

REEF Volunteer Survey Project – an ongoing data collection effort

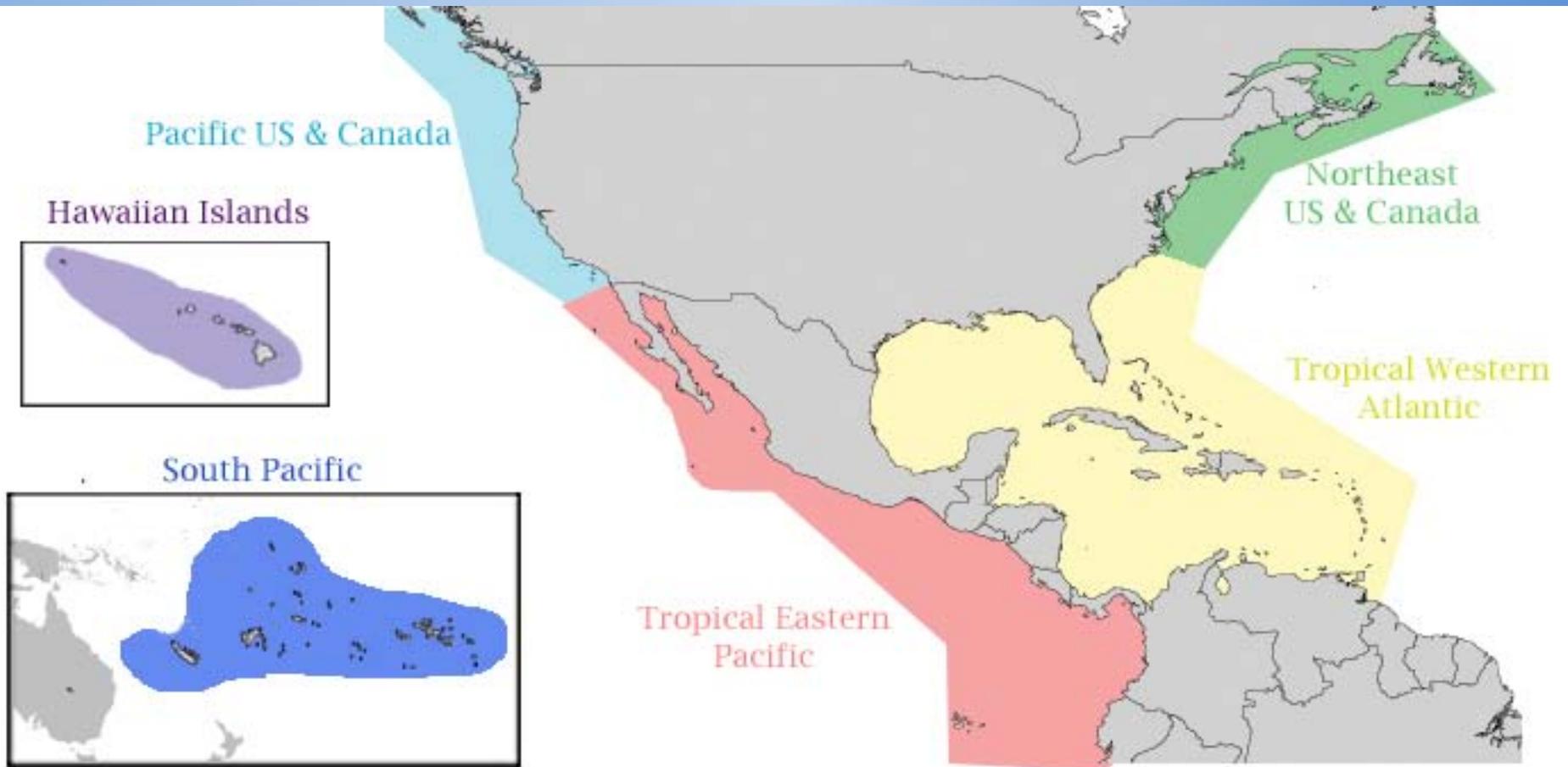


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Janna Nichols

Reef Environmental Education Foundation (REEF)



REEF Volunteer Survey Program



Roving Diver Technique

- Free swimming range around dive site
- Record all fish species positively identified
- Record 45 invertebrates (PNW); 62 inv. and algae (CAL)
- Estimate relative abundance for each species
 - Single (S) - 1
 - Few (F) - 2-10
 - Many (M) - 11-100
 - Abundant (A) - >100



Photo by Pete Naylor

Online Data Entry



Online Data Entry



Display:

Common Scientific

For each species sighted, select the abundance category. Only report species that you have positively identified. Species that are shaded in the blue are very rare, often misidentified, and/or difficult to identify. Please select with care.

[Click on a Family/Category below to go directly to that Family/Category.](#)

- [FLATFISH](#)
- [GREENLING](#)
- [GUNNEL](#)
- [PRICKLEBACK](#)
- [ROCKFISH](#)
- [SCULPIN](#)
- [OTHER](#)
- [ARTHROPODS](#)
- [CNIDARIANS](#)
- [ECHINODERMS](#)
- [MOLLUSKS](#)
- [SPONGES](#)
- [TUNICATES](#)
- [WORMS](#)
- [Goto Unlisted Species](#)
- [Finished Adding Species](#)

FLATFISH	Single (1)	Few (2-10)	Many (11-100)	Abundant (101+)	Clear
022 C-O Sole	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
239 English Sole	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
025 Rock Sole	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
026 Speckled Sanddab	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
028 Starry Flounder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
369 Unidentified Flatfish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GREENLING	Single (1)	Few (2-10)	Many (11-100)	Abundant (101+)	Clear
029 Kelp Greenling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
030 Lingcod	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
032 Painted Greenling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
033 Whitespotted Greenling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GUNNEL	Single (1)	Few (2-10)	Many (11-100)	Abundant (101+)	Clear
231 Crescent Gunnel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
255 Longfin Gunnel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Experience Levels

Level 2: Novice

2 surveys,
80% on exam

Level 3: Intermediate

25 surveys,
80% on exam



Level 4 & 5: Expert

35/50 surveys,
90%/95% on exam

Advanced Assessment Team

REEF Volunteer Survey Project Database



Photo by Pete Naylor

150,398 Surveys
9,200+ Sites
14,000+ Volunteers

Approx. 90% of surveys from sites with specific location data.

208 surveyors have cumulatively conducted 50% of the surveys (64k) in the Tropical Western Atlantic.

48 surveyors have cumulatively conducted 50% of the surveys (11k) in the Pacific region.



As of June 27, 2011

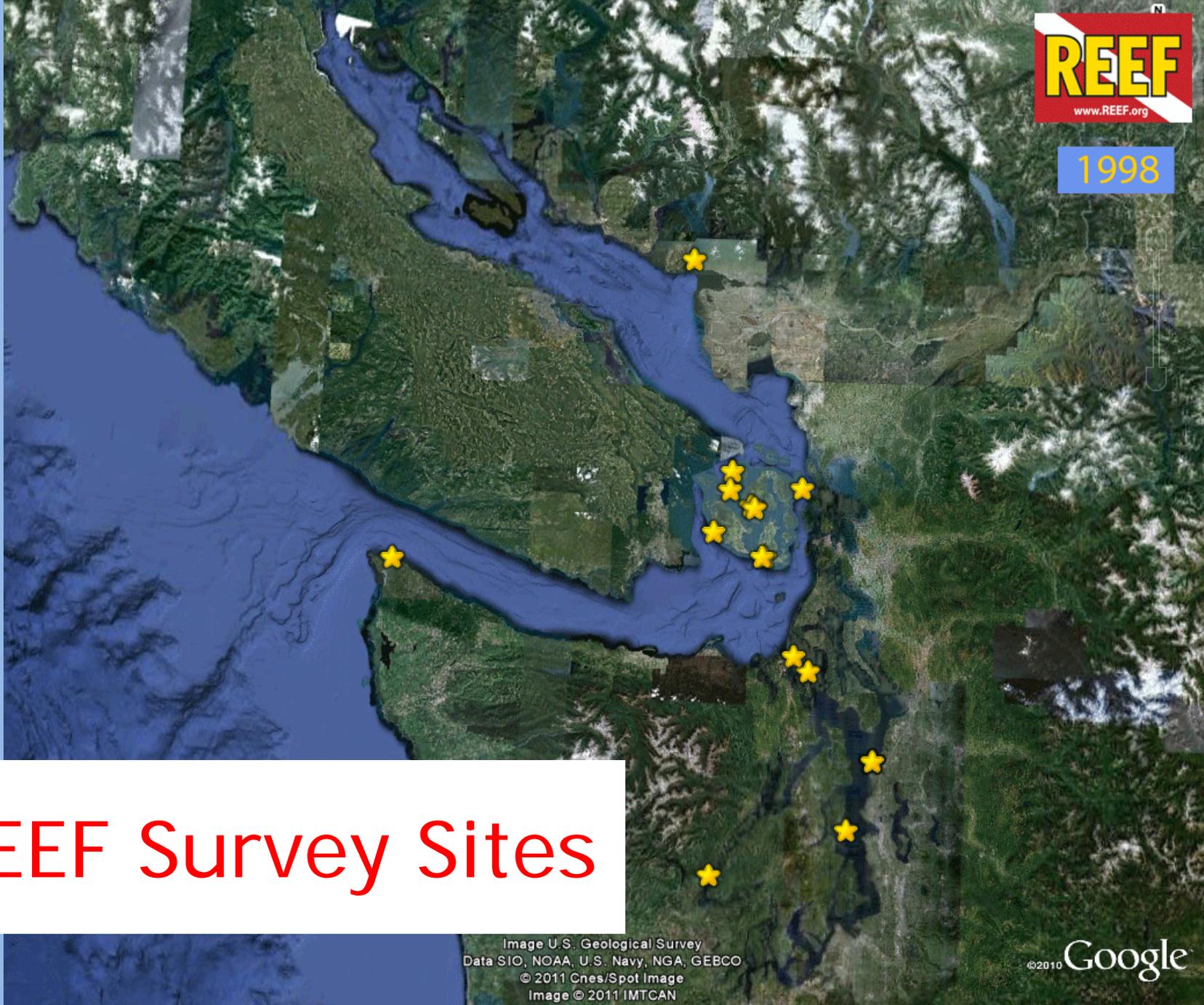
REEF Effort in the Northwest

12,495 Surveys
781 Sites
701 Volunteers

Expert Level Surveyors
4,950 Surveys
50 Volunteers

Year	#surveys	#sites
1998	182	18
1999	187	68
2000	242	121
2001	521	138
2002	991	207
2003	910	174
2004	1,041	222
2005	751	154
2006	1,105	148
2007	1,370	232
2008	1,247	220
2009	1,616	235
2010	1,967	301
2011	365	95

As of June 27, 2011



REEF Survey Sites

Image U.S. Geological Survey
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2011 Ches/Spot Image
Image © 2011 IMTCAN

©2010 Google

48° 33.296' N 123° 40.372' W elev 970 ft

Eye alt 222.76 mi

REEF Surveys - Species

168 Fish Species

45 Invertebrates, incl. 3 non-native spp.

15 Species of Rockfish

Rockfish YOY are reported separately.
Can be reported to species.



Copper Rockfish

65% of Surveys (8,061)
627 Sites



Image U.S. Geological Survey
Image © 2011 IMTCAN
a SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2011 Cnes/Spot Image

31.273° N 123° 53.675' W elev 2078 ft

©2010 Google

Eye alt 221.31 mi



Canary Rockfish



© 2011 Cnes/Spot Image
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2011 Province of British Columbia
Image U.S. Geological Survey

Google

48° 30' 490" N 123° 56' 551" W elev 1085 ft

Eye alt: 221.65 mi



Vermillion Rockfish

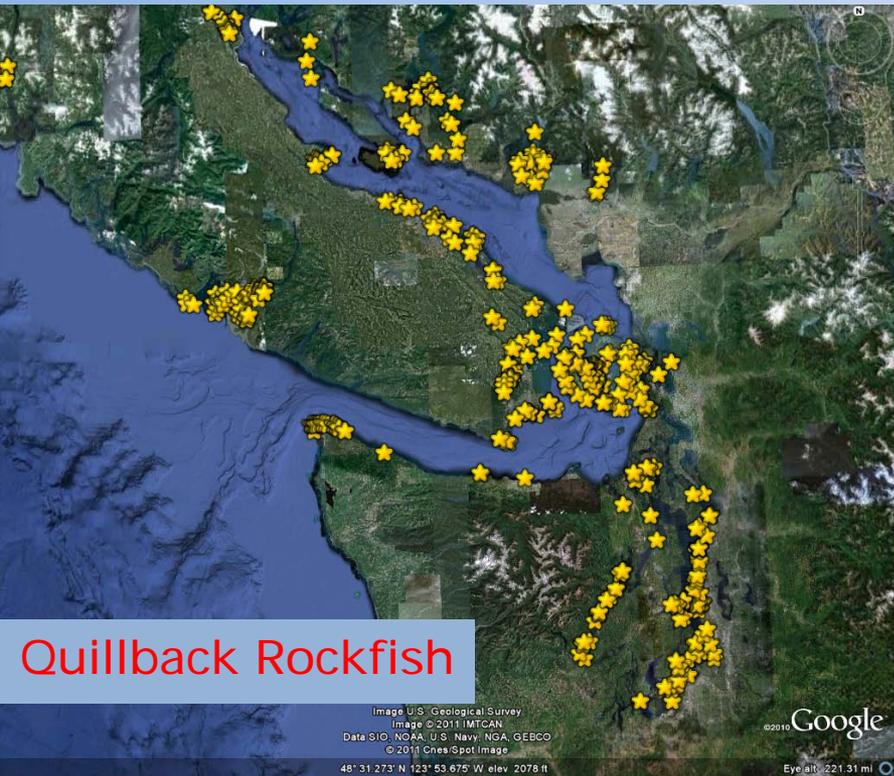
Image U.S. Geological Survey
Image © 2011 IMTCAN
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2011 Cnes/Spot Image
48° 31' 273" N 123° 53' 675" W elev 2078 ft

Google

Eye alt: 221.31 mi



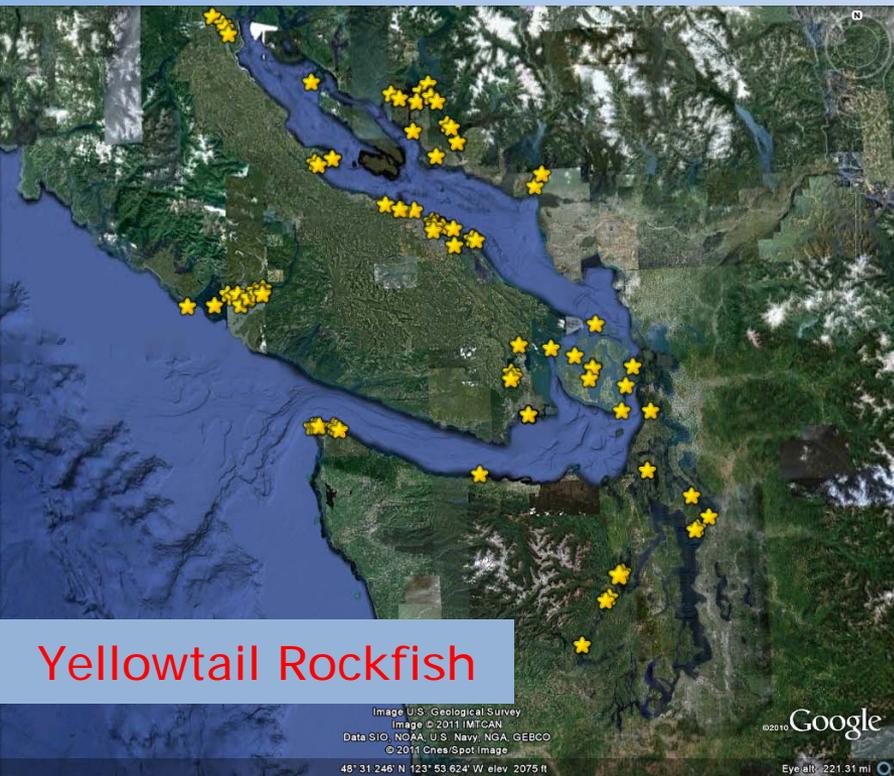
Brown Rockfish



Quillback Rockfish



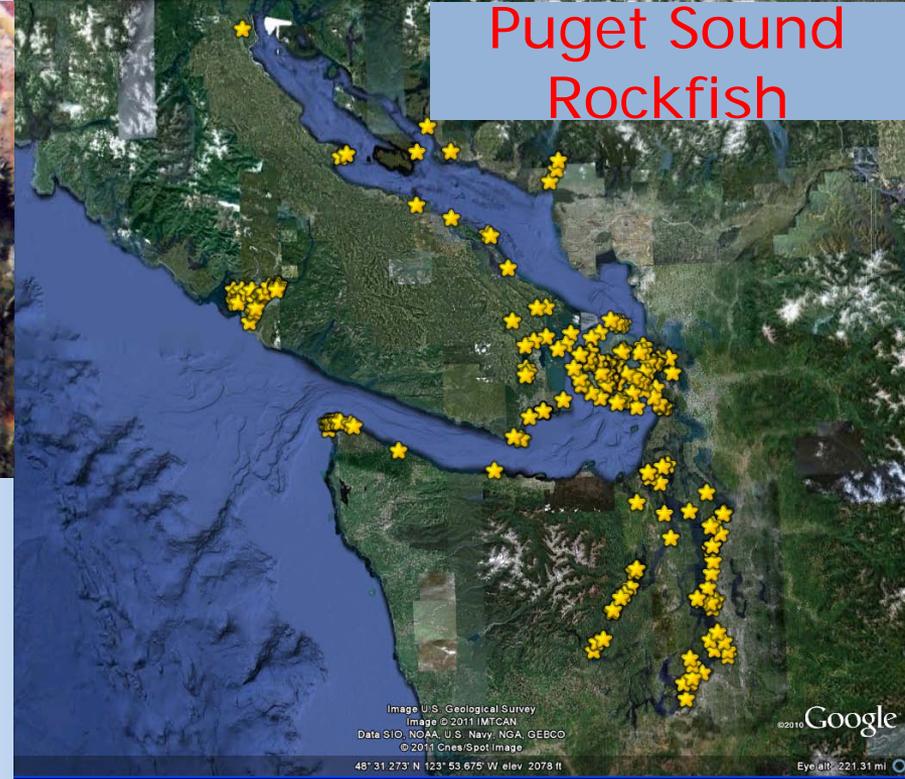
Yelloweye Rockfish



Yellowtail Rockfish



Puget Sound Rockfish



Tiger Rockfish





Blue Rockfish



Black Rockfish

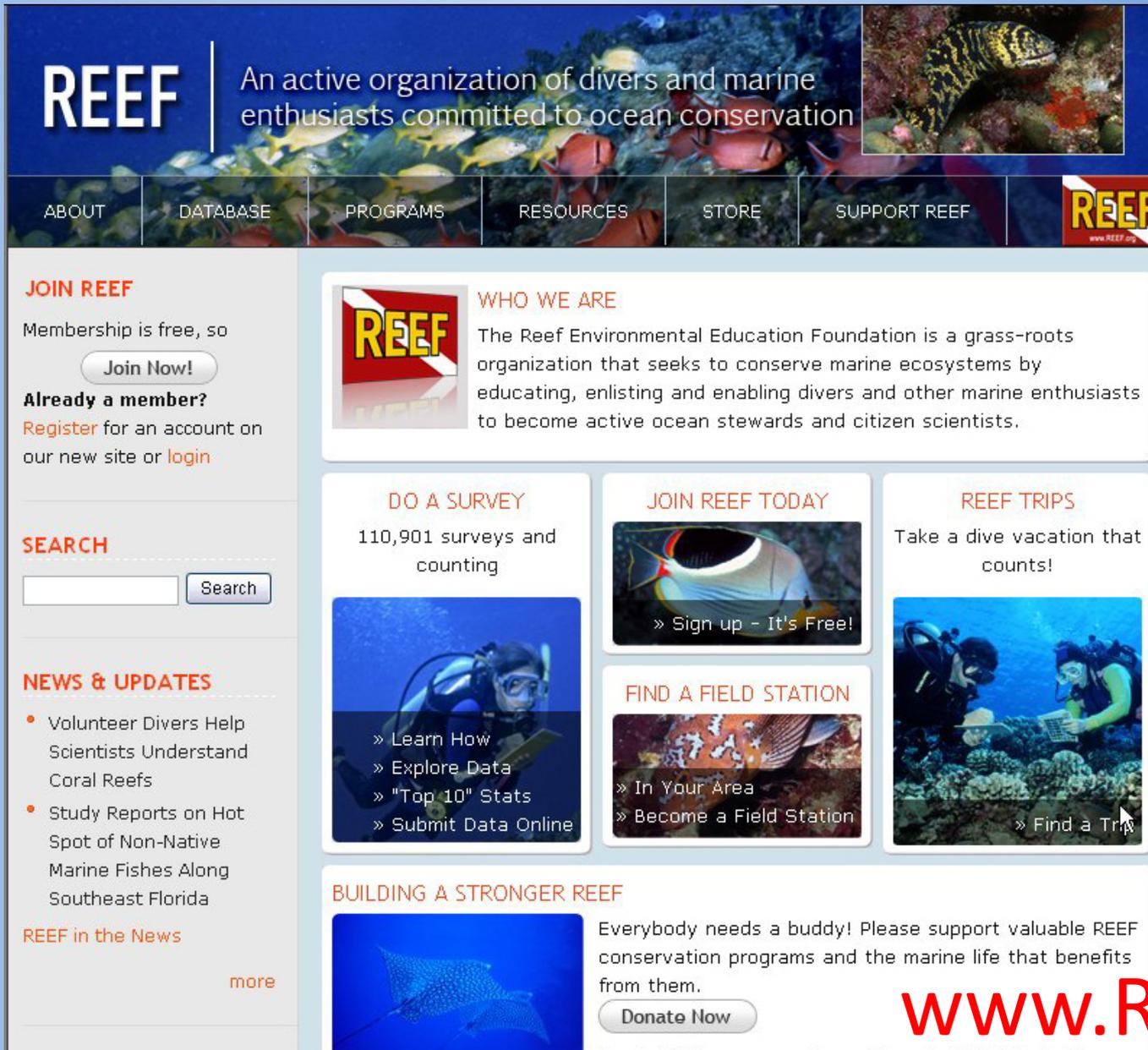


China Rockfish



YOY Rockfish – all species

REEF Website and Database



The screenshot shows the REEF website interface. At the top, the REEF logo is displayed in large white letters on a dark blue background, with the tagline "An active organization of divers and marine enthusiasts committed to ocean conservation" to its right. A navigation menu below the header includes links for ABOUT, DATABASE, PROGRAMS, RESOURCES, STORE, and SUPPORT REEF. A small REEF logo with the website URL is also present in the top right corner.

JOIN REEF
Membership is free, so
[Join Now!](#)
Already a member?
[Register](#) for an account on our new site or [login](#)

SEARCH
 [Search](#)

NEWS & UPDATES

- Volunteer Divers Help Scientists Understand Coral Reefs
- Study Reports on Hot Spot of Non-Native Marine Fishes Along Southeast Florida

[REEF in the News](#) [more](#)

WHO WE ARE

The Reef Environmental Education Foundation is a grass-roots organization that seeks to conserve marine ecosystems by educating, enlisting and enabling divers and other marine enthusiasts to become active ocean stewards and citizen scientists.

DO A SURVEY
110,901 surveys and counting


- » Learn How
- » Explore Data
- » "Top 10" Stats
- » Submit Data Online

JOIN REEF TODAY

» Sign up - It's Free!

REEF TRIPS
Take a dive vacation that counts!

» Find a Trip

FIND A FIELD STATION


- » In Your Area
- » Become a Field Station

BUILDING A STRONGER REEF

Everybody needs a buddy! Please support valuable REEF conservation programs and the marine life that benefits from them.
[Donate Now](#)

www.REEF.org

Summary Reports - Geographic

Geographic Zone Report

Region: Pacific Coast
Geographic Zone: Orcas Island (2210)

Start Date: Jan 1 1993
End Date: Jun 27 2011

Data Type: Fish

Species Display: Chart (New) Common names

Change
 Reset report options

Survey Type:
 Click on a geographic place name to expand

Code	Site	
PAC		
2	WASHINGTON	
22	SAN JUAN ISLANDS	93 - 209 - 216:11
2210	Orcas Island	93 - 209 - 216:11
22100001	Lawrence Point	0 - 3 - 2:38
22100002	Bell Island - West	6 - 40 - 28:18
22100003	Peapod Rocks N	0 - 2 - 1:41
22100005	NW Crane Island	0 - 2 - 1:14
22100006	Bell Island - East	8 - 47 - 32:51
22100007	Tommy's Dropoff	0 - 1 - 0:34
22100008	East Sound	0 - 2 - 1:33
22100009	Bird Rocks (East Sound)	0 - 4 - 2:14



Kelp Greenling

22100027	Doe Bay	4	-	3	-	5:59
22100028	Lydia Shoal	1	-	1	-	1:46
22100029	Mercedes Rock	0	-	1	-	0:44
TOTALS		93	-	209	-	216:11

SPECIES

%SF = Sighting Frequency; DEN = Density
 Bar length corresponds to sighting frequency
 Color saturation corresponds to density

Kelp Greenling	SF: 73.2% DEN: 1.9
Copper Rockfish	SF: 71.9% DEN: 2.2
Black Rockfish	SF: 68.8% DEN: 2.2

Kelp Greenling SF: 73.2% | DEN: 1.9

Species ID #: 0029

	Expert	Novice	Total
SF	68.8%	75.1%	73.2%
Den	1.9	2	1.9

Striped Seaperch	SF: 21.2% DEN: 1.9
Tube-Snout	SF: 20.5% DEN: 3
Painted Greenling	SF: 18.2% DEN: 1.4
Speckled Sanddab	SF: 17.2% DEN: 2.5
Juvenile (YOY) Rockfish - Unidentified	SF: 16.6% DEN: 2.4
Pacific Sanddab	SF: 14.6% DEN: 2
Penpoint Gunnel	SF: 13.2% DEN: 1.2

Summary Reports - Species

Distribution report for Black Rockfish (*Sebastes melanops*) in PAC

Region:

Pacific Coast

Geographic Zones:

All

Start Date:

Jan 1 1993

End Date:

Jun 27 2011

Change

[Reset report options](#)

Code	Site	N	Total			Novice			Expert		
			n	SF%	DEN	n	SF%	DEN	n	SF%	DEN
1	BRITISH COLUMBIA	2915	740	25.4	2.5	475	23.8	2.5	265	28.9	2.4
11	QUEEN CHARLOTTE STRAIT	368	173	47	2.7	113	43	2.7	60	57.1	2.6
1120	North of Chatham Point - Telegraph Cove (Johnstone Strait)	22	10	45.5	2.2	7	41.2	2.1	3	60	2.3
1126	Cracroft Island, East Cracroft Island, Minstrel Island	1	1	100	3	0	0	1	100	3	
1131	Malcolm Island and Cormorant Island and Pearse Islands	25	14	56	2.7	7	43.8	3	7	77.8	2.4
1132	Swanson Island, Hanson and other Islands North of Johnstone Strait	9	9	100	2.7	3	100	2.7	6	100	2.7
1134	Lewis Point - Ledge Point (Incl Port McNeill)	4	3	75	3.7	1	50	4	2	100	3.5
1140	north of Dillon Point - Gorotisa Point	25	8	32	2.9	7	29.2	2.9	1	100	3
1146	north of Blunden Harbor - City Pt	14	11	78.6	2	10	76.9	2	1	100	2
1149	Nigel Island and Balaklava Island and Hurst Island	152	107	70.4	2.7	71	64	2.8	36	87.8	2.5
1151	Shushartie Bay	11	10	90.9	2.8	7	100	2.6	3	75	3.3
12	WESTERN VANCOUVER ISLAND (Fredericksen Pt - Cape Beale)	712	432	60.7	2.5	286	59.3	2.5	146	63.5	2.6
1206	s. of Bajo Pt. - Estevan Pt.	34	14	41.2	2.3	2	33.3	2.5	12	42.9	2.3
1209	Ucluelet - Cape Beale	678	418	61.7	2.5	284	59.7	2.5	134	66.3	2.6
13	STRAIT OF GEORGIA	1646	75	4.6	2	40	3.5	2	35	6.8	2
1314	Desolation Sound	4	1	25	1	0	0	1	33.3	1	
1321	Lasqueti Island	6	2	33.3	1.5	1	20	2	1	100	1
1330	S. Qualicum Beach - Nanaimo	56	2	3.6	1	2	5.4	1	0	0	
1341	Gulf Islands	134	6	4.5	1.7	5	5.2	1.6	1	2.6	2

Putting the Data to Work

- Population Assessments
- Fisheries-Independent Stock Assessments
- Protected Area Monitoring in National Marine Sanctuaries
- Identification and Tracking of Non-native Species
- Biodiversity Hotspots for Ecoregional Planning
- Investigating Ecological Patterns
- Assessments for Endangered Species Act Listings
- Non-extractive User Group Patterns of Use

31 science and resource management publications

Selected Publications

- Auster, P.J., B.X. Semmens and K. Barber. 2005. Pattern in the co-occurrence of fishes inhabiting the coral reefs of Bonaire: implications for planning networks of marine reserves. *Environmental Biology of Fishes* 74: 187-194.
- Weaver, D. and L. Rocha. 2007. A new species of *Halichoeres* (Teleostei: Labridae) from the western Gulf of Mexico. *Copeia* 2007(4): 798-807.
- Kingsley, M.C.S., ed. 2004. The Goliath Grouper in southern Florida: assessment review and advisory report. Report prepared for the South Atlantic Fishery Management Council, the Gulf of Mexico Fishery Management Council, National Marine Fisheries Service. SEDAR. 17 pp.
- Stallings, C.D. 2009. Fishery-Independent Data Reveal Negative Effect of Human Population Density on Caribbean Predatory Fish Communities. *PLoS ONE* 4(5).
- Biological Review Team NWFSC. 2009. Preliminary Scientific Conclusions of the Review of the Status of 5 Species of Rockfish. NOAA Report
- Ward-Paige CA, Mora C, Lotze HK, Pattengill-Semmens C, McClenachan L, et al. (2010) Large-Scale Absence of Sharks on Reefs in the Greater-Caribbean: A Footprint of Human Pressures. *PLoS ONE* 5(8)

Learning to "See" Underwater

