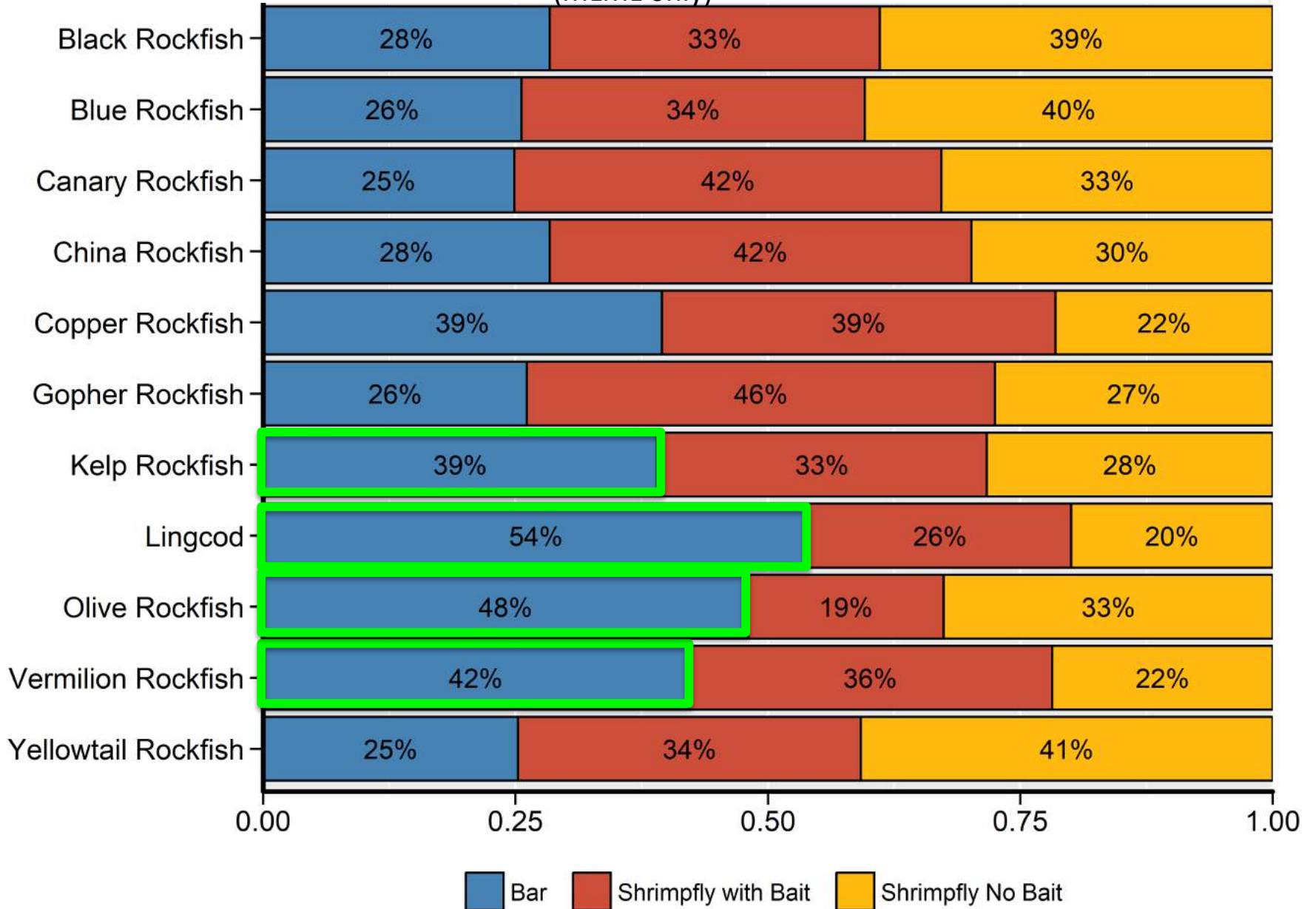
Species Catch by Gear Type: 2007-2017

(MLML only)

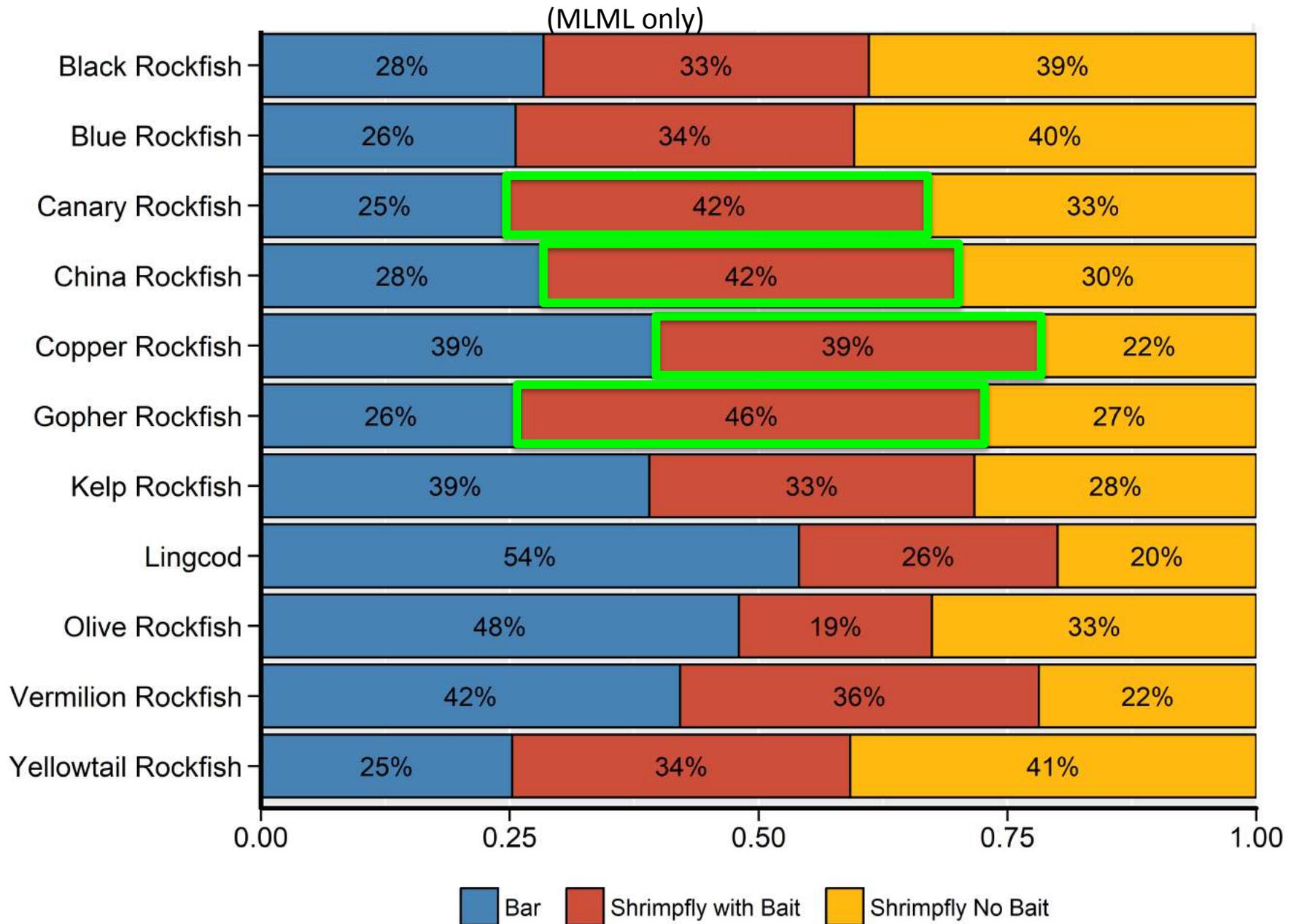


Species Catch by Gear Type: 2007-2017

(MLML only)

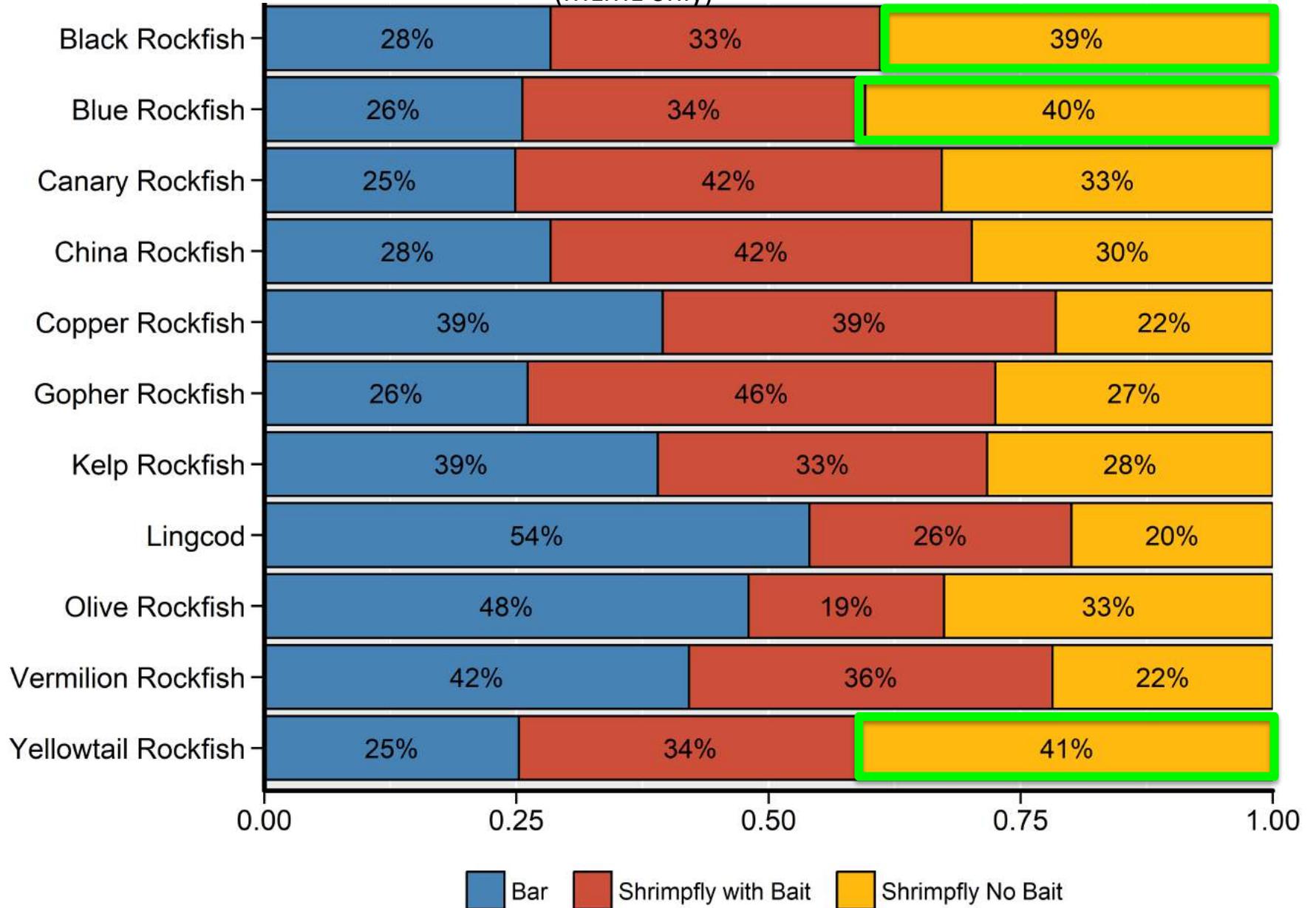


Species Catch by Gear Type: 2007-2017



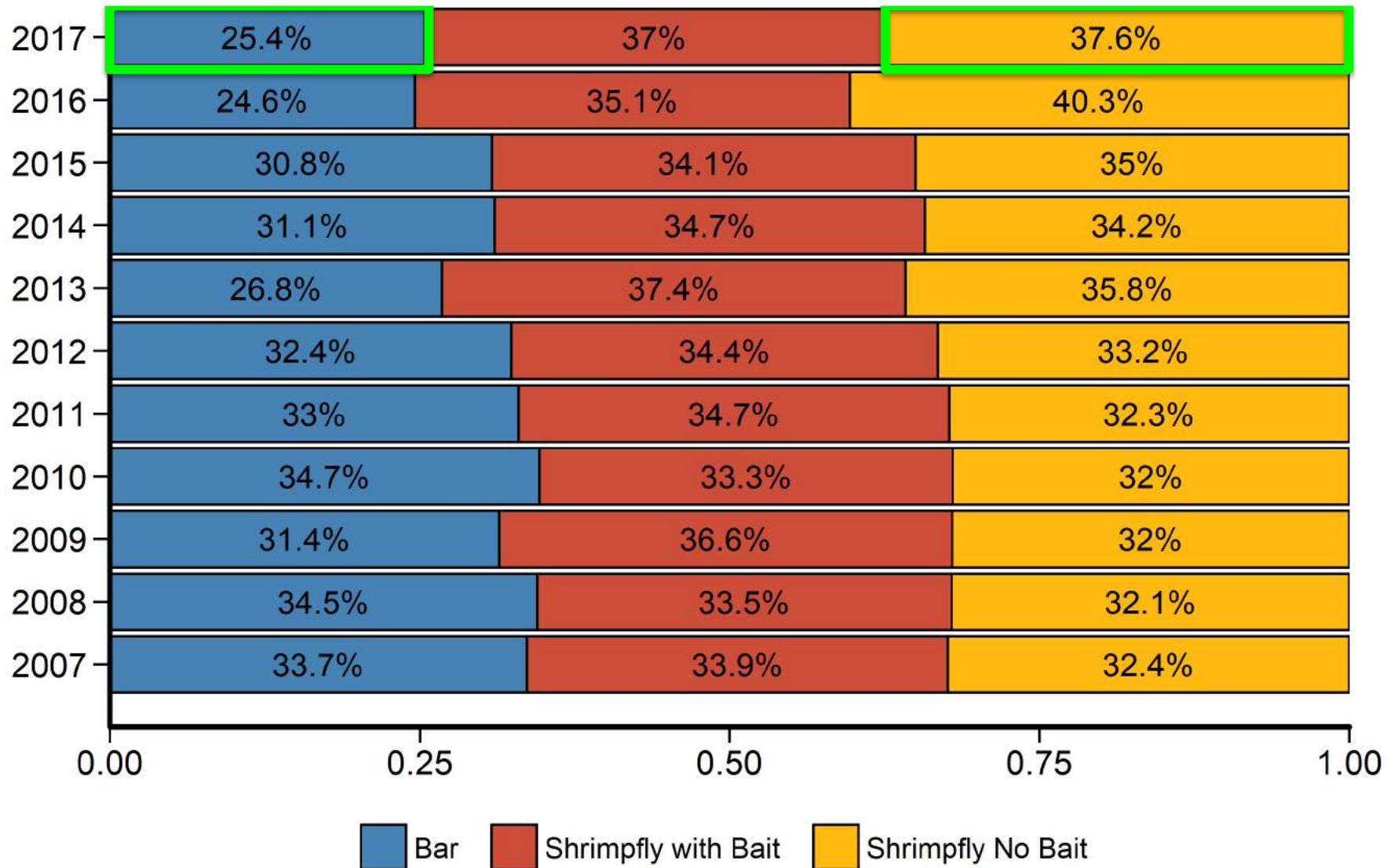
Species Catch by Gear Type: 2007-2017

(MLML only)

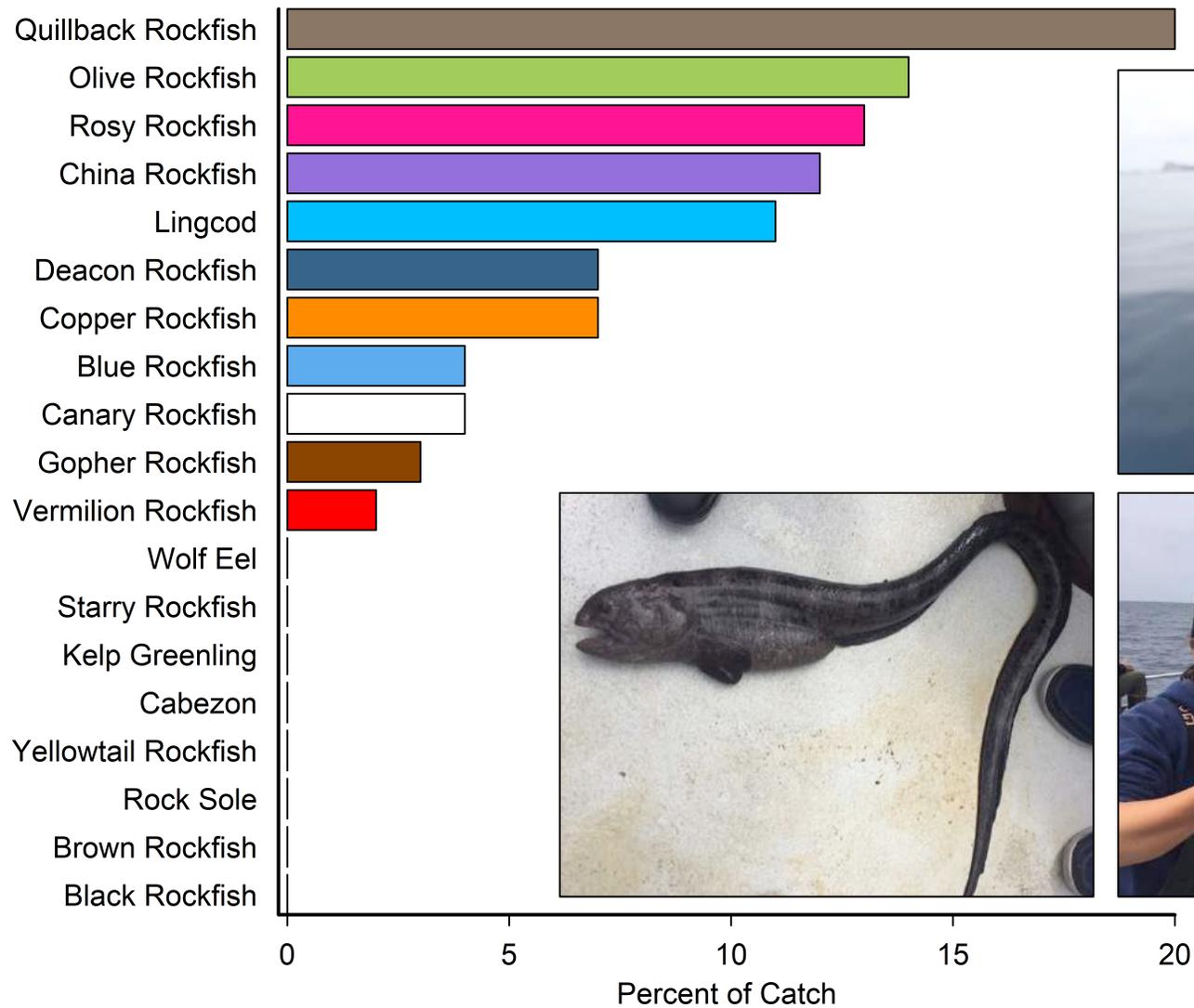


Species Catch by Gear Type by Year

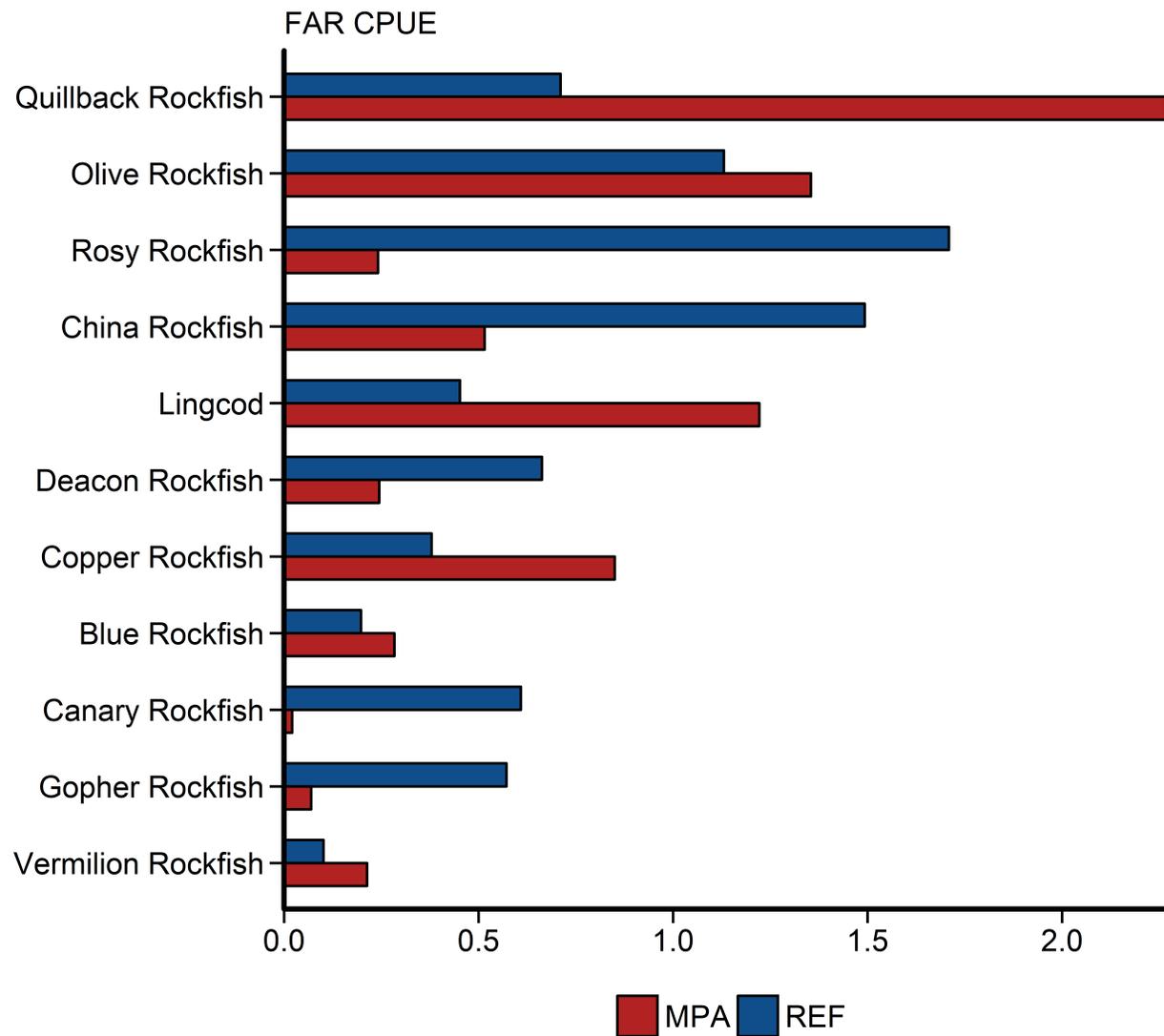
(MLML only)



Species Compositions: Farallon Islands 2017



Species CPUE: Farallon Islands 2017





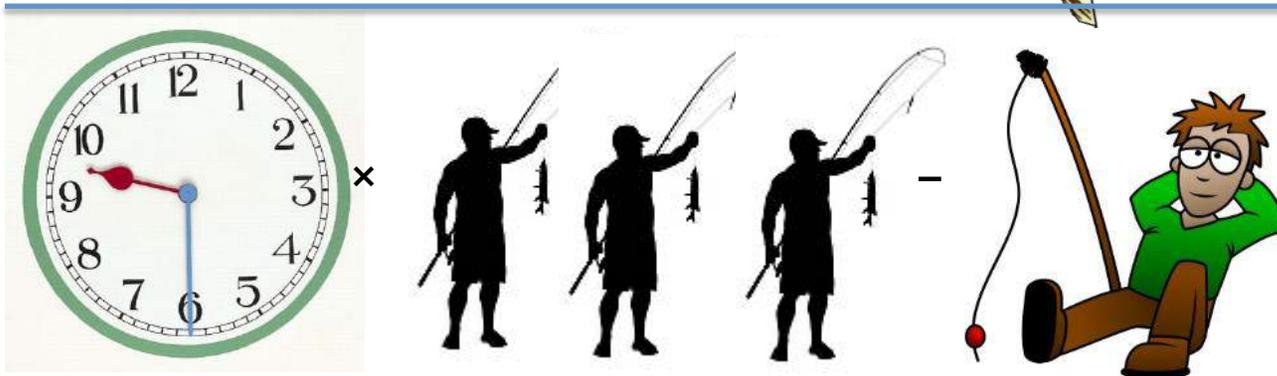
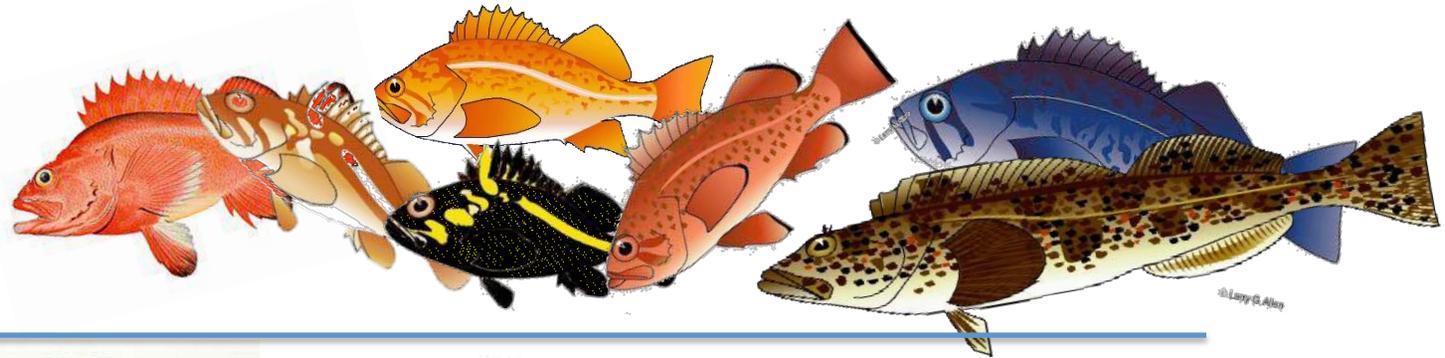
Raffle time!!!!

Farallon Fish Video

Canary and Yelloweye

How we measure relative abundance: Catch-Per-Unit-Effort (CPUE)

Here, CPUE is catch per angler-hour



$$\text{CPUE} = \text{Number of fishes caught} / [\text{total drift time}] \times [\# \text{ anglers fishing}] - [\text{angler off time}]$$

Examples of upcoming graphs and symbols

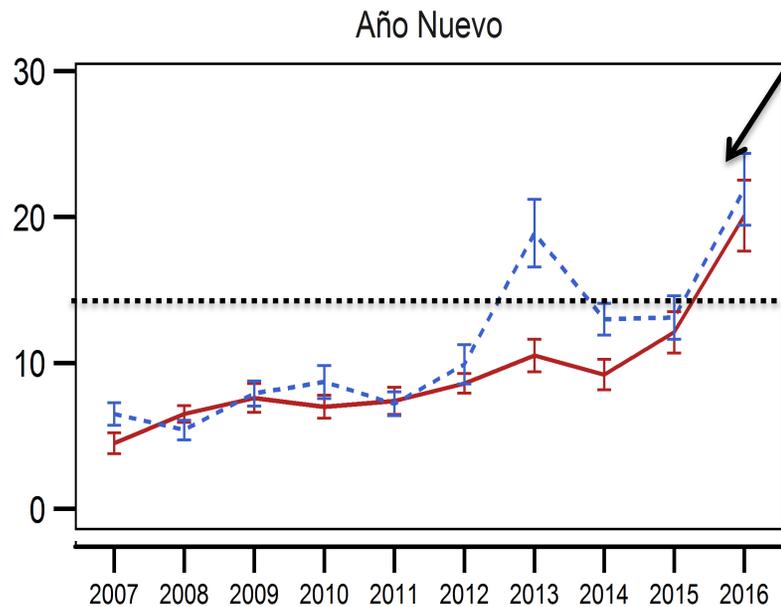
Catch Rates (CPUE)

Mean Lengths

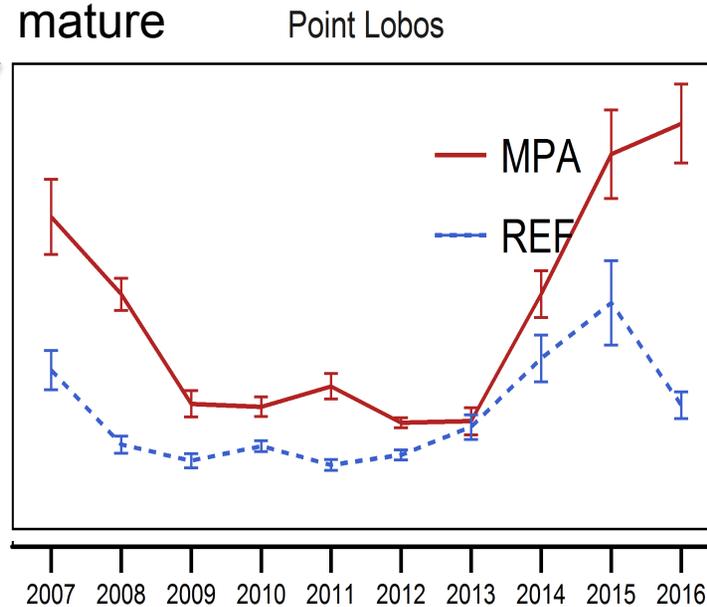
Graphs show mean (average) and standard error for:

- area (e.g., Point Lobos)
- site (i.e., MPA and REF)
- year

Metric (e.g., mean length, CPUE)

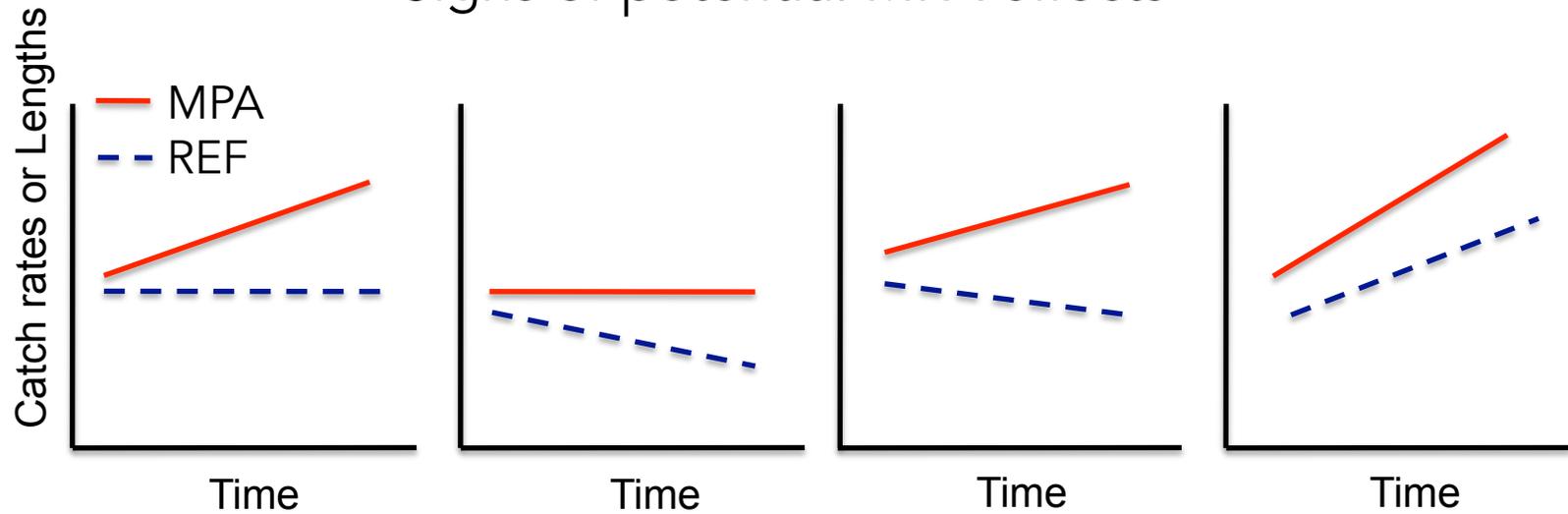


50% of fish at this length are mature



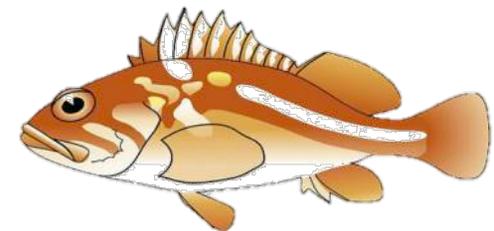
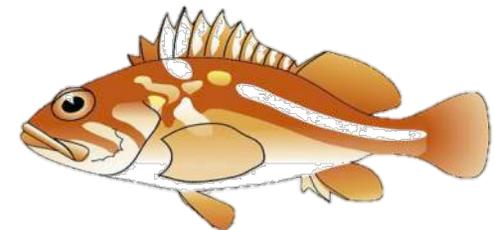
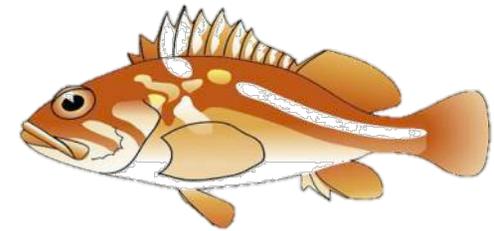
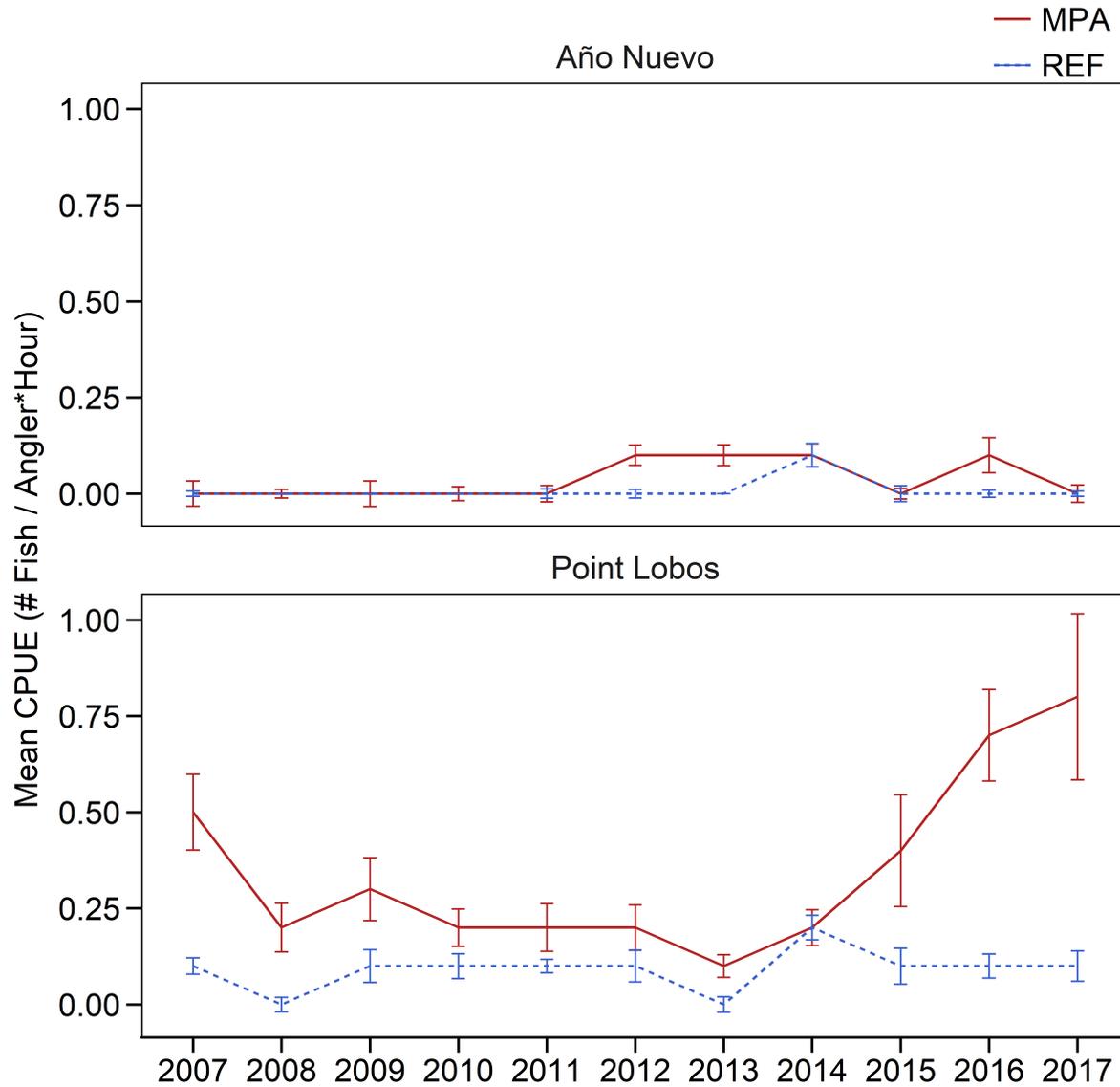
CCFRP Data Analyses

Signs of potential MPA effects



Catch Rates

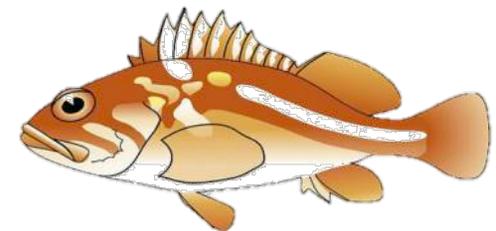
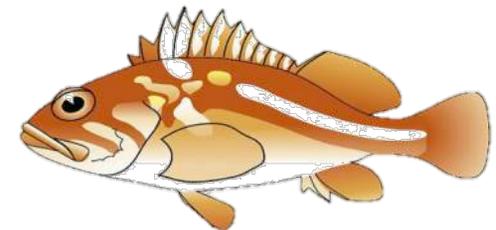
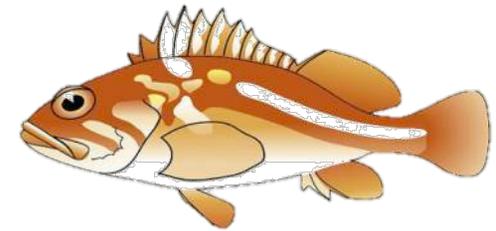
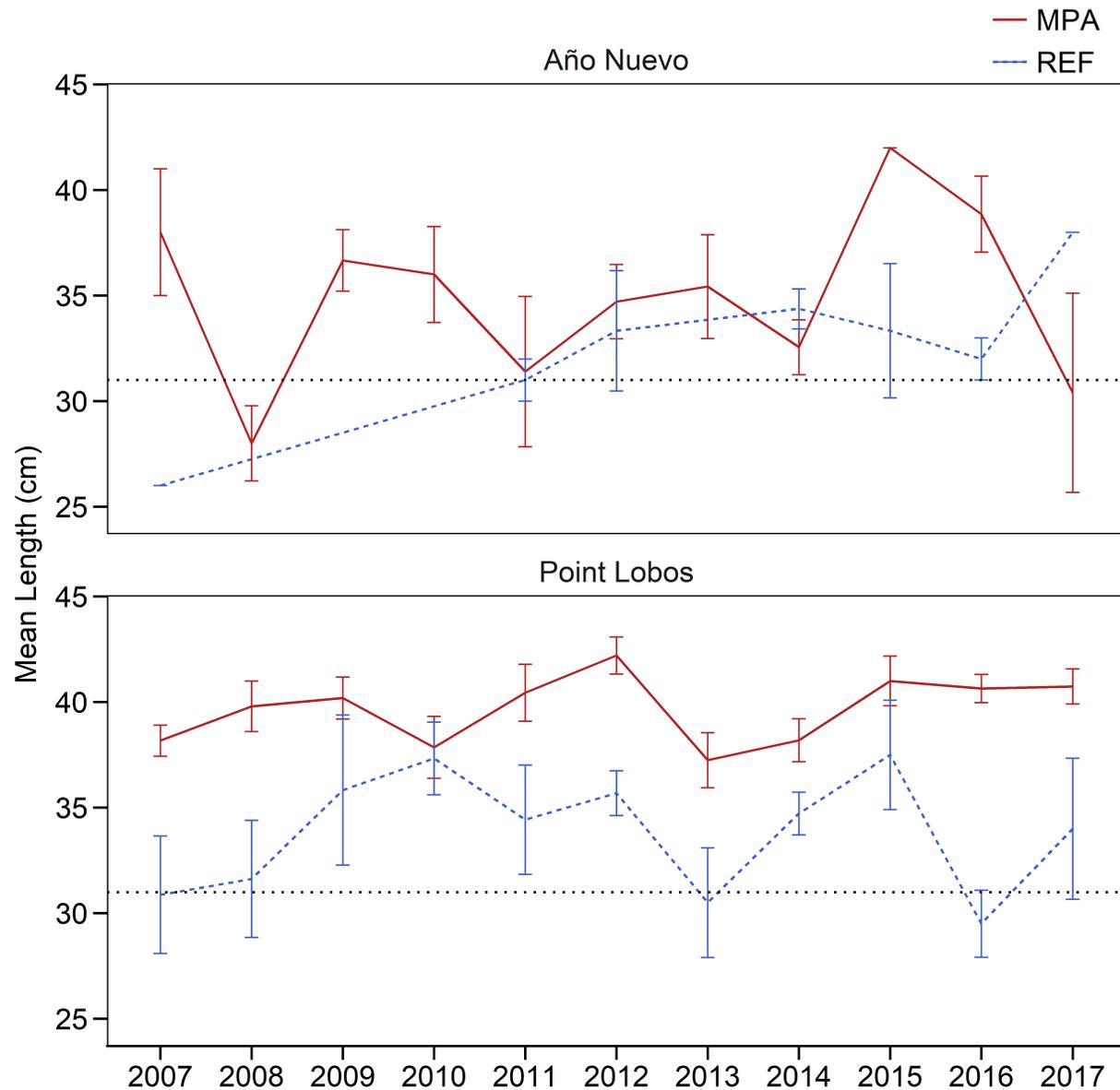
Copper Rockfish



Sebastes caurinus: ≤ 50 yr ; ≤ 66 cm (26.0 in)

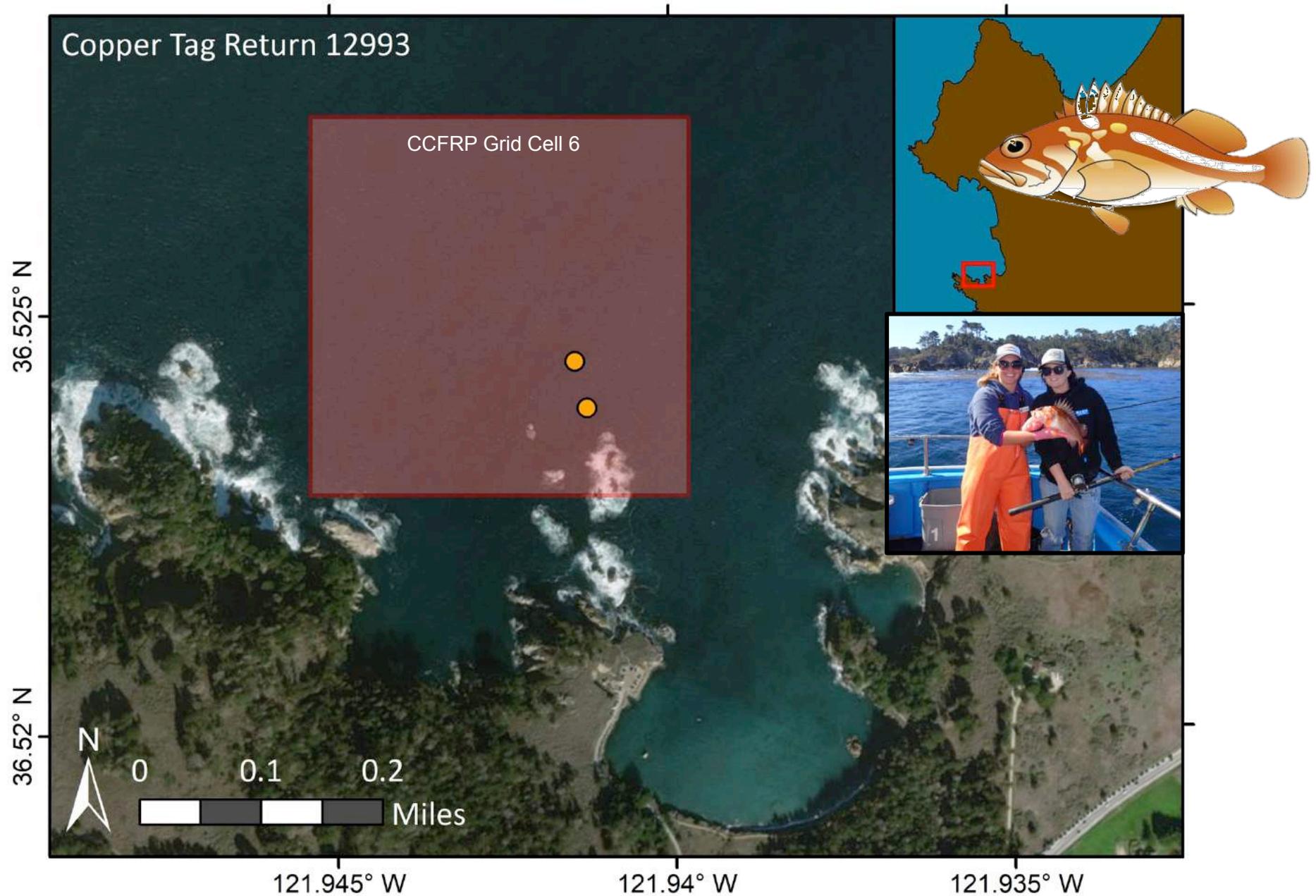
Mean Lengths

Copper Rockfish



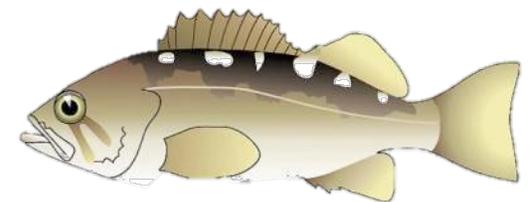
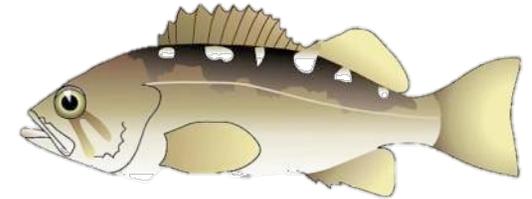
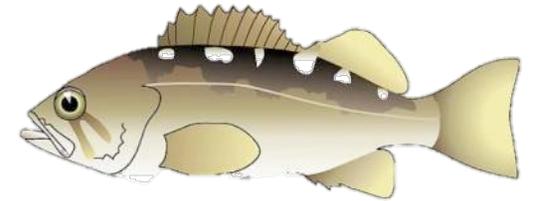
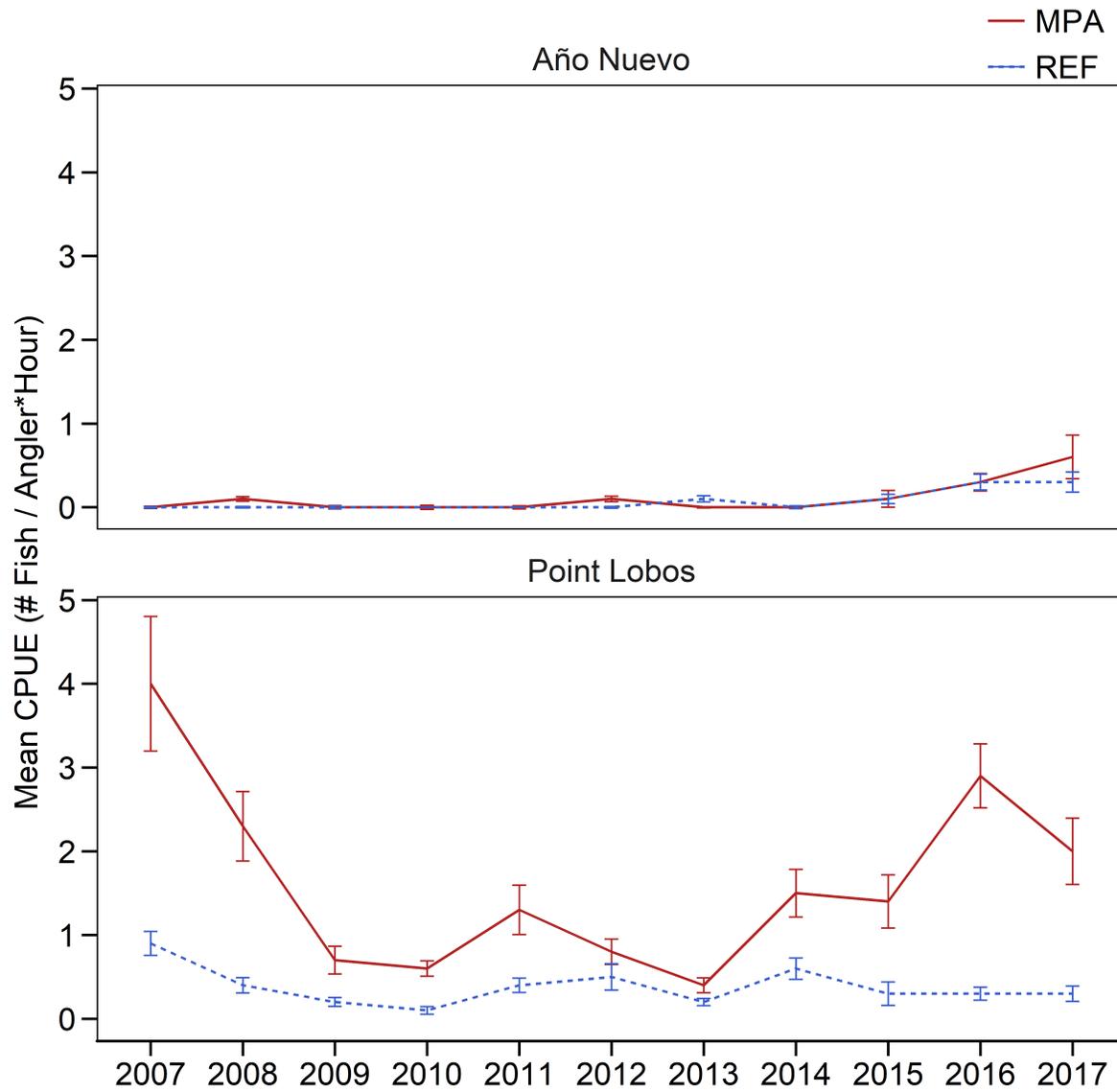
Sebastes caurinus: ≤ 50 yr ; ≤ 66 cm (26.0 in)

Copper Rockfish recaptures at Point Lobos



Catch Rates

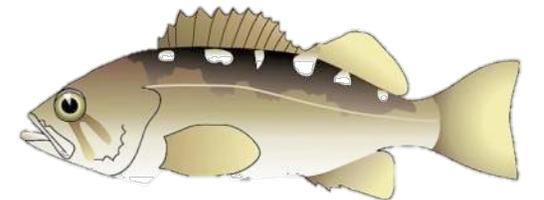
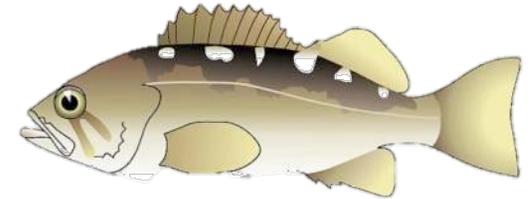
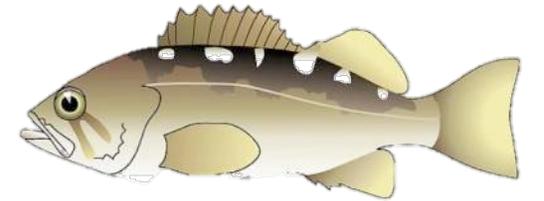
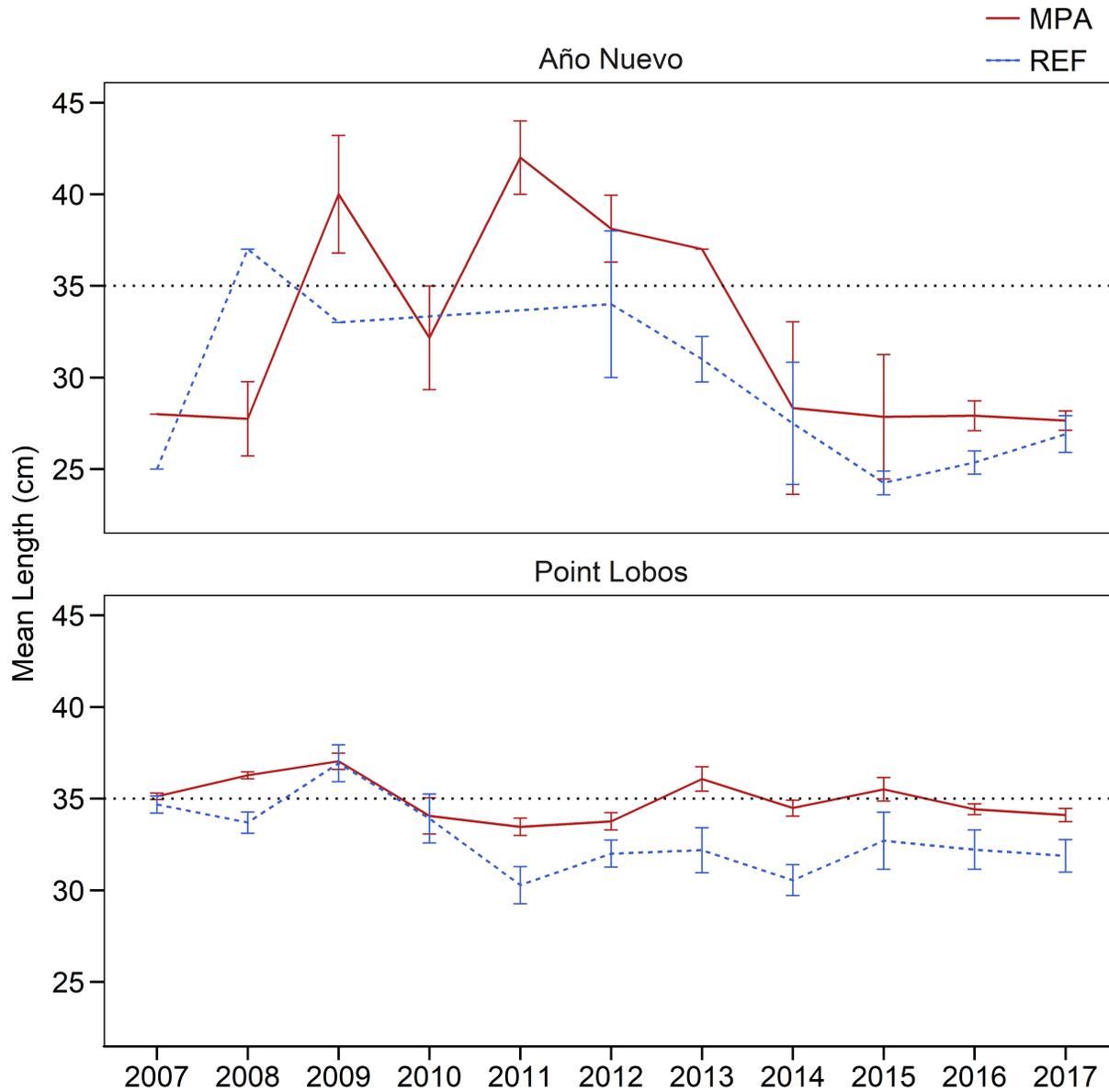
Olive Rockfish



Sebastes serranoides: ≤ 30 yr ; ≤ 61 cm (24.0 in)

Mean Lengths

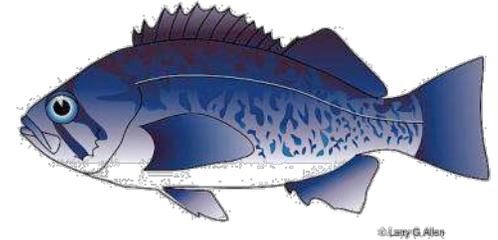
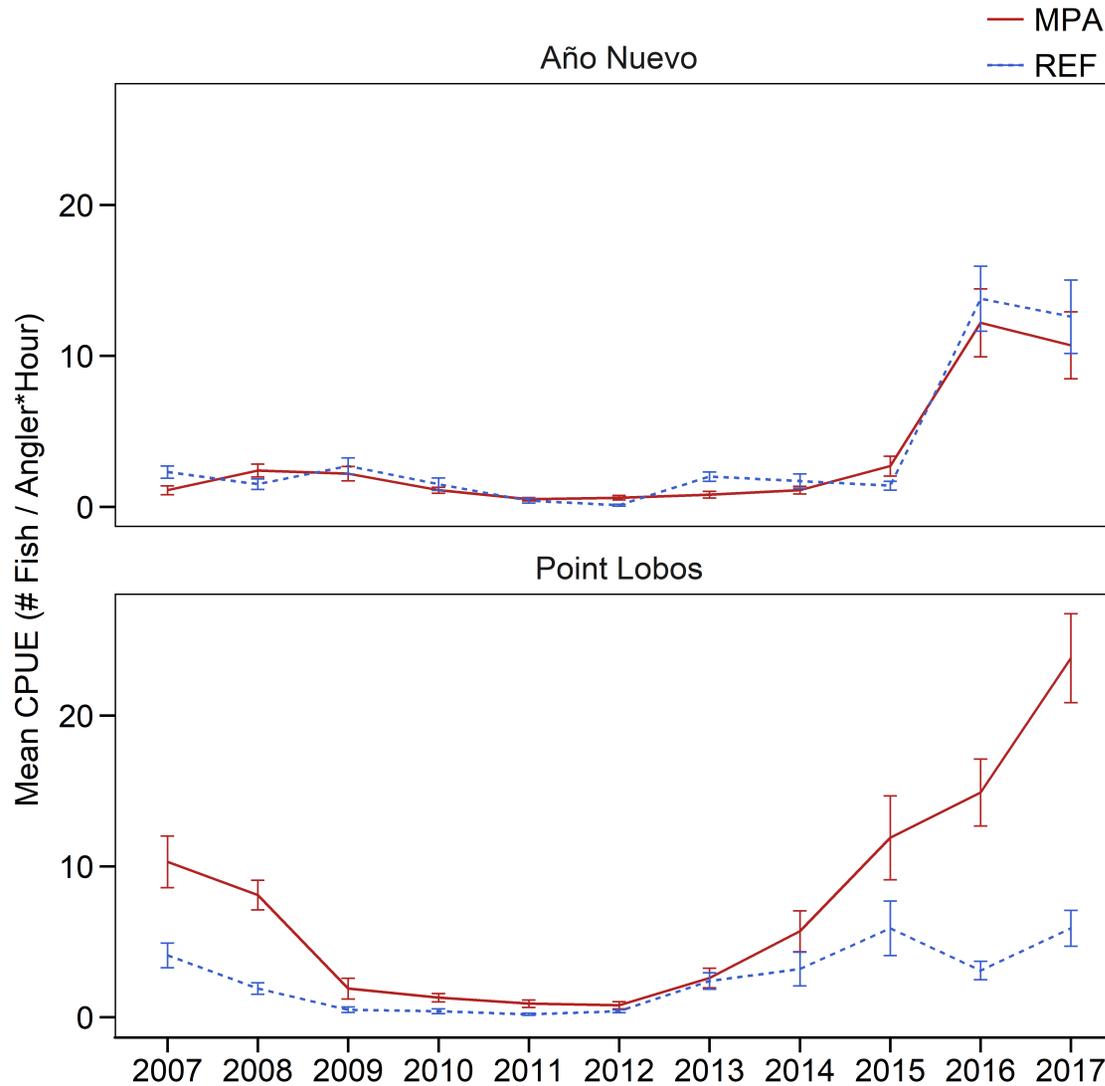
Olive Rockfish



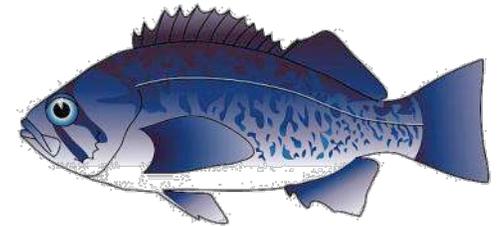
Sebastes serranoides: ≤ 30 yr ; ≤ 61 cm (24.0 in)

Catch Rates

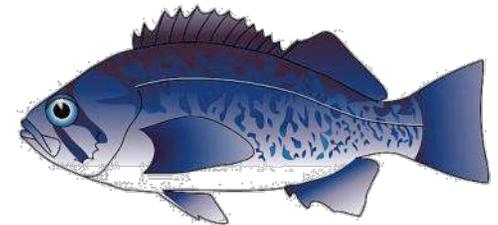
Blue Rockfish



© Larry G. Allen



© Larry G. Allen

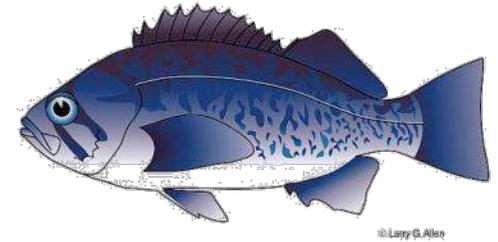
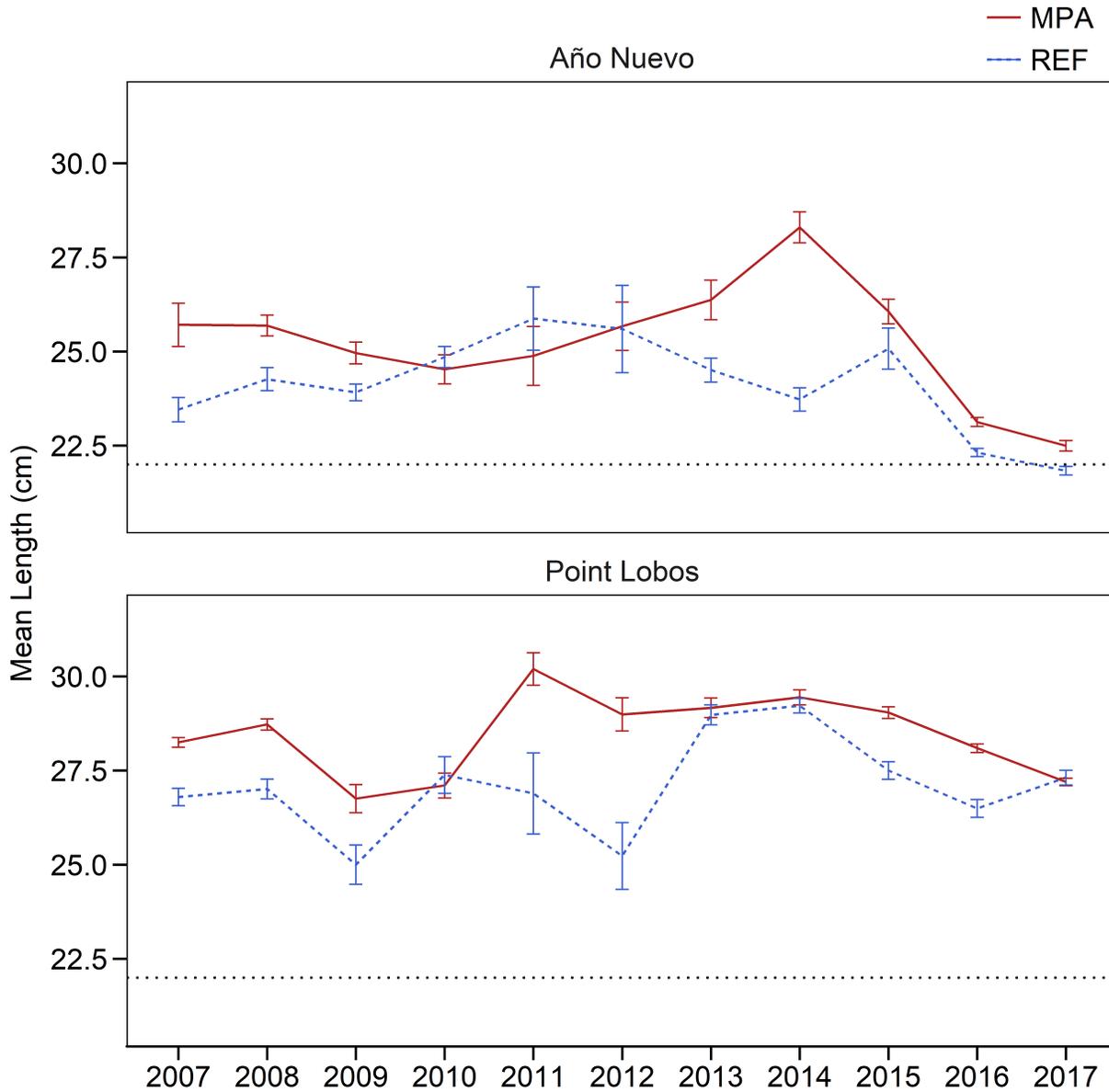


© Larry G. Allen

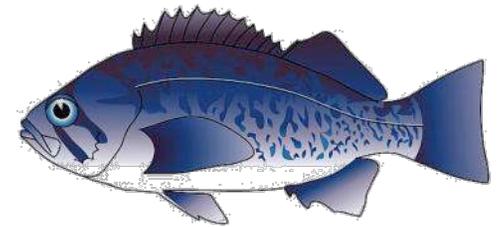
Sebastes mystinus: ≤ 44 yr ; ≤ 53 cm (20.9 in)

Mean Lengths

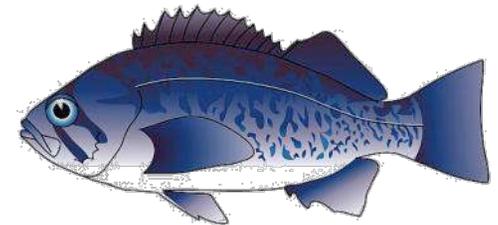
Blue Rockfish



© Larry G. Allen



© Larry G. Allen



© Larry G. Allen

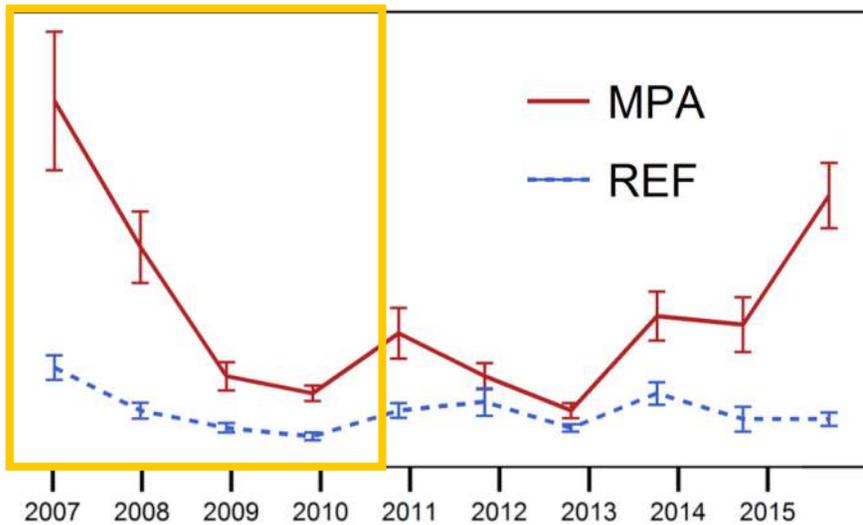
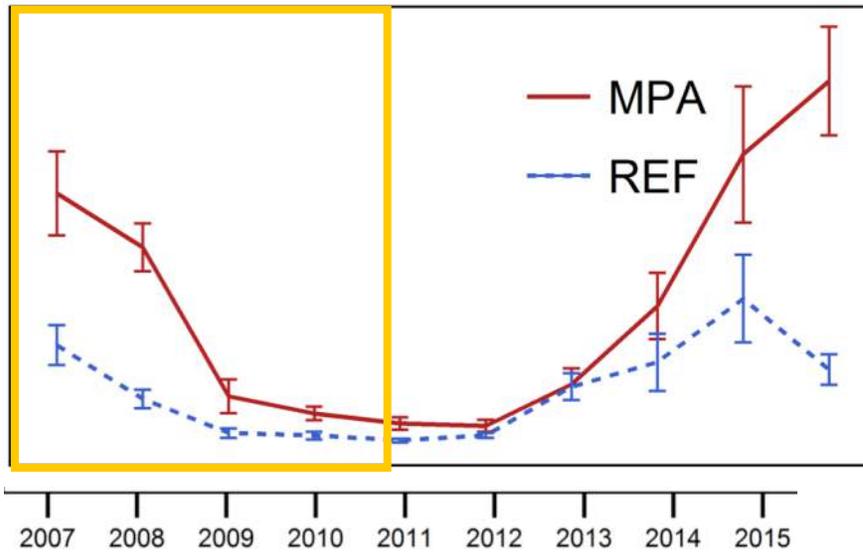
Sebastes mystinus: ≤ 44 yr ; ≤ 53 cm (20.9 in)

Tracking environmental trends with catch data

Parallel declines in MPA and REF sites

Point Lobos

Mean CPUE (# fishes per angler hr)



Blue Rockfish
Sebastes mystinus



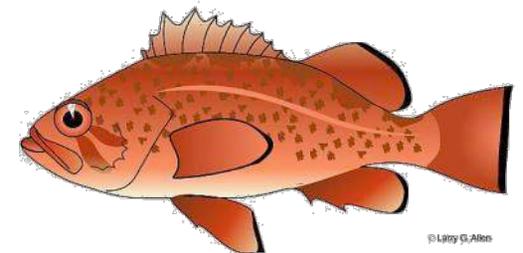
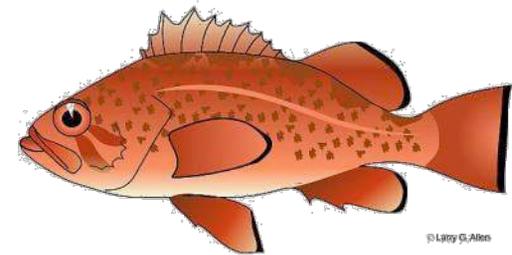
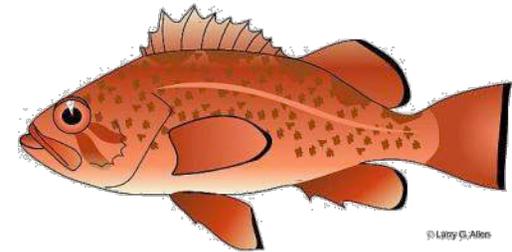
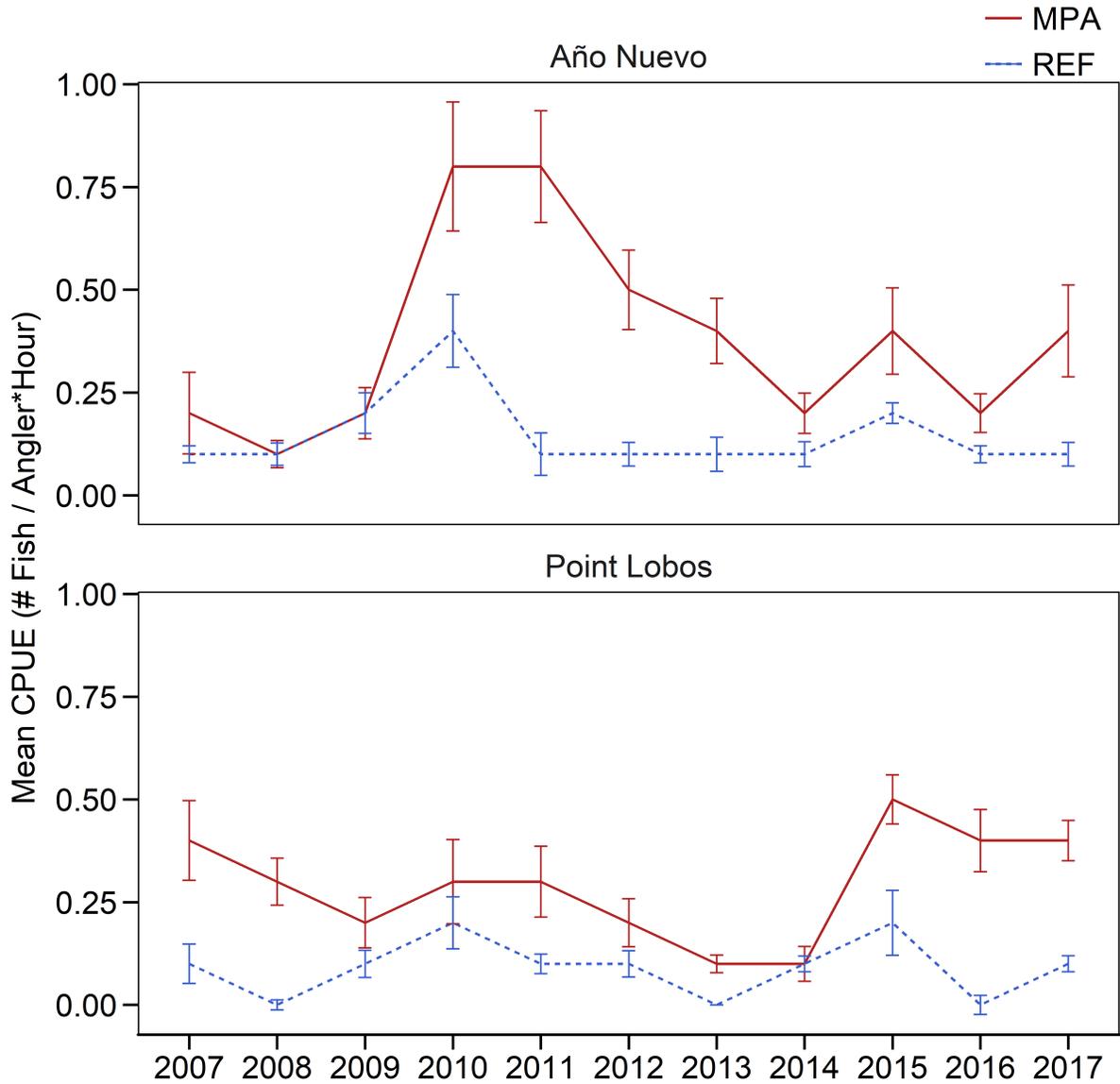
Olive Rockfish
Sebastes serranoides



Raffle time!!!!

Catch Rates

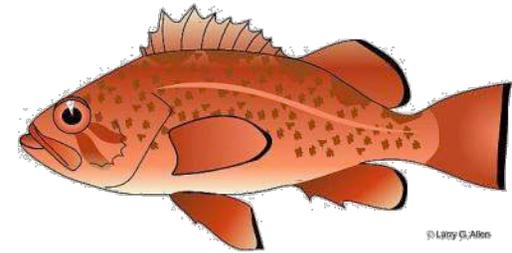
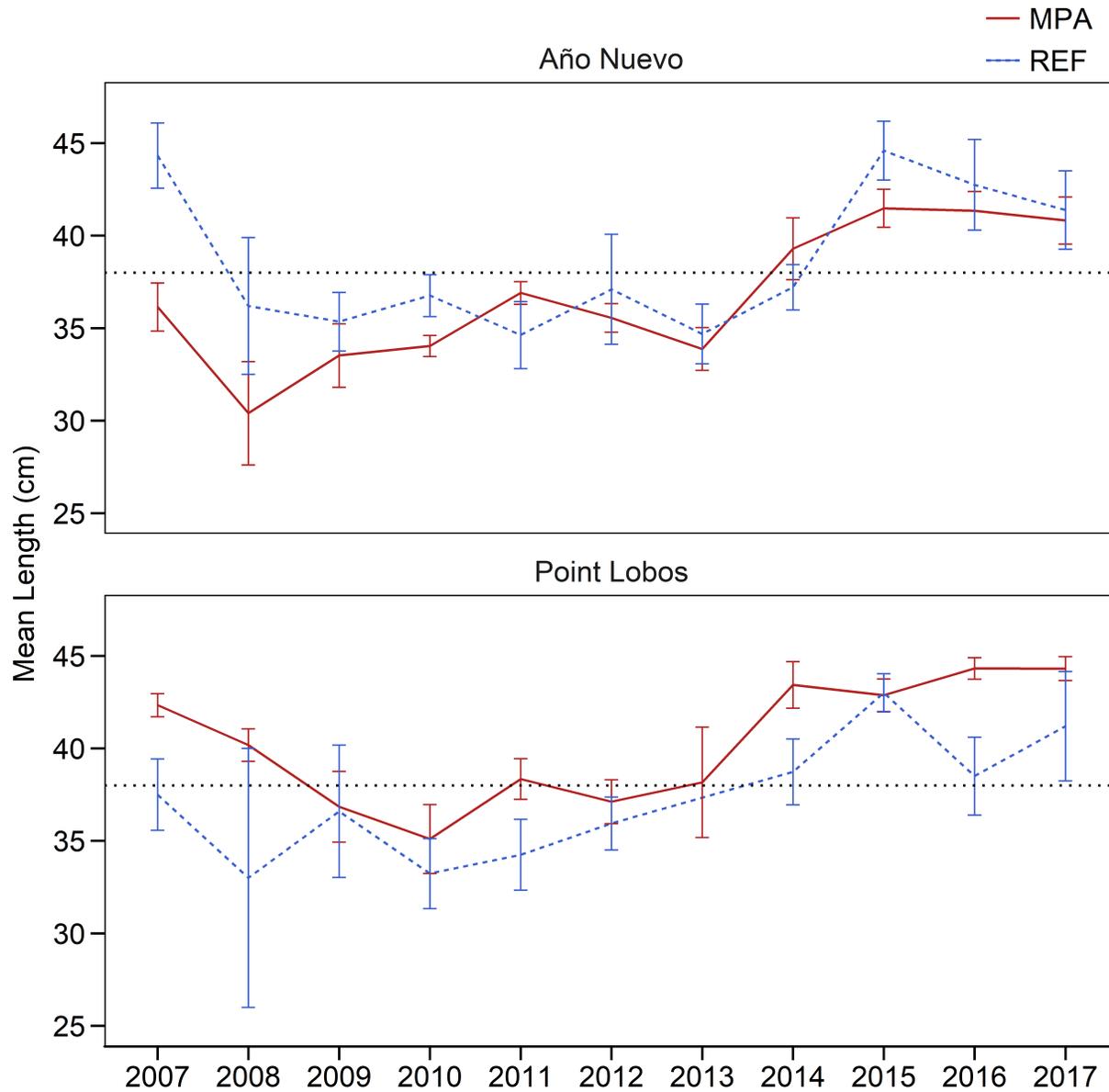
Vermilion Rockfish



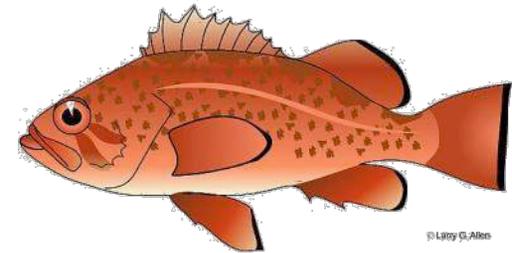
Sebastes miniatus: ≤ 60 yr ; ≤ 76 cm (29.9 in)

Mean Lengths

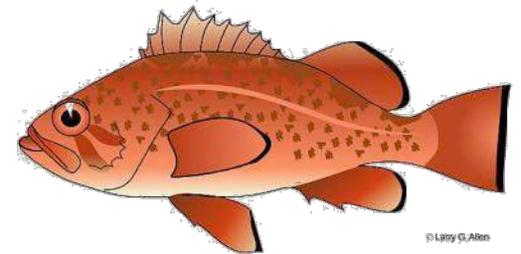
Vermilion Rockfish



© Larry G. Allen



© Larry G. Allen



© Larry G. Allen

Sebastes miniatus: ≤ 60 yr ; ≤ 76 cm (29.9 in)

Video Break!



Yellowtail Rockfish video



Raffle time!!!!

Who can name this species of fish?



Smallest Fishes for MLML



Phil Ellis: Gopher Rockfish, 5 cm (2.0 in)
Point Lobos MPA '14

David Kammerer: Gopher Rockfish, 6 cm (2.4 in)
Point Lobos REF '15

Darrell Bunse: Blue Rockfish, 6 cm (2.4 in)
Point Lobos REF '13



Michael Clerkin: Blue Rockfish, 6 cm (2.4 in)
Point Lobos REF '13

Paul Reilly: Scalyhead Sculpin, 6 cm (2.4 in)
Point Lobos REF '12

Bonnie Roberson: Blue Rockfish, 7 cm (2.8 in)
Point Lobos REF '12

Bonnie Roberson: N. Blue Rockfish, 7 cm (2.8 in)
Point Lobos REF '12

Bonnie Roberson: Rosy Rockfish, 7 cm (2.8 in)
Point Lobos REF '12



Largest Rockfishes for MLML



Dan Schrimsher: Bocaccio, 59 cm (23.2 in)
Farallon Islands MPA '17



Daniel Shim: Vermilion RF, 56 cm (22 in)
Point Lobos MPA '11

Amy McKee: Canary RF, 56 cm (22 in)
Año Nuevo REF '11

Ben Sadeghi: Vermilion RF, 56 cm (22 in)
Año Nuevo REF '12



Dylan Gorman: Vermilion RF, 55 cm (21.7 in)
Año Nuevo REF '07

Darrell Bunse: Vermilion RF, 55 cm (21.7 in)
Point Lobos REF '14

Ben Romano: Vermilion RF, 55 cm (21.7 in)
Año Nuevo REF, '16

Hernan Paez: Vermilion RF, 54 cm (21.3 in)
Año Nuevo MPA '11

Nick Ingram: Vermilion RF, 54cm (21.3 in)
Año Nuevo REF, '15



Largest Cabezon for MLML

EC Ong: 64 cm (25.2 in) x2
Año Nuevo REF '16

Gary Kawaoka: 61 cm (24.0 in)
Año Nuevo MPA '14

Ed Marchese: 60 cm (23.6 in)
Año Nuevo Ref '13

Ken Yuen: 60 cm (23.6 in)
Año Nuevo REF '09

Talal Dakkak: 59 cm (23.2 in)
Año Nuevo MPA '09

Ben Romano: 59 cm (23.2 in)
Año Nuevo REF, '16

Ed Marchese: 59 cm (23.2 in)
Año Nuevo REF, '17

Ken Yuen: 58 cm (22.8 in) x2
Año Nuevo MPA '14 & '15

Nick Ingram 58 cm (22.8 in)
Año Nuevo REF, '16

Robert Rand: 57 cm (22.4 in)
Point Lobos MPA '12

Dylan Gorman: 57 cm (22.4 in)
Año Nuevo REF '07





Largest Lingcod for MLML

Ed Marchese: 102 cm (40.2 in)
Año Nuevo MPA '14

Ed Marchese: 100 cm (39.37 in)
Año Nuevo MPA '16

Nick Ingram: 99 cm (39.0 in)
Año Nuevo REF '14

Andrew Tate: 97 cm (38.1 in)
Año Nuevo MPA, '16

Matt Michie: 94 cm (37 cm)
Point Lobos MPA, '17

Dayton Leong: 93 cm (36.6 in)
Año Nuevo MPA '15

Bonnie Roberson: 93 cm (36.6 in)
Pont Lobos REF '13

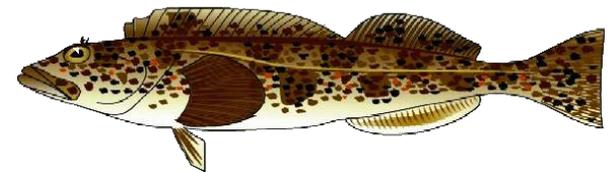
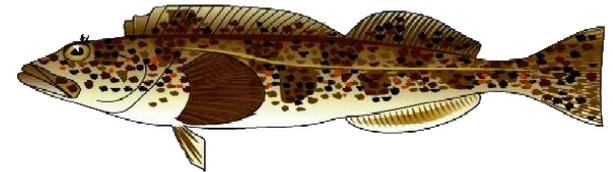
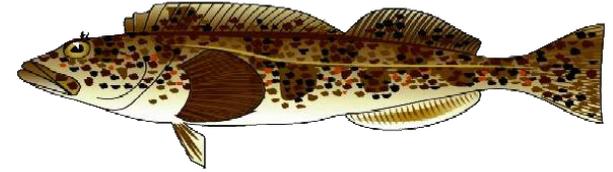
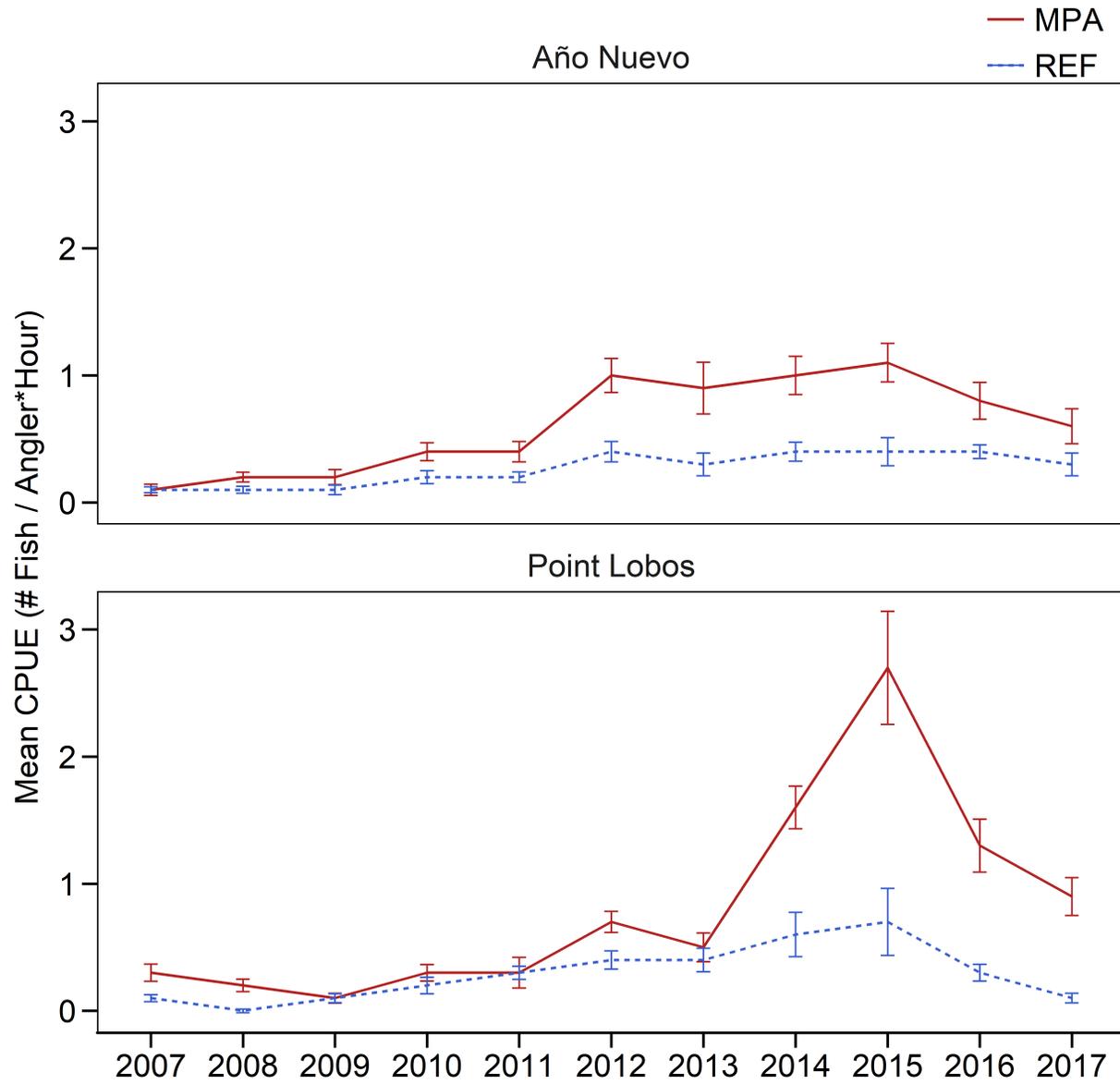
Scott Young: 92 cm (36.2 in)
Año Nuevo MPA '15

Ken Yuen: 92 cm (36.2 in)
Año Nuevo MPA , '16



Catch Rates

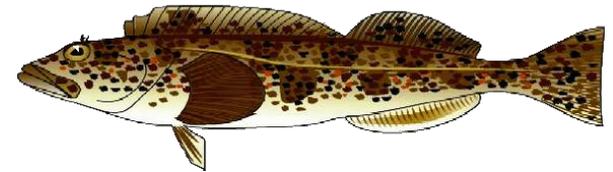
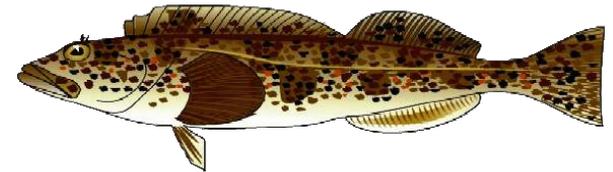
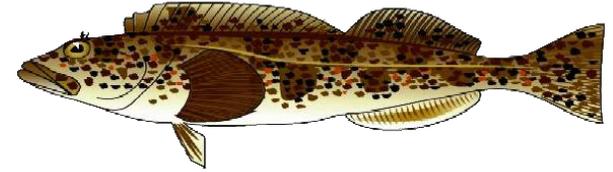
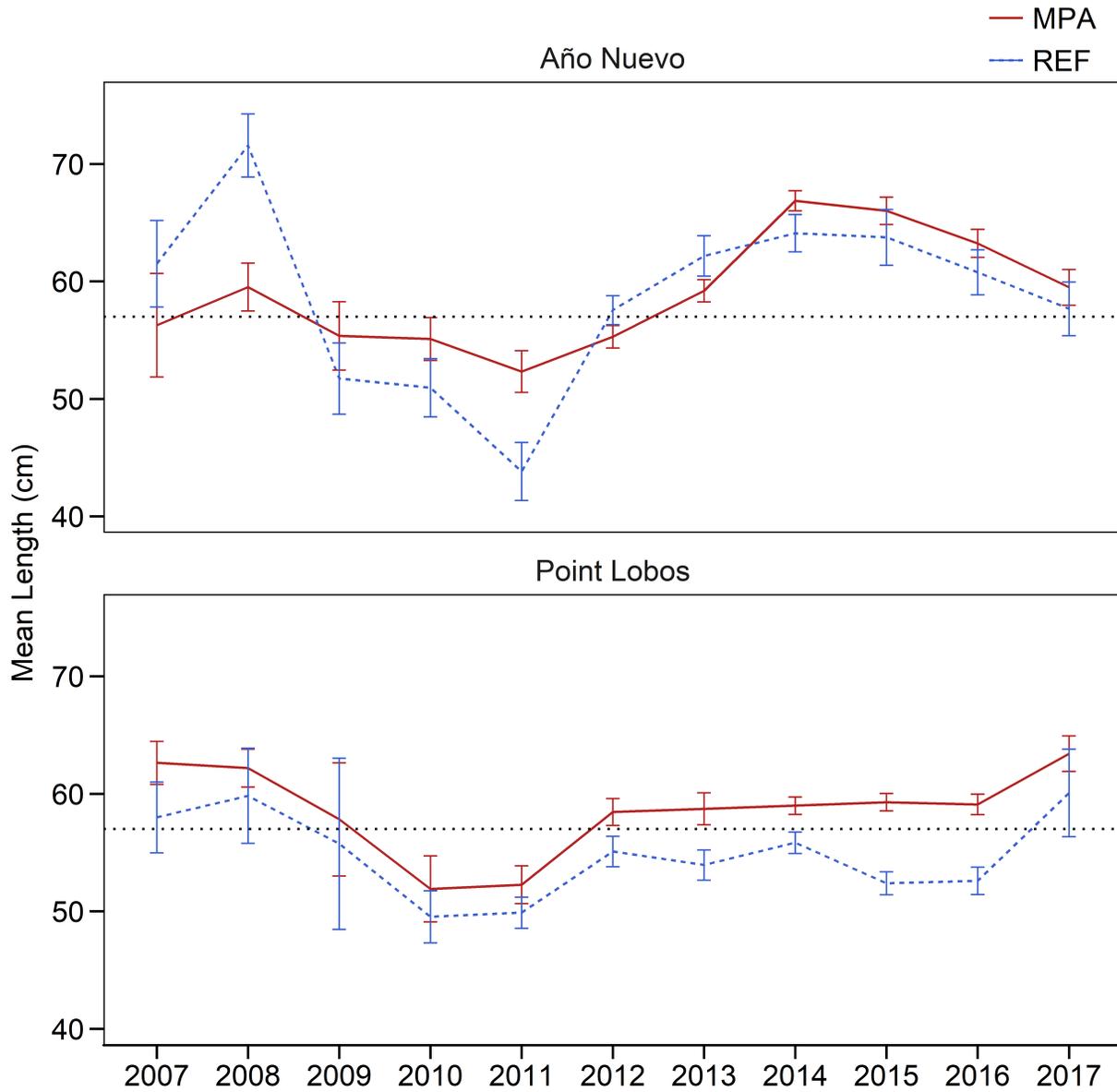
Lingcod



Ophiodon elongatus: ≤ 20 yr ; ≤ 152 cm (59.8 in)

Mean Lengths

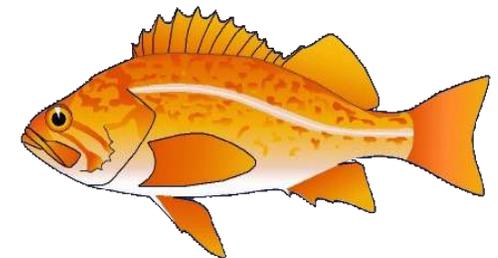
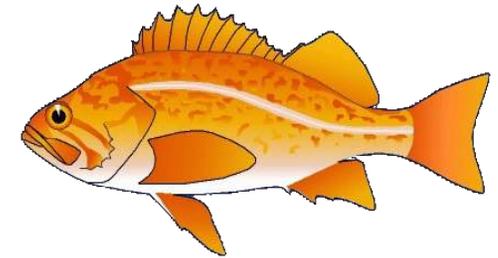
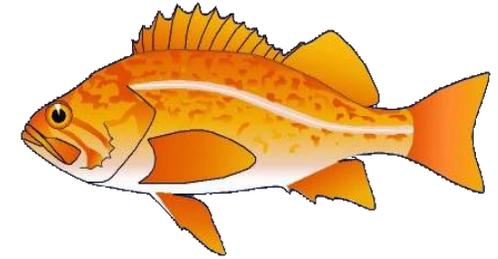
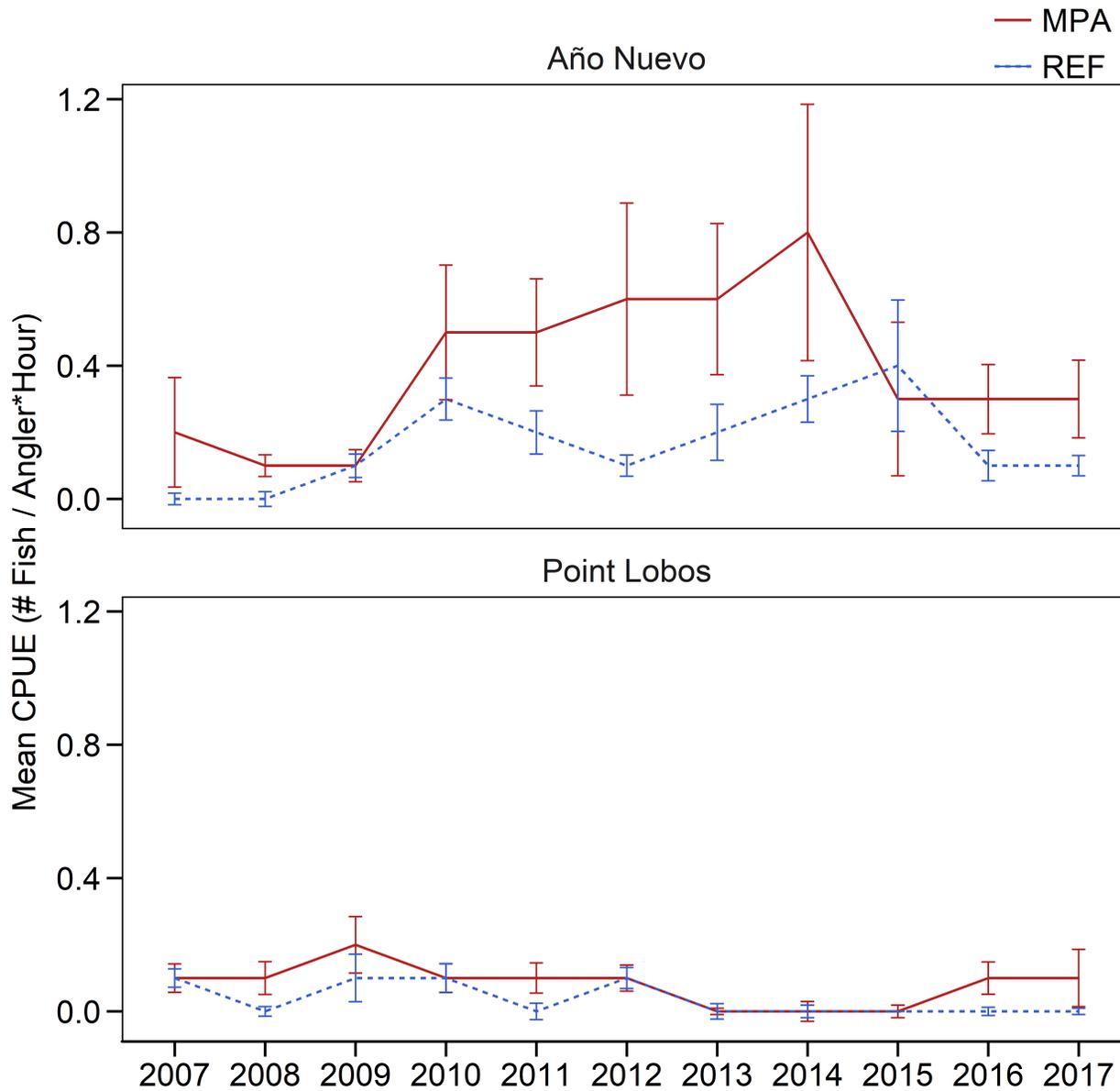
Lingcod



Ophiodon elongatus: ≤ 20 yr ; ≤ 152 cm (59.8 in)

Catch Rates

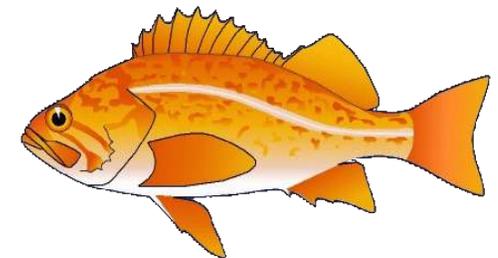
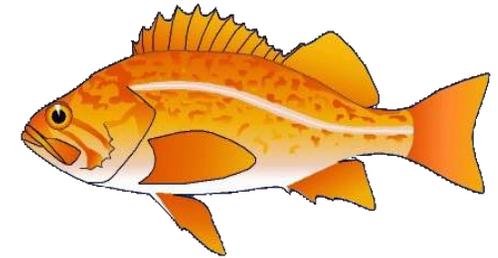
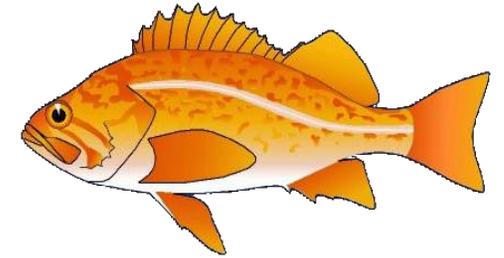
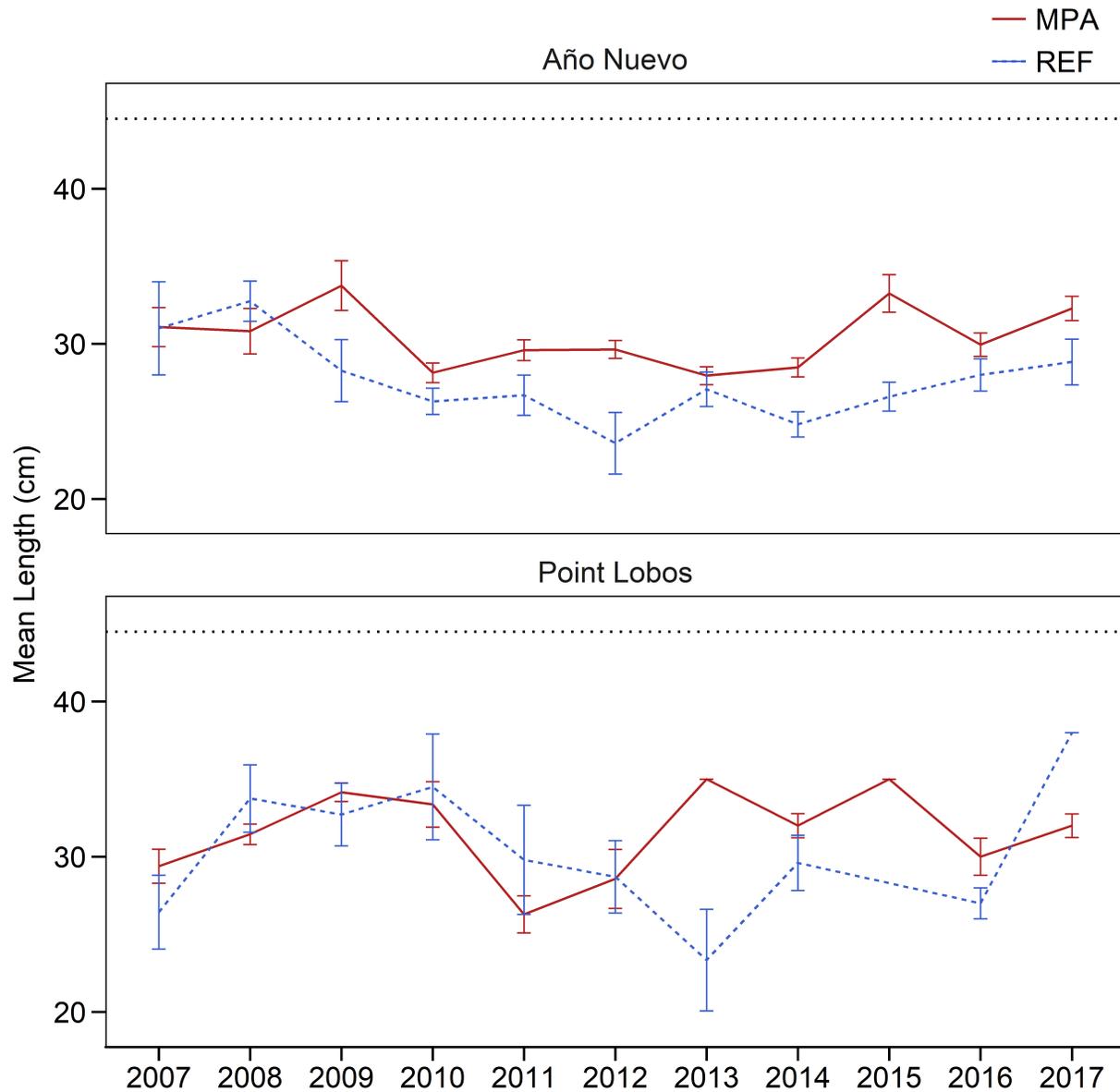
Canary Rockfish



Sebastes pinniger: ≤ 84 yr ; ≤ 76 cm (29.9 in)

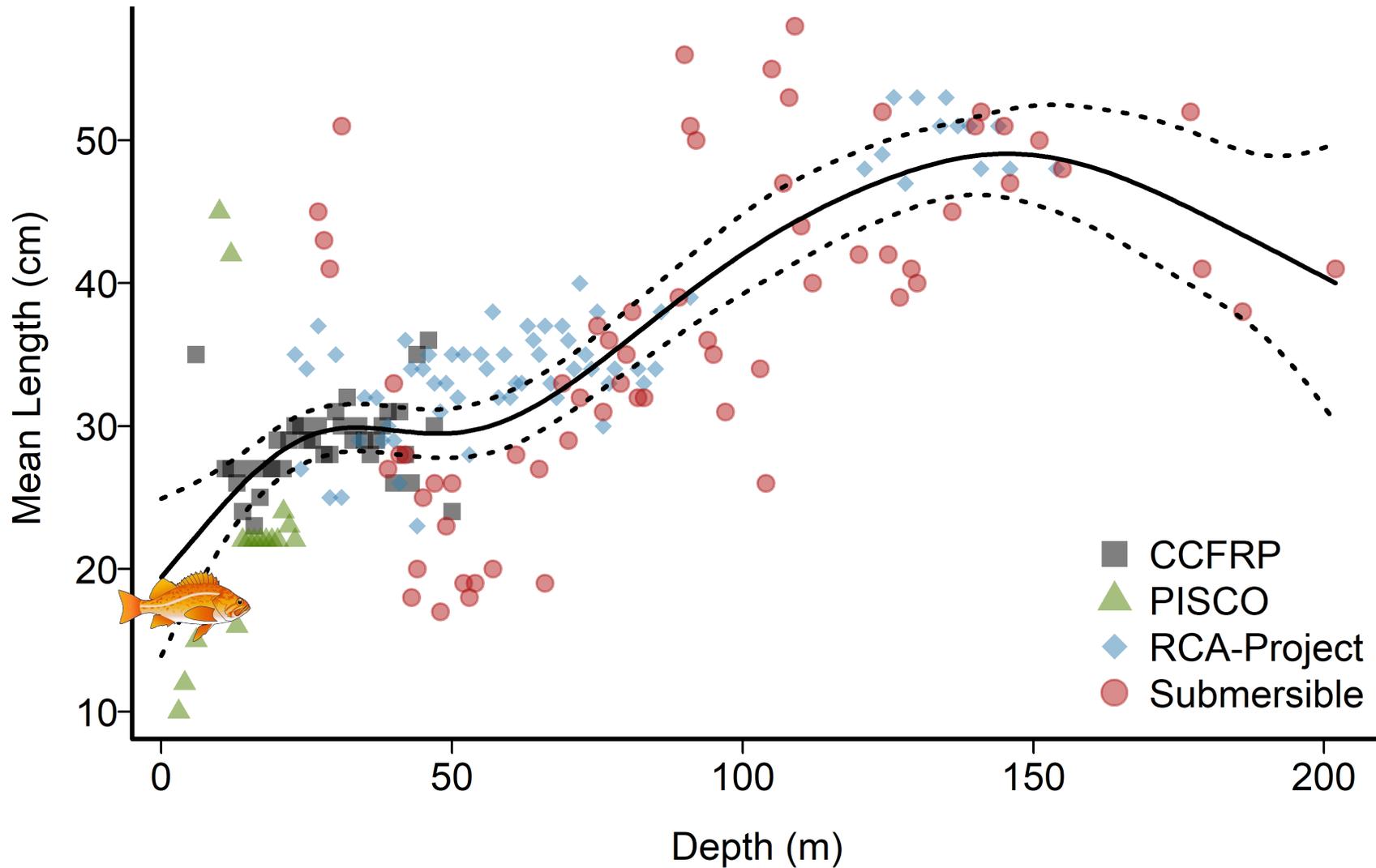
Mean Lengths

Canary Rockfish



Sebastes pinniger: ≤ 84 yr ; ≤ 76 cm (29.9 in)

Canary Rockfish move to deeper water and change habitats as they grow





Video
Break!

Matt Crisp 2009

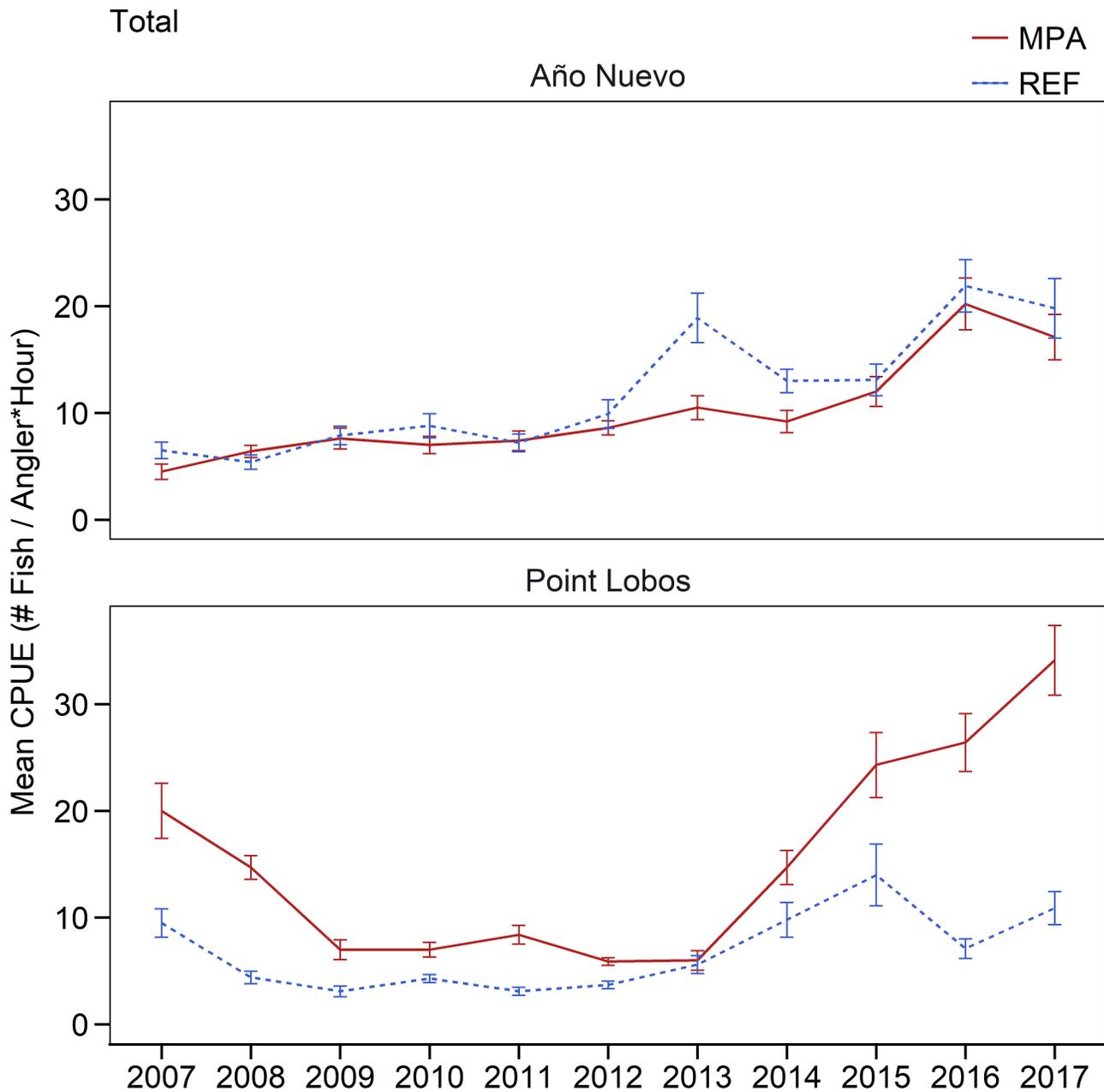
Name that fish!

- Greenspotted Rockfish Video

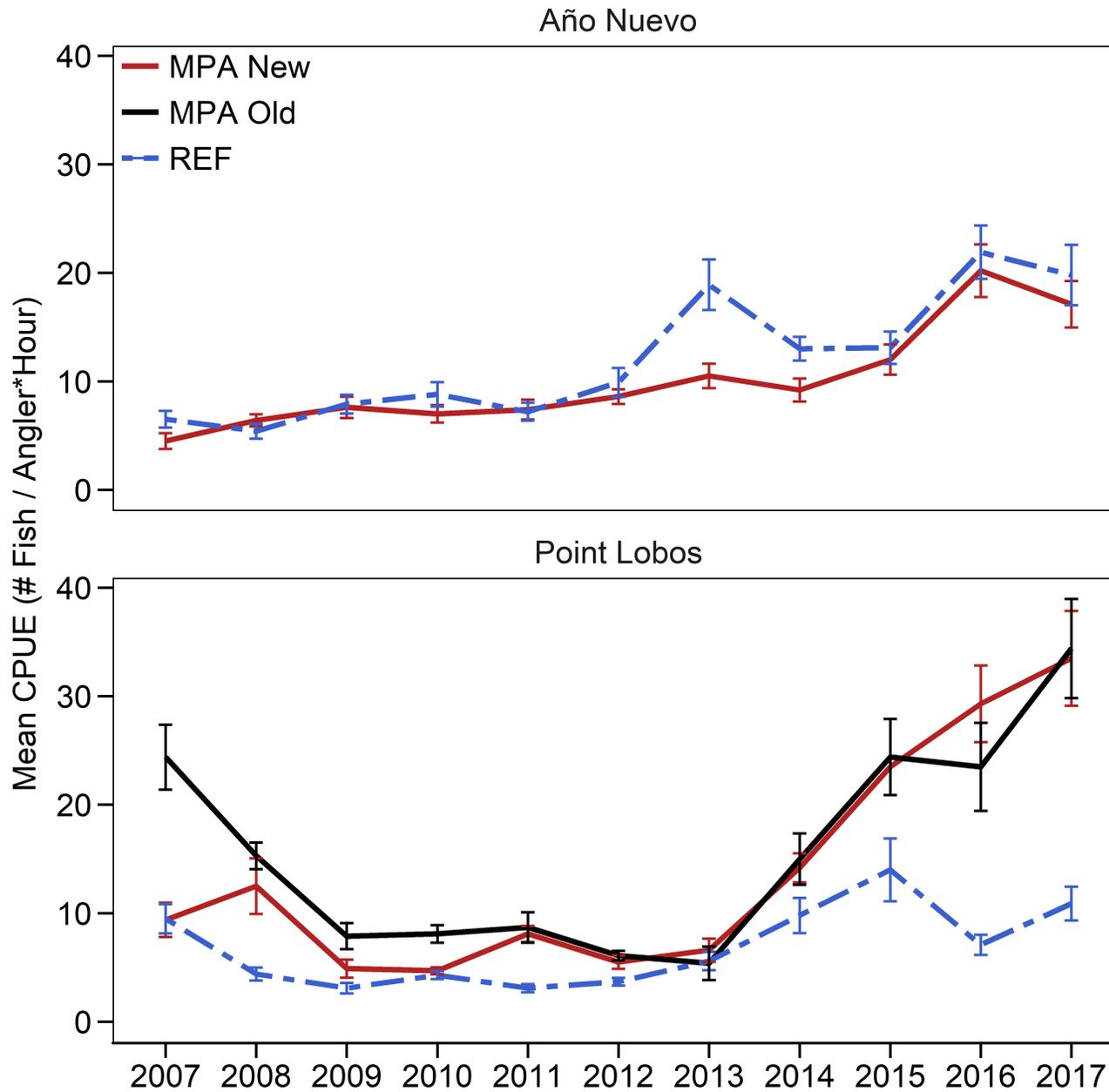


Raffle time!!!!

General Trends in MPA Performance

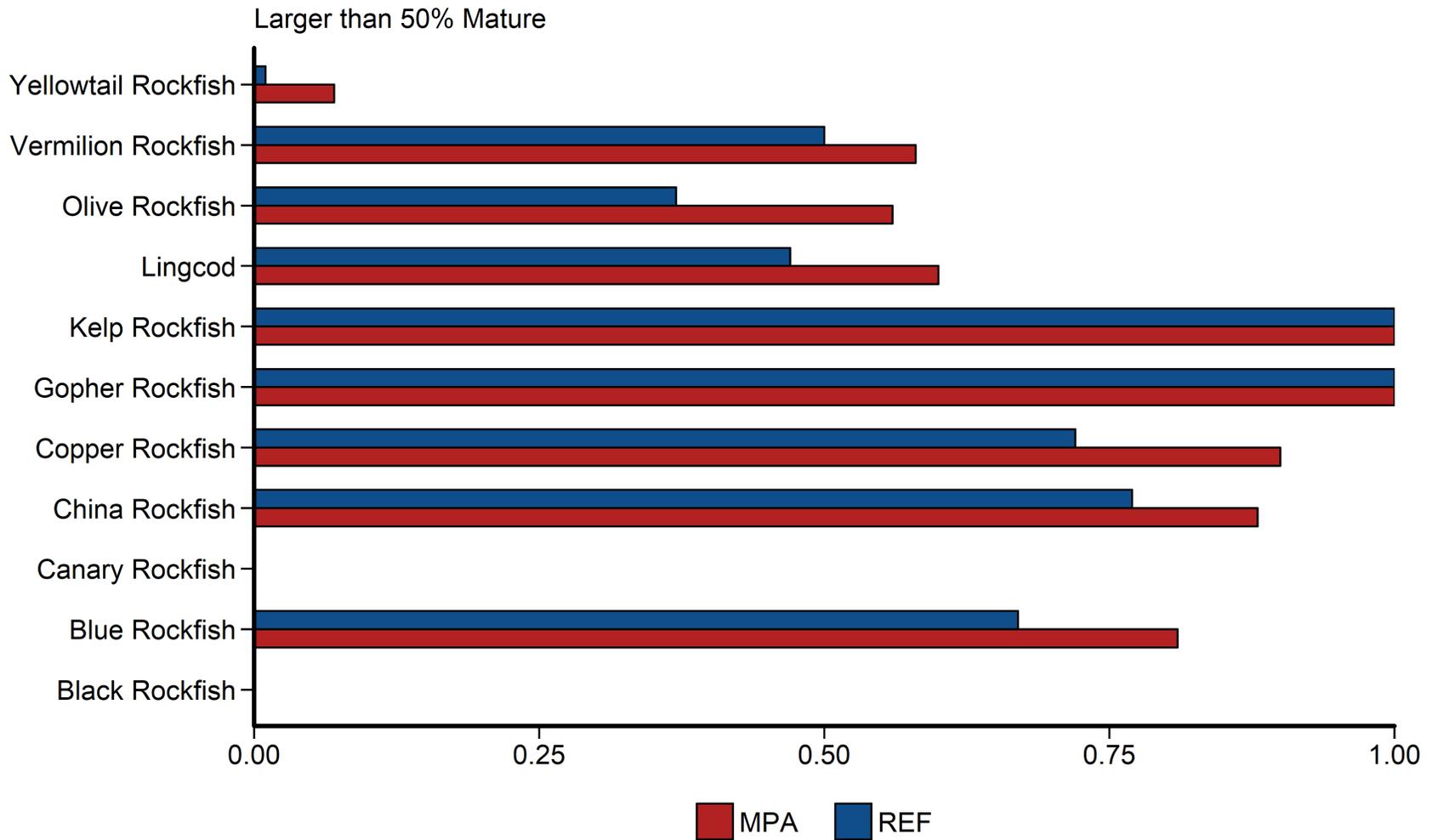


General Trends in MPA Performance



General Trends in MPA Performance

Estimate of Adult Proportion of Population
MLML only 2007-2017



Proportion of Individuals \geq Length at 50% Maturity

Widow Rockfish Video



Did
someone
say...
RAFFLE?!

©Brook Peterson
Waterdogphotography.com

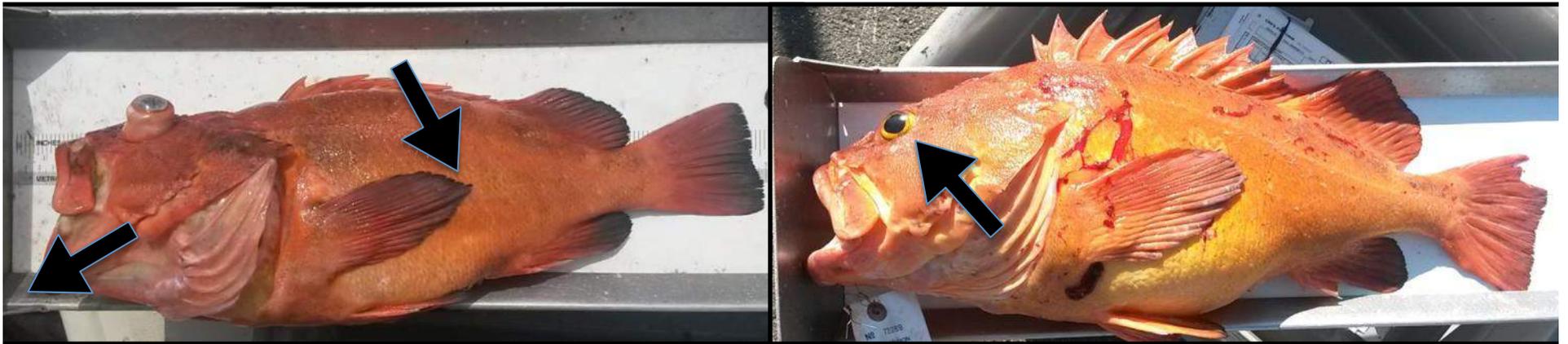
CDFW Regulations 2018

Central Management Area:

- Within the 10-fish RCG complex daily bag limit:
 - 1 Canary Rockfish
 - 3 Black Rockfish
 - 3 Cabezon = 15" total length
 - Kelp/Rock Greenlings = 12" total length
- 2 Lingcod = 22" total length

CDFW Regulations 2018

- Central Management Area: 50 fathoms (300 feet or less)
- Bronzespotted Rockfish, Cowcod, Yelloweye Rockfish prohibited statewide



CDFW Regulations 2018

- Stay updated on current regulations!
 - Recreational Groundfish Hotline: (831) 649-2801
 - www.wildlife.ca.gov/conservation/marine/groundfish
 - Regulation booklets available online, physical copies coming soon
 - Central Management Area opens **April 1st!**

Uses of CCFRP Data

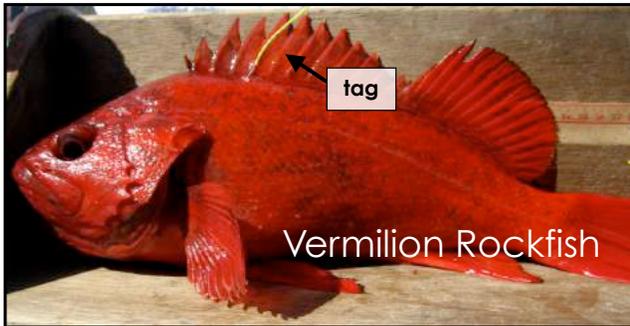
Tracking fine-scale movements of fish species





REWARD

for tag return information



Since 2007, Rick Starr (California Sea Grant Extension Program / Moss Landing Marine Laboratories) and Dean Wendt (California Polytechnic State University, San Luis Obispo) have been working with commercial fishermen, charter boat captains and recreational anglers to tag and release nearshore fishes out of Pillar Point, Monterey, Morro Bay and Port San Luis. The objective of this study is to obtain growth, movement and mortality rates of fishes found near Año Nuevo, Point Lobos, Piedras Blancas and Point Buchon MPAs in order to gain a better understanding of these economically important species.

If you catch a tagged fish (whether you keep it or throw it back), **please record and report:**

- date caught
- species and condition
- total length (snout to end of tail)
- tag number and whether or not it was bio-fouled
- GPS coordinates
- capture depth

Moss Landing Marine Laboratories
8272 Moss Landing Road
Moss Landing, CA 95039

e: seagrant@mlml.calstate.edu
p: (831) 771-4479

San Luis Obispo Science & Ecosystem Alliance
California Polytechnic State University
San Luis Obispo, CA 93407

e: ccms-fisheries@calpoly.edu
p: (805) 756-1419

To learn more about the California Collaborative Fisheries Research Program, visit:
<http://seagrant.mlml.calstate.edu/research/ccfrp/> or
<http://www.slosea.org/collaborative/>



CA Collaborative Fisheries Research Program

Thank you for reporting your tagged fish!



Information about your fish:

Tag No. 13387	Tag	Recapture
Date	21 Jul 2008	14 Nov 2010
Latitude	36.557	36.560
Longitude	-121.941	-121.941
Depth	47 ft	65 ft
Length	31 cm / 12.2 in	44.5 cm / 17.5 in

On 14 November 2010, you caught Copper Rockfish #13387. This fish was tagged as part of the CA Collaborative Fisheries Research Program conducted by Rick Starr (Moss Landing Marine Laboratories) and Dean Wendt (CalPoly, San Luis Obispo). The purpose of this project is to monitor central California's marine protected areas (MPAs) and collect information for fisheries management.

To learn more about this program, visit:
<http://seagrant.mlml.calstate.edu/research/ccfrp/>

Copper Rockfish (*Sebastes caurinus*)

Maximum Length: 67 cm (26.4 in); females get larger than males

Lifespan: 50 years

Range: Gulf of Alaska (USA) to Islas San Benito, Baja California (MX)

Life History: A.K.A. "whitebelly" and "chucklehead"; young fish settle around algae and move to the bottom as they grow. Subadults and adults can be found on boulder fields or other rocky habitats, in aggregations or as solitary individuals. Copper Rockfish are relatively sedentary, remaining at a particular rocky outcrop for extended periods of time.

Your fish was tagged and released near Point Lobos State Marine Reserve, spent 846 days at liberty, and moved approximately 0.18 miles (net distance traveled).

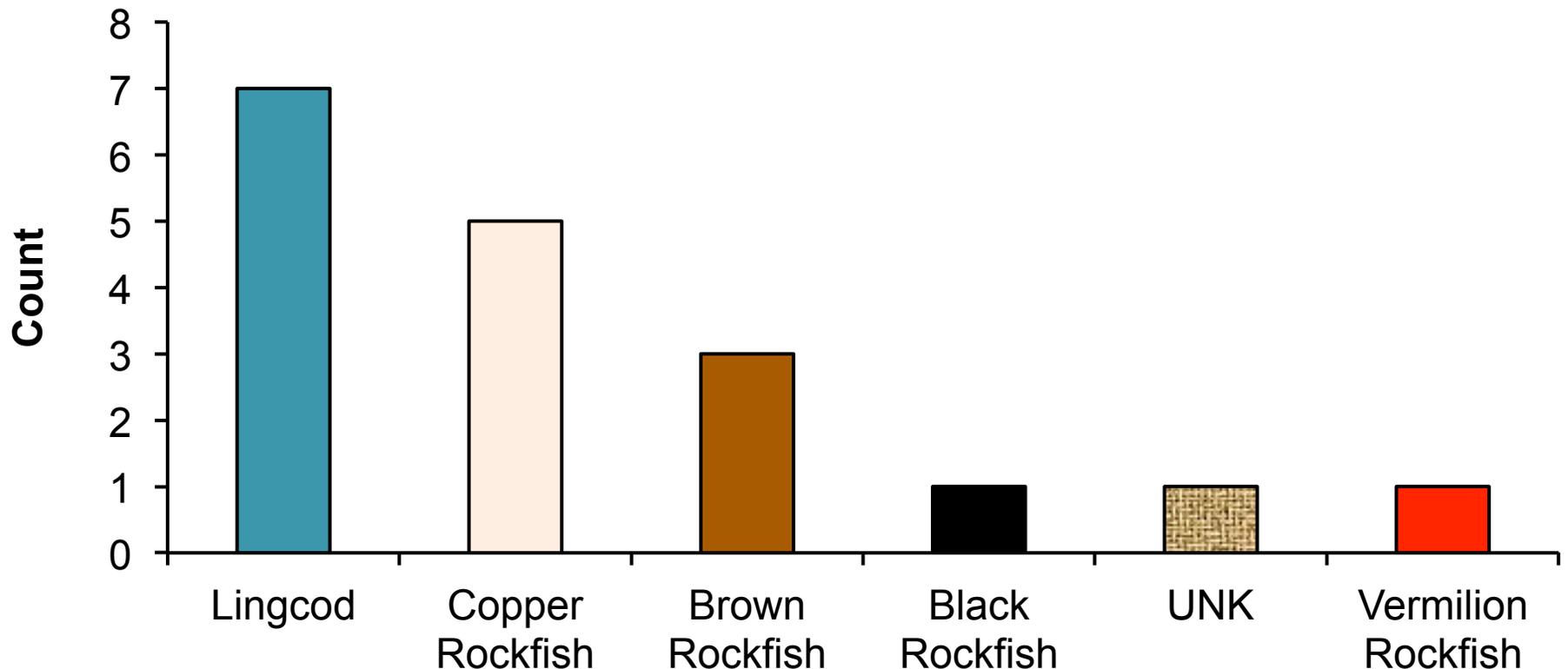
Reference: Love, M.S., M. Yoklavich, and L. Thorsteinson. 2002. The Rockfishes of the Northeast Pacific. University of California Press, Berkeley and Los Angeles, CA. pp. 204-206.

Uses of CCFRP Data

Tracking fine-scale movements of fish species for 2017

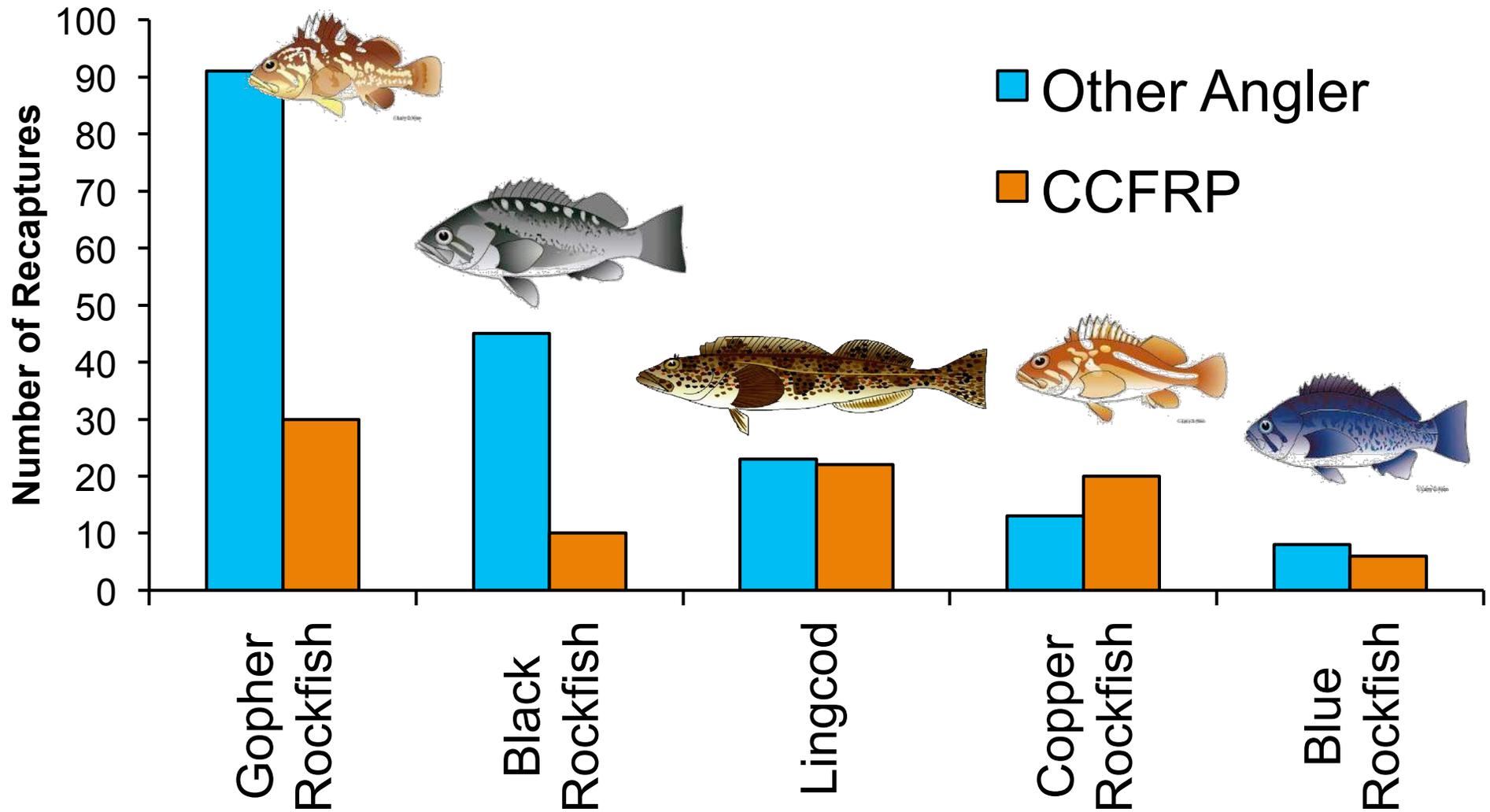
- 18 recaptured fishes!
- 7 were called in by anglers not on the project
- 11 were caught on-board CCFRP samplings trips

Number of Recaptures in 2017



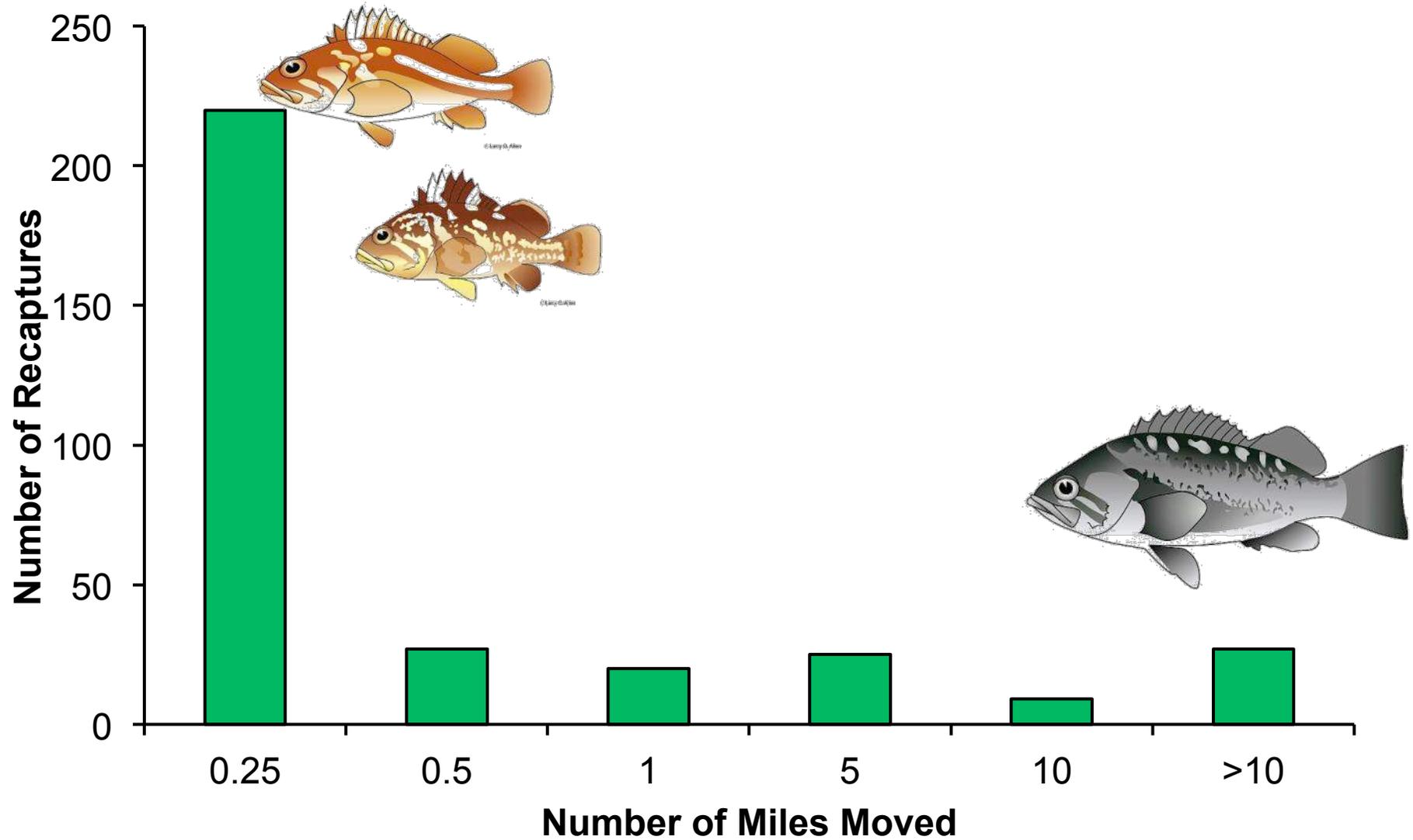
Uses of CCFRP Data

More tag returns from anglers outside CCFRP than within the project!



Uses of CCFRP Data

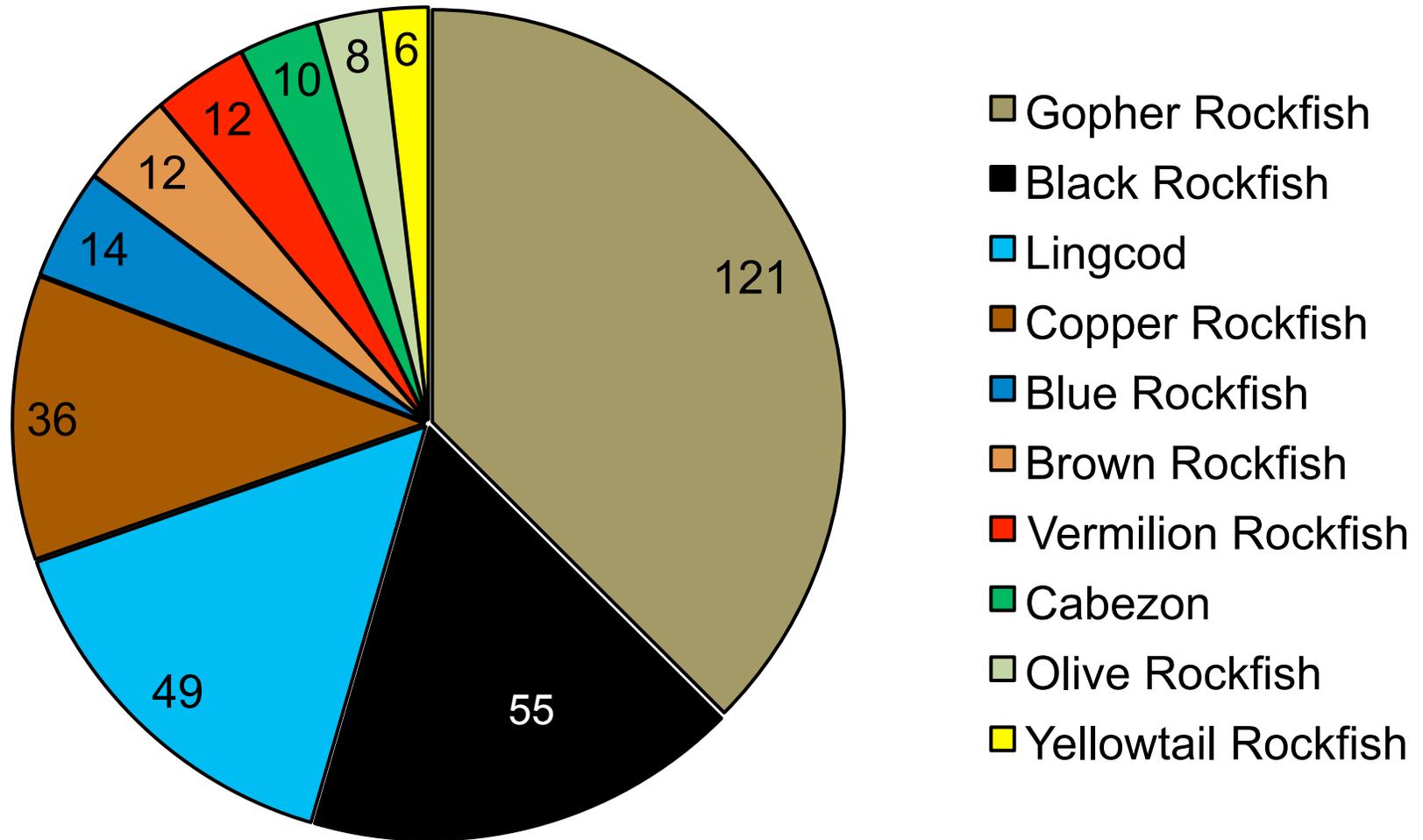
Tracking fine-scale movements of fish species



Uses of CCFRP Data

Tracking fine-scale movements of fish species

Tag Recaptures (Top Ten Species since 2007)



Tag Returns Highlights From 2017!



55 days later



Two Brown Rockfish were tagged on 7/19/17 at Año Nuevo. The first, caught by Nick Ingram, was 43cm (17in). The second, caught by Ed Marchese was 39cm (15in). Both were caught again on the same day, 9/12/17, the first by Mike Juanes, and the second by Harry Lee.

Tag Returns Highlights From 2017!



Michael H. recaptured a Lingcod on 8/3/17 at Point Lobos in the same cell it was originally tagged in! This fish was originally caught by Dylan B. on 8/12/16, and grew about 2 cm in its ~1 year at liberty.

Tag Returns Highlights From 2017!



Kris H. recaptured a Black Rockfish on 8/10/17 at Año Nuevo, that was originally tagged in the same grid cell just a few weeks prior on 7/19/17. This fish was originally caught by Mark A.

Tag Returns Highlights From 2017!



Amazing recapture from **Bodega Bay**! They recaptured a Copper Rockfish at Stewart's Point that was originally tagged by **Cal Poly** in the Piedras Blancas MPA on 8/20/13! In its 1,500 days (4+ years) at liberty, it swam ~220 miles and grew 13 cm!

Tag Returns Highlights From 2017!



Lester Yung caught the same 38 cm (15in) Brown Rockfish on 9/28/16 and 7/19/17 at Año Nuevo!



One unlucky male Lingcod was caught **twice on the same day**, 9/19/17, at Point Lobos! Ben Romano caught it the first time and Nick Ingram the second. It was 58 cm (23in).

Tag Returns Highlights From 2017!

9/20/17 - Final day of the '17 season at Point Lobos...5 TAG RECAPTURES!

1. Joan B. caught a Copper Rockfish that was first tagged on 9/7/16 and originally caught by Jim R.
2. Lester Y. caught a Copper Rockfish that was first tagged on 9/7/16 and originally caught by Bonnie R.
3. Darrell B. caught a Lingcod that was first tagged on 9/7/16 and originally caught by Bonnie R.



Tag Returns Highlights From 2017!

9/20/17 - Final day of the '17 season at Point Lobos...5 TAG RECAPTURES!

1. Joan B. caught a Copper Rockfish that was first tagged on 9/7/16 and originally caught by Jim R.
2. Lester Y. caught a Copper Rockfish that was first tagged on 9/7/16 and originally caught by Bonnie R.
3. Darrell B. caught a Lingcod that was first tagged on 9/7/16 and originally caught by Bonnie R.

4. Eddie G. caught a Lingcod that was tagged on 8/2/17 (one month prior to recapture) and originally caught by Lester Y.



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5. Paul R. caught a Vermilion Rockfish that was first tagged on 8/2/17 (one month prior to recapture) and originally caught by HIMSELF!



The same fish!!



2017 MLML CCFRP Science Crew

- ★ Jen Chiu (Grad student) - Studying Yellowtail Rockfish diet
- ★ Ryan Fields (Technician) – Working in the Starr Lab
- ★ Anne Tagini (Grad student) – Studying habitat associations using the video lander
- ★ Bonnie Brown (Grad student) – Studying Lingcod diet
- ★ Jimmy Williamson (Grad Student) – Studying differences in survey techniques between SCUBA and video lander
- ★ Jackie Mohay (Grad Student): Exploring thesis ideas
- ★ Katie Cieri (Grad Student): Exploring thesis ideas
- ★ Joaquin Cardozo (Intern): Studying Biology and Chemistry at Oberlin College
- ★ Jack Johnson (Intern): Enrolled in a marine program in Mossel Bay, South Africa this summer



Future Directions



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Raffle time!!!!



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The California Collaborative Fisheries Research Program is a collaborative effort among researchers from Moss Landing Marine Laboratories, Cal Poly San Luis Obispo, Humboldt State University, Bodega Marine Laboratory, UC Santa Barbara, and Scripps Institution of Oceanography. MLML would like to thank the volunteer anglers, science crews, and captains and crews of F/Vs *Caroline*, *Chubasco*, *Huli Cat*, *Kahuna*, *New Captain Pete*, *Queen of Hearts*, and *Tigerfish* for their continued support.

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