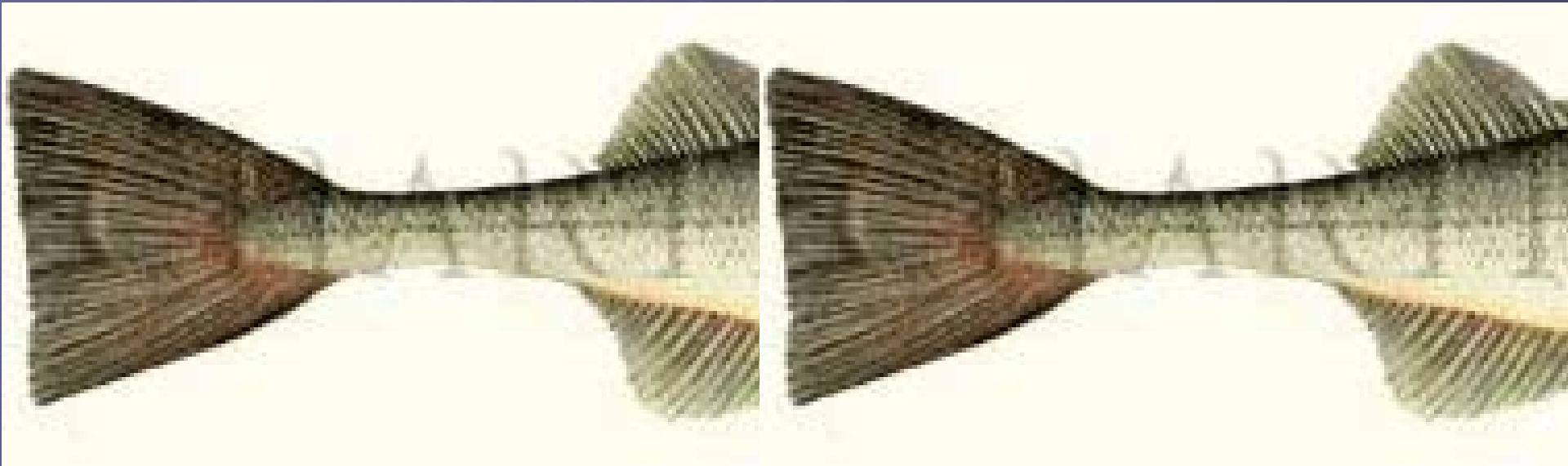


A Tale of Two Co-ops



Dealing with Constraining Species
in a Co-Management System with
Full Catch Accounting

The Pacific Whiting Fishery



The Mothership Sector

Rationalization through a
Cooperative

A common pool of Target and
Bycatch Species Quotas

The Shorebased Sector

Rationalization through
IFQs

Individual Target and Bycatch
Quotas

The “Choke” Species



The Mothership Co-op

One bad tow can shut down the fleet for the season.

The Shorebased Co-op

One bad tow can shut down a vessel for over a year.

Constraints per 100 Tons of Whiting



- 22 Pounds of Darkblotched



- 19 Pounds of Canaries



- 425 Pounds of Widows



- 25 Pounds of POP



- 3 Chinook Salmon

The “Heart Attack” Species

*What Am I Worth
Today?*

Jan. 1st - \$30.00/lb

Dec 30th – zippo



The day you are in deficit and you still have 10,000,000 pounds of Whiting left in the water?

“Priceless...”

Balancing Accountability and Risk

The Mothership Co-op

The task of the co-op is to individualize accountability while managing a common quota.

A “Necessary” Co-op

The Shorebased Co-op

The task of the co-op is to collectivize risk while maintaining individual accountability.

A “Voluntary” Co-op

A Common Set of Tools

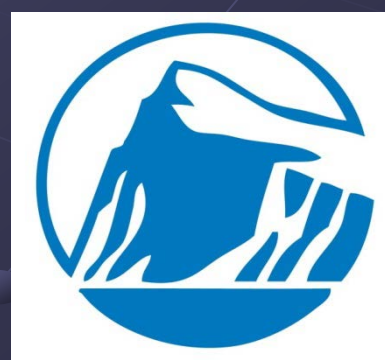
Observer Data – Historic and Real Time
VMS Track Lines – Historic and Real Time
Captain’s Logbooks and Local Knowledge
GIS Analysis



Shorebased Whiting Co-op

“Insuring Against Lightning Strikes Since 2012”

- Premiums
- Deductibles
- Co-Pays
- Life Time Benefit Caps
- Smoke Detector Requirements

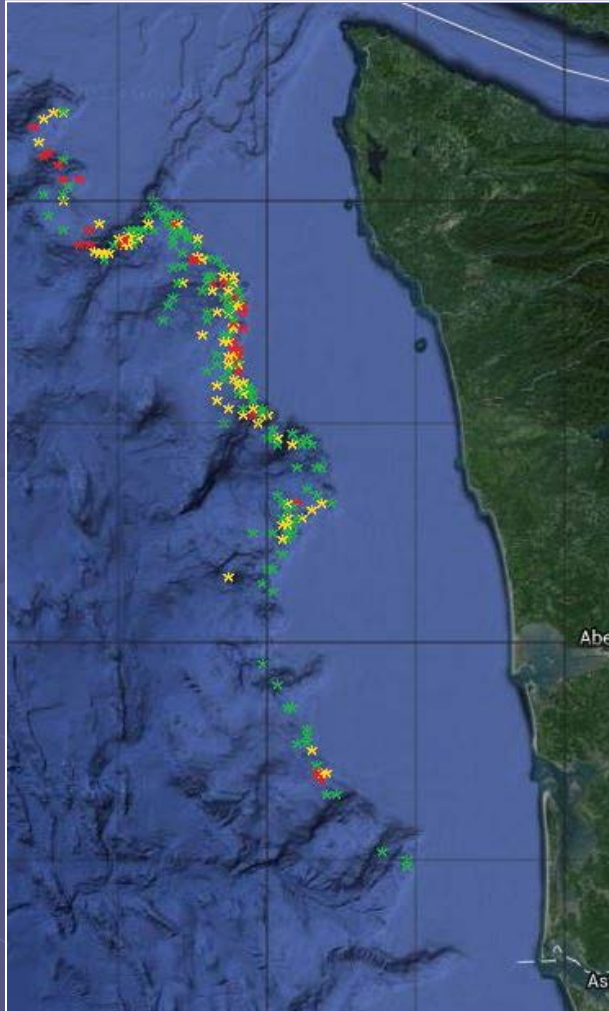


Some of the Co-op Rules

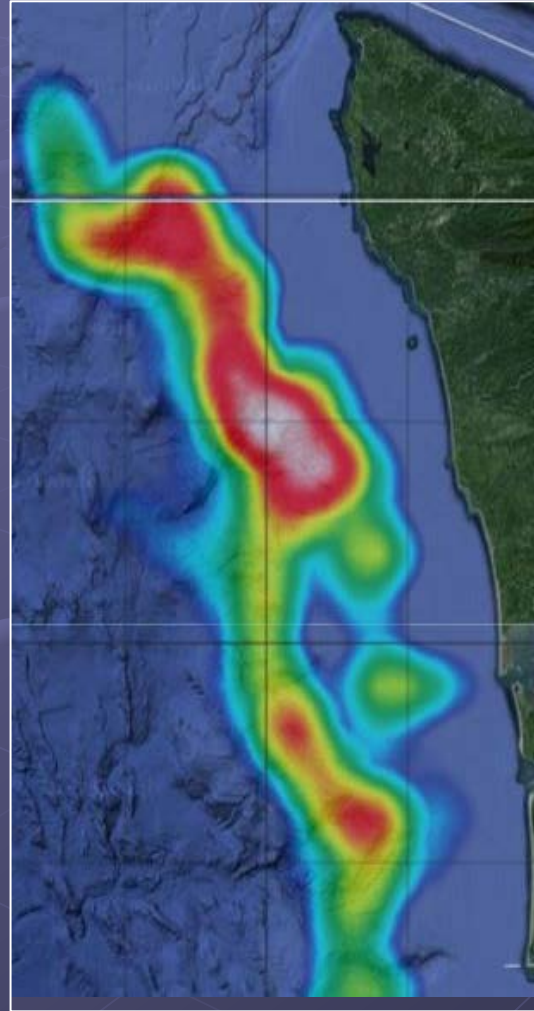
A 20 Page Contract Among Members

- Waiver of Confidentiality for:
 - Observer & Fish Ticket Data
 - VMS Data
- Full Data Transparency within the Co-op
- Data Sharing with other Whiting Sectors
- Agreement to Abide by Co-op Closures
 - Spatial Closures
 - Night Fishing Restrictions

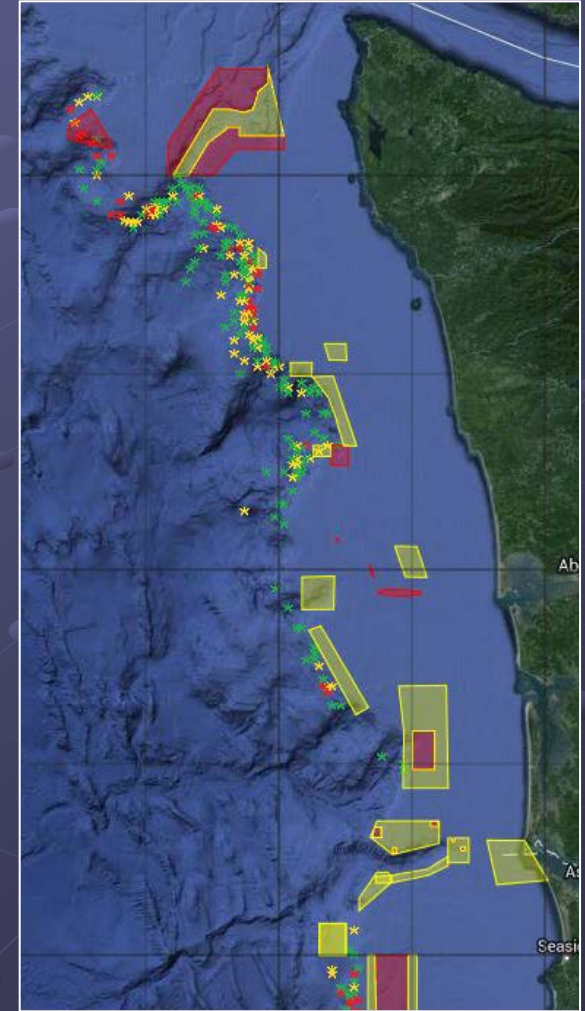
From the Data to Self Imposed Avoidance Areas 31 Closures and 43 Advisory Areas



Tows with
Darkblotched Bycatch



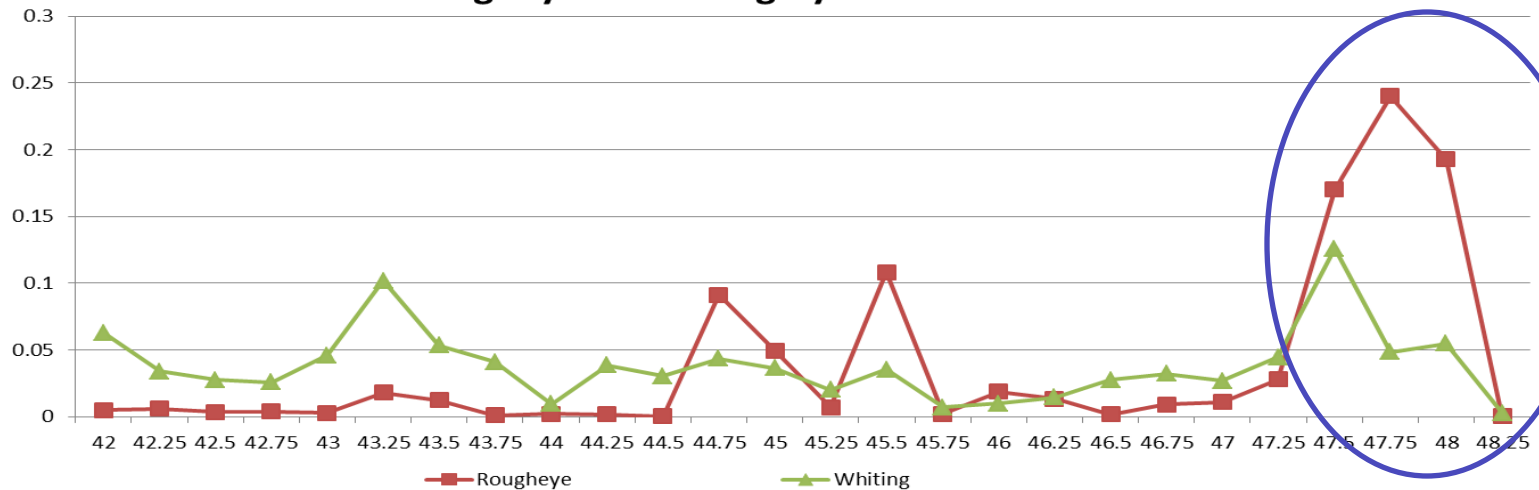
Whiting Harvest
"Heat Map"



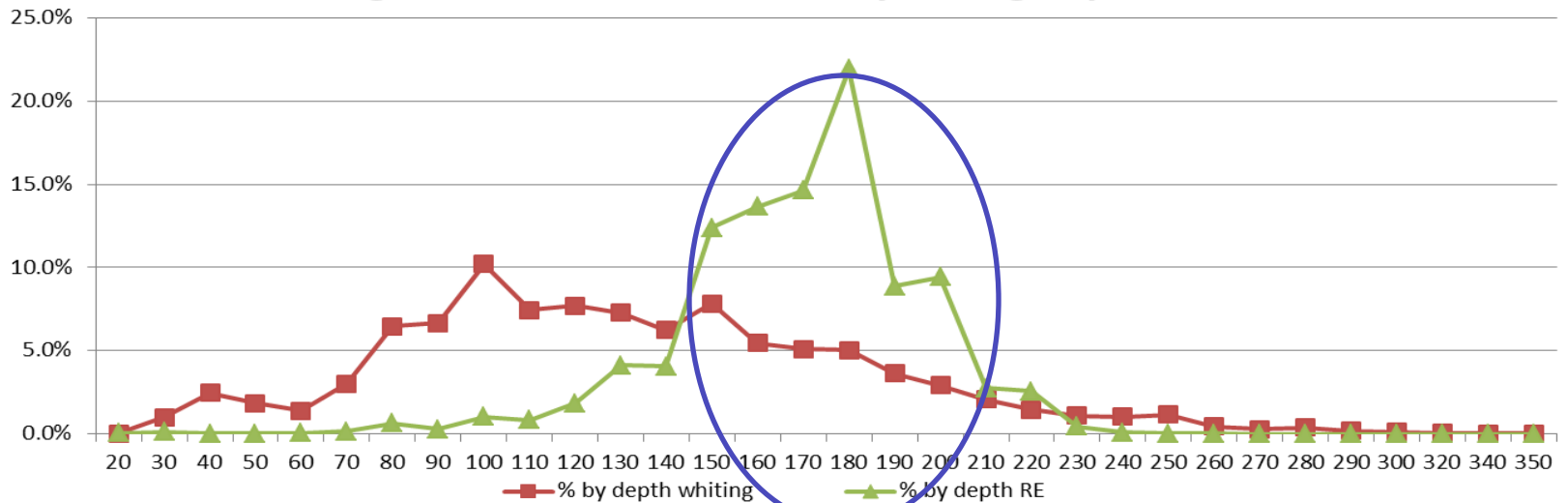
SWC Closed
and Advisory Areas

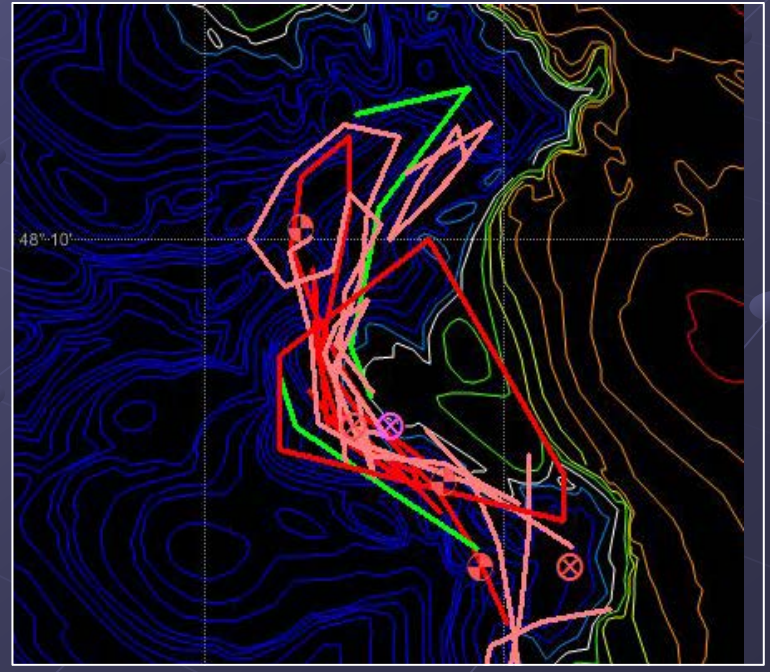
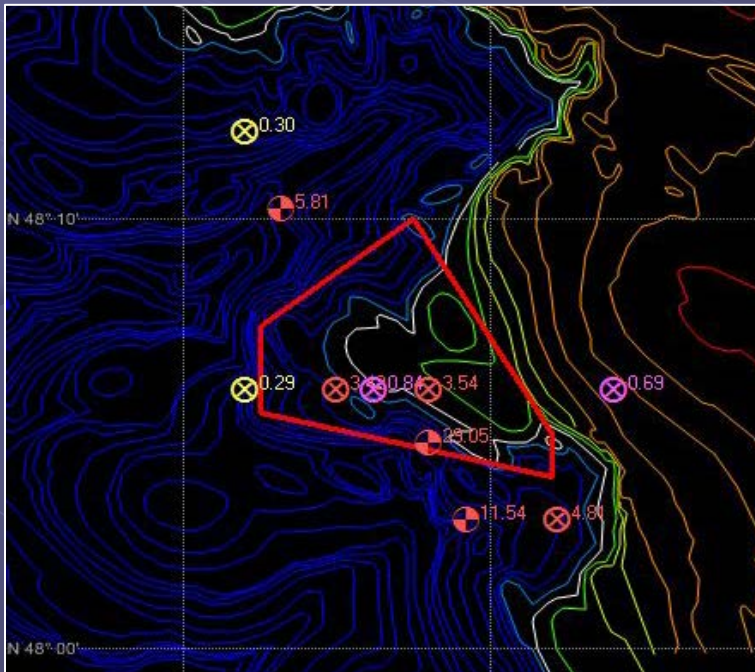
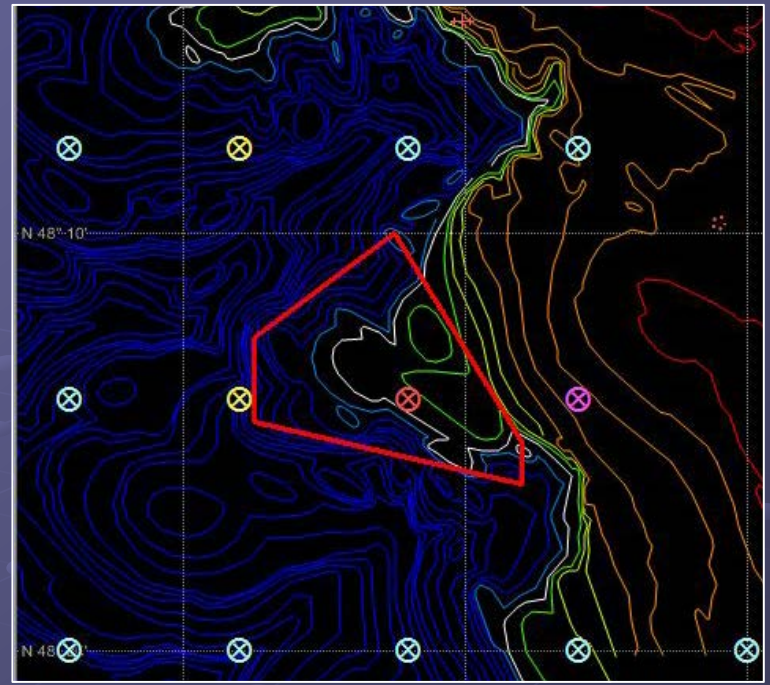
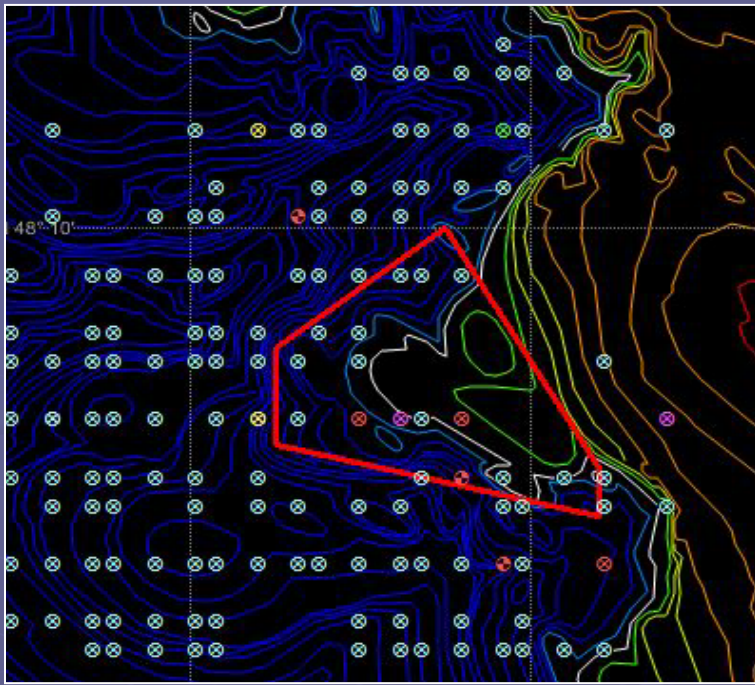
Scoping

Rougheye vs Whiting by Latitude Interval



% Whiting harvest vs % RE harvest by fishing depth interval





Observer Data in the Hands of Captains

GLOBE - [Range: 25.99 nm Follow: Cursor Depth Unit: Meters]

File Toolbars Marks Lines Tracks Routes ARPA Own Ship View Options Window Help

Meters (bathymetric)

5/12/2014
11:09:34 AM

0 ft
0.00° T

N 48 16.917
W 126 07.047

M: 2 decimal ca...
L: SWC 2013 Cl...
T: *no tracks*

Open Mark File

Look in: marks

Name	Date modified
1 decimal canary	4/19/2011 8:28 PM
1 decimal chinook	4/19/2011 8:27 PM
1 decimal darkblotch	4/19/2011 8:22 PM
1 decimal POP	5/10/2011 11:25 AM
1 decimal whiting	1/15/2012 2:03 PM
1 decimal widow	4/19/2011 8:29 PM
1st pool widow rates	8/29/2011 7:19 AM
2 decimal canary 2011	4/23/2012 1:43 PM
2 decimal canary	4/19/2011 8:28 PM
2 decimal chinook 2011	4/23/2012 1:26 PM
2 decimal chinook	4/19/2011 8:23 PM
2 decimal darkblotch 2011	4/23/2012 1:43 PM
2 decimal darkblotch	4/19/2011 8:40 PM

File name: Open

Sea State SWC Website

WHITING LANDINGS

Welcome **dfraser!** [[Log Out](#)]

WHITING LANDINGS

Vessel

Landing Date

Fish Ticket#

Re-enter Fish Ticket#

Pacific Whiting (lbs)

Canary (lbs)

Darkblotched (lbs)

Pacific Ocean Perch (lbs)

Widow (lbs)

Yelloweye (lbs)

Comments

USER ENTERED TICKETS

	Landing Date	Fish Ticket Number	Vessel	Delete?
1	11/13/2012	3958823	Bay Islander	[Delete] ▲
2	11/12/2012	EA000142	Pacific Challenger	[Delete]
3	11/11/2012	3953878	Bay Islander	[Delete]
4	11/10/2012	3956617	Raven	[Delete]
5	11/9/2012	3953876	Bay Islander	[Delete]
6	11/9/2012	EA000139	Sea Clipper	[Delete] ▼

The Sea State accesses fish ticket data through the NMFS catch accounting website, but there can be a 48 hour lag time between delivery and data availability. Captains are asked to enter preliminary catch data before starting a new trip.

Sea State SWC Website

SEA STATE INCORPORATED

Shoreside Whiting Coop SWC Maps SWC Deliveries Catch vs Allocations Allocations SWC Admin Transfer Reports Whiting Bycatch VMS Maps

[Help]

SHORESIDE WHITING COOP

Year: 2013 ▼

Coop Harvest and Status of Reserve Accounts (lbs)

Species	Harvest YTD	Allocation	Remaining	% Used	Initial Reserve	Reserve Used	Initial Reserve Ratio (x1000)	Current Reserve Ratio (x1000)
Pacific Hake	146,419,654	147,778,603	1,358,949	99.08 %	N/A	N/A	N/A	
Canary Rockfish	2,260	13,977	11,717	16.17 %	6,973	26	0.095	
Widow Rockfish	213,698	447,875	234,177	47.71 %	221,069	42,625	3.031	
Dark Blotched Rockfish	4,742	39,616	34,874	11.97 %	19,891	778	0.268	
Pacific Ocean Perch	13,152	29,660	16,508	44.34 %	15,050	2,269	0.201	
Yelloweye Rockfish	0	102	102	0.00 %	102	0	0.001	

Vessel Harvest (lbs)

Vessel	Pacific Hake	Canary Rockfish	Widow Rockfish	Dark Blotched Rockfish	Pacific Ocean Perch	Yelloweye Rockfish
Arctic Fury	16,857,468		236	13,944	29	1,411
Bay Islander	8,215,983		38	11,530	280	13
Blue Fox	7,232,813		43	5,720	770	16
Jamie Marie	9,920,193		212	8,945	4	225
Lisa Melinda	6,972,100		238	13,316	1	18
Muir Milach	10,261,262		298	21,610	57	6
Pacific Challenger	5,309,742		3	1,902	190	7,014
Pacific Future	8,611,596		115	14,448	1,755	177
Pacific Ram	7,804,381		100	2,432	32	16
Pegasus	6,088,272		112	7,657	65	18
Perseverance	9,537,169		53	14,502	22	613
Predator	5,743,629		94	15,883	755	832
Raven	12,863,239		90	18,046	696	674
Sea Clipper	9,598,658		425	17,391	10	591
Sea Storm	9,934,078		69	7,510	55	1,287
Seeker	11,469,071		134	38,862	21	241

Vessel Restricted QP % Used

Vessel	Pacific Hake	Canary Rockfish	Widow Rockfish	Dark Blotched Rockfish	Pacific Ocean Perch	Yelloweye Rockfish
Arctic Fury	100.00 %	37.76 %	70.25 %	2.07 %	88.91 %	
Bay Islander	98.87 %	9.16 %	75.81 %	16.57 %	1.06 %	
Blue Fox	93.06 %	8.33 %	37.67 %	60.34 %	2.05 %	

Members get daily reports on catch and bycatch for all members of the co-op.

Sea State SWC Website

The screenshot shows the Sea State SWC Website interface. The browser address bar displays the URL: <https://acct.seastateinc.com/Seastate/Members/PnwWhitingMap.aspx>. The page title is "WHITING BYCATCH VMS MAPS". The navigation menu includes: Shoreside Whiting Coop, SWC Maps, SWC Deliveries, Catch vs Allocations, Allocations, Reports, Whiting Bycatch VMS Maps. The date is Today's Date: 5/7/2013. The map shows a grid of latitude and longitude coordinates, with various fishing tracks and bycatch data points. The map includes a legend, a search bar, and a date range selector. The legend lists the following vessels: American Triumph, Blue Fox, Kodiak Enterprise, Northern Jaeger, Pacific Future, Sea Clipper, and Seeker. The date range selector shows activity between 9/3/2012 and 9/21/2012. The legend also includes a section for "Show trips with high bycatch rates for:" with the following criteria: Canary Rockfish > 0.246 KG/MT GF (1 events), Widow Rockfish > 4.374 KG/MT GF (5 events), Dark Blotched Rockfish > 0.974 KG/MT GF (3 events), Pacific Ocean Perch > 0.828 KG/MT GF (4 events), and Yelloweye Rockfish > 0.002 KG/MT GF (0 events). The map data is attributed to Google Imagery and TerraMetrics. The bottom of the page includes a footer with the text: "Map data ©2013 Google Imagery ©2013 TerraMetrics - Terms of Use".

Members can view any tracks with bycatch above the “base rates.”

Sea State SWC Website

The screenshot shows a web browser window with the URL <https://acct.seastateinc.com/Seastate/Members/PnwWhitingMap.aspx>. The page title is "WHITING BYCATCH VMS MAPS". The map displays various fishing tracks and bycatch data. A pop-up window titled "FISH TICKET DETAIL FOR BLUE FOX 3958014 9/21/2012" is open, showing the following table:

Species	Total Catch	Bycatch Rate (x1000)
Pacific Hake	158,361 LBS	N/A
Widow Rockfish	5,999 LBS	37.882
Dark Blotched Rockfish	1,725 LBS	10.893
Pacific Ocean Perch	2,892 LBS	18.262

The pop-up window also includes a "Close" button (X) in the top right corner. The background map shows a grid of latitude and longitude coordinates, with various colored regions representing different fishing areas. A legend on the right side of the map lists several fishing vessels, including American Triumph, Blue Fox, Kodiak Enterprise, Northern Jaeger, Pacific Future, Sea Clipper, and Seeker. Below the legend, there are options to "Show activity between 9/3/2012 and 9/21/2012" and "Show trips with high bycatch rates for:" followed by a list of species and their respective bycatch rates.

Members can see detailed information about catch and bycatch by clicking on a VMS track.”

Sea State SWC Website

The screenshot displays the Sea State SWC website interface. At the top, the browser address bar shows the URL <https://acct.seastateinc.com/Seastate/Members/SwcMap.aspx>. The navigation menu includes links for Shoreside Whiting Coop, SWC Maps, SWC Deliveries, Catch vs Allocations, Allocations, Reports, and Whiting Bycatch VMS Maps. The date is set to 5/7/2013.

The main content area is titled "SWC MAPS" and features a map of the Heceta Bank area. The map shows various fishing tracks in yellow and red, overlaid on a background of bathymetry and nautical charts. Key features on the map include "Heceta Bank", "Stonewall Bank", and "Obstr Cy". A legend on the right side of the map allows users to filter tracks by vessel name and species. The vessel names listed are Blue Fox, Jamie Marie, Lisa Melinda, Pacific Future, Pegasus, Perseverance, Predator, Raven, Sea Clipper, Sea Storm, and Seeker. The species listed are Canary Rockfish, Widow Rockfish, Dark Blotched Rockfish, Pacific Ocean Perch, and Yelloweye Rockfish. The legend also includes options to show trips with high bycatch rates for the listed species and to show trips with landing dates between 9/3/2012 and 9/23/2012. Buttons for "Update Map" and "Export Map Data" are located at the bottom of the legend.

At the bottom of the map, there is a legend for map layers: Lat/Lon Lines, BSAI Contours, BSAI Reporting Areas, GOA Reporting Areas, Nautical Charts (incomplete coverage), and SWC Closed/Advisory Areas. The map data is attributed to ©2013 Google Imagery and ©2013 TerraMetrics.

The Co-op manager can view all tracks to monitor compliance with area closures.



Acknowledgements:

National Fish and Wildlife Foundation



NMFS Observer Program



Sea State, Inc.



Questions?

