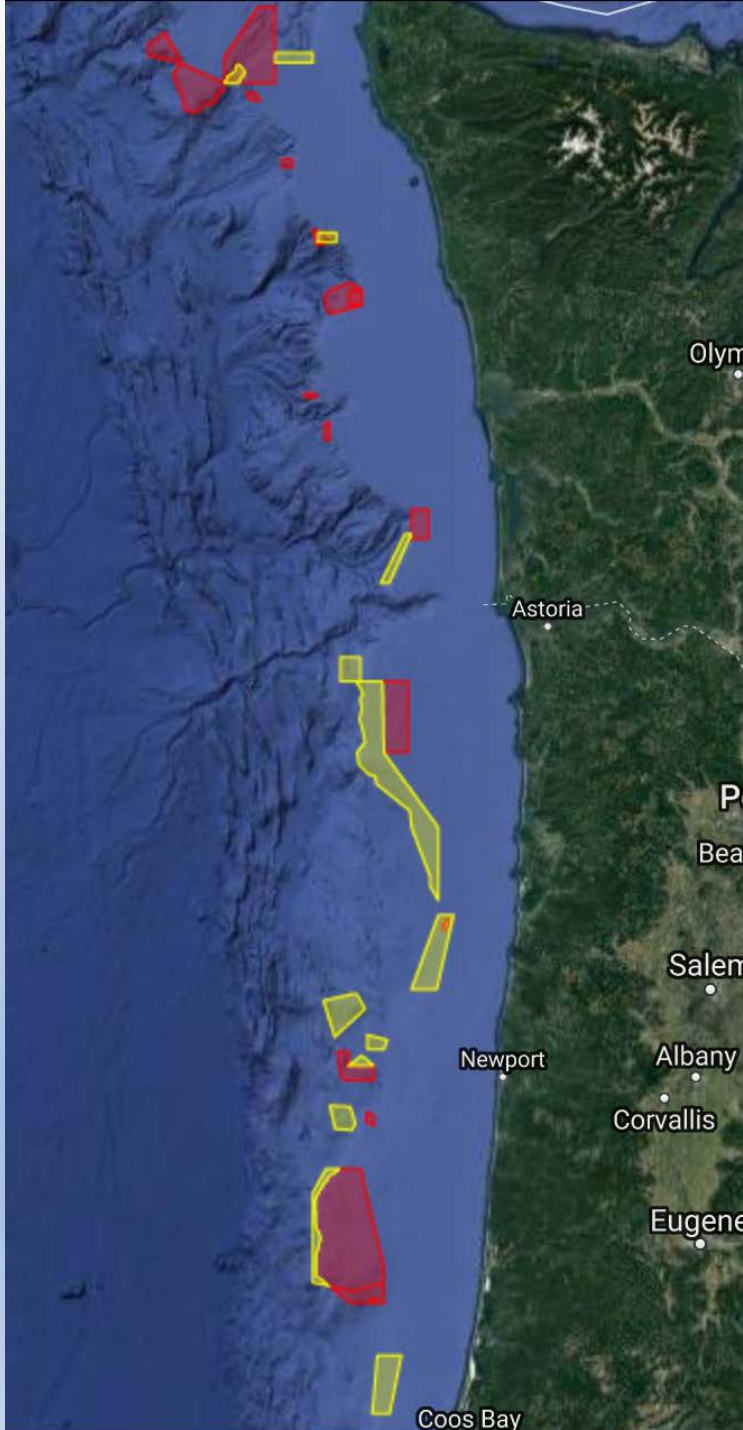


# Shortbelly rockfish bycatch in the 2019 hake fishery

Karl Haflinger, Sea State Inc.

Offshore and shoreside whiting coops use a series of closed and advisory areas for known rockfish hotspots.



All processors in the offshore sector (CPs and motherships) exchange daily spreadsheets showing daily catch, bycatch, and high tows. Tows are designated as “high” if they exceed 2x the base rate used by the mothership coop.

	Date	Hake (mt)	Widow Rate (kg/mt)	Canary Rate (kg/mt)	Dark Blotched Rate (kg/mt)	POP Rate (kg/mt)	Chinook rate (N/mt)	SableFish (kg/mt)	ShortBelly (kg/mt)
Arctic Storm	05/15/19	324.982	0.409	0.028	0.237	0.015	0.000	0.003	0.006
Arctic Storm	05/16/19	487.802	0.674	0.051	0.006	0.006	0.000		
Arctic Storm	05/17/19	555.300	3.627	0.020	0.031	0.070	0.000		
Arctic Storm	05/18/19	356.129	0.441	0.738	0.261	1.367	0.000		
Arctic Storm	05/19/19	400.378	0.160	0.142	0.022	0.175	0.000		

Notices of high bycatch tows with lat/lon and bycatch detail are sent automatically when obs data is received (2 or 3 time per day). Notices include a link to Sea State web site that has a page of VMS tracks for the same high bycatch tows.

## Seastate Reporting Service Alarm - High Bycatch Whiting CP Haul Inbox x



**reporting@seastateinc.com**

Wed, Jun 19, 12:31 AM (5 days ago)



to me ▼

This message was generated on 6/18/2019 at 11:31 PM

Haul 1124 on 6/18/2019 for vessel American Dynasty has a Dark Blotched Rockfish bycatch rate of 9.914 KG/MT, 21.6 x the base rate of 0.46 KG/MT.

Whiting: 36.481 MT

Dark Blotched Rockfish: 361.67 KG

VMS track: <https://acct.seastateinc.com/Seastate/Members/PnwWhitingMap.aspx?alarmId=113392&alarmIdHash=b25bb6ad62df1e589a5f1aeabcb69af0>

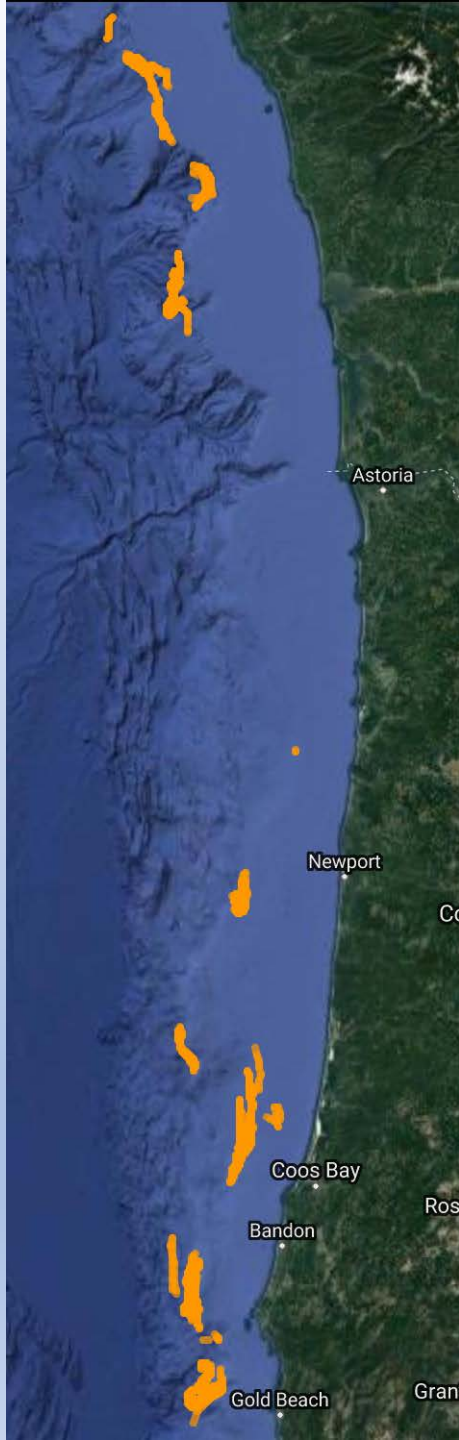
Haul 1125 on 6/18/2019 for vessel American Dynasty has a Dark Blotched Rockfish bycatch rate of 12.607 KG/MT, 27.4 x the base rate of 0.46 KG/MT.

Whiting: 23.713 MT

Dark Blotched Rockfish: 298.94 KG

VMS track: <https://acct.seastateinc.com/Seastate/Members/PnwWhitingMap.aspx?alarmId=113393&alarmIdHash=17f1221eda6e879e6567ad9b6ff1bb1d>

VMS tracks of all high chinook bycatch tows  
(more than 2.5 per 100 mt hake) from 5/15/19  
– 6/22/19, offshore and onshore whiting coops



Filter fishing activity by vessel type:

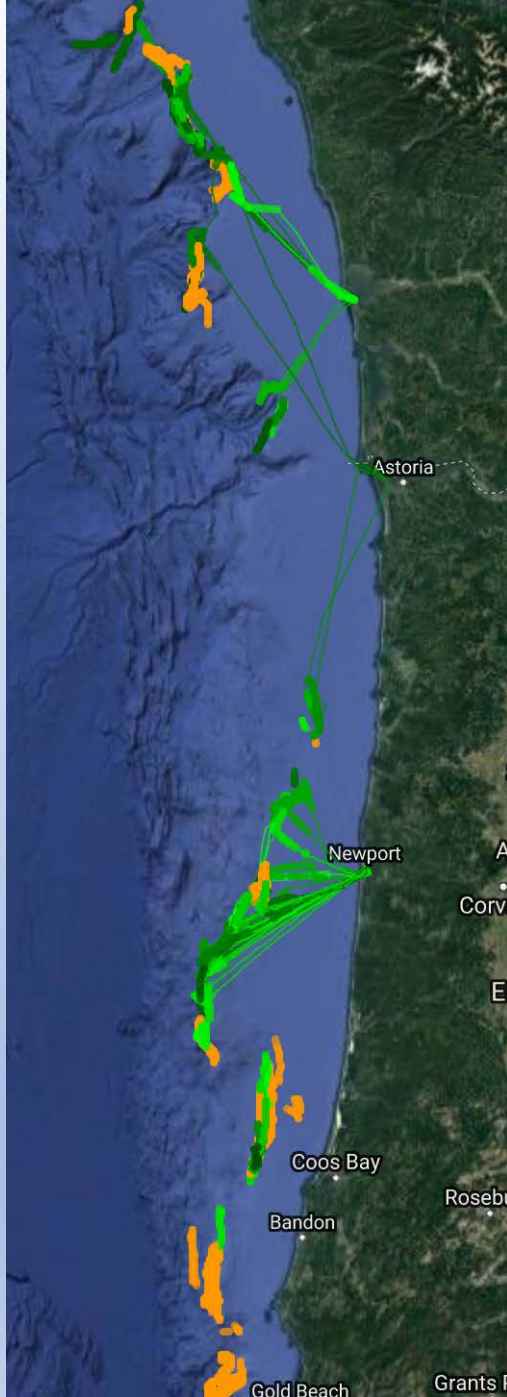
☒ CP ☒ CV ☒ M

Show trips with high bycatch rates for:

- ☐ Canary Rockfish > 0.345 KG/MT GF (35 events) ■
- ☐ Widow Rockfish > 2.907 KG/MT GF (120 events) ■
- ☐ Dark Blotched Rockfish > 0.46 KG/MT GF (118 events) ■
- ☐ Pacific Ocean Perch > 1.923 KG/MT GF (18 events) ■
- ☐ Yelloweye Rockfish > 0.001 KG/MT GF (1 events) ■
- ☒ Chinook Salmon > 0.025/MT GF (69 events) ■
- ☐ Shortbelly Rockfish > 0.877 KG/MT GF (105 events) ■
- ☐ Yellowtail Rockfish > 1.426 KG/MT GF (472 events) ■
- ☐ Roughey Rockfish > 0.165 KG/MT GF (285 events) ■
- ☐ Sablefish > 0.248 KG/MT GF (73 events) ■



# Add darkblotched



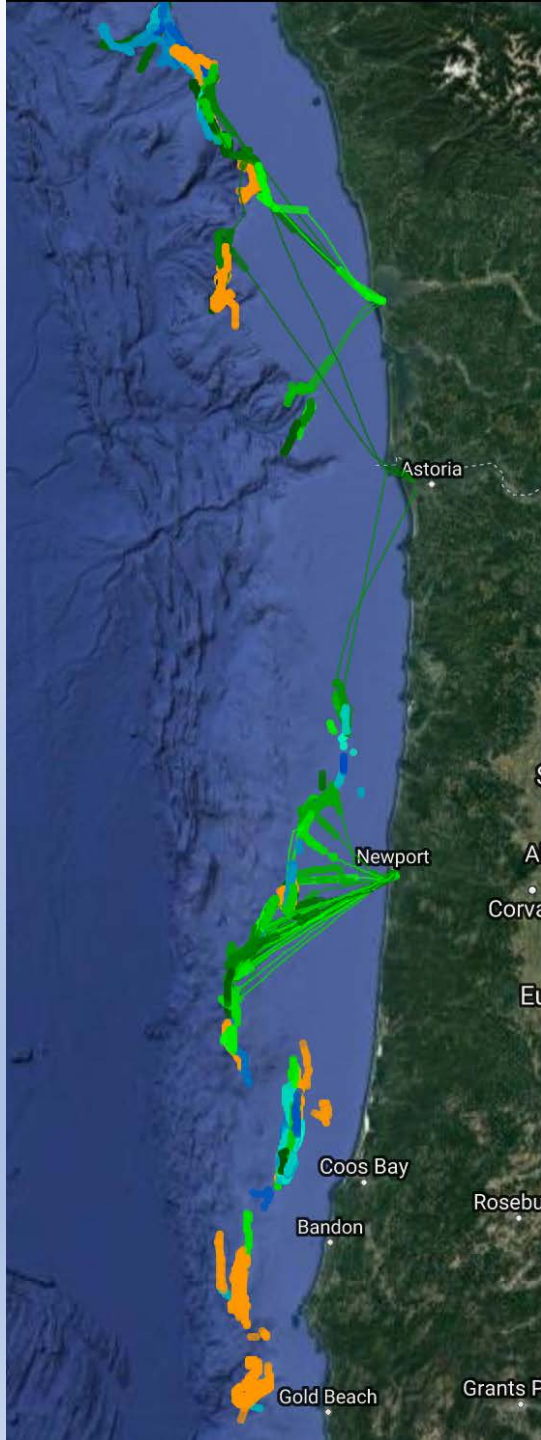
Filter fishing activity by vessel type:

☒ CP ☒ CV ☒ M

Show trips with high bycatch rates for:

- ☐ Canary Rockfish > 0.345 KG/MT GF (35 events) ■
- ☐ Widow Rockfish > 2.907 KG/MT GF (120 events) ■
- ☒ Dark Blotched Rockfish > 0.46 KG/MT GF (118 events) ■
- ☐ Pacific Ocean Perch > 1.923 KG/MT GF (18 events) ■
- ☐ Yelloweye Rockfish > 0.001 KG/MT GF (1 events) ■
- ☒ Chinook Salmon > 0.025/MT GF (69 events) ■
- ☐ Shortbelly Rockfish > 0.877 KG/MT GF (105 events) ■
- ☐ Yellowtail Rockfish > 1.426 KG/MT GF (472 events) ■
- ☐ Rougheye Rockfish > 0.165 KG/MT GF (285 events) ■
- ☐ Sablefish > 0.248 KG/MT GF (73 events) ■

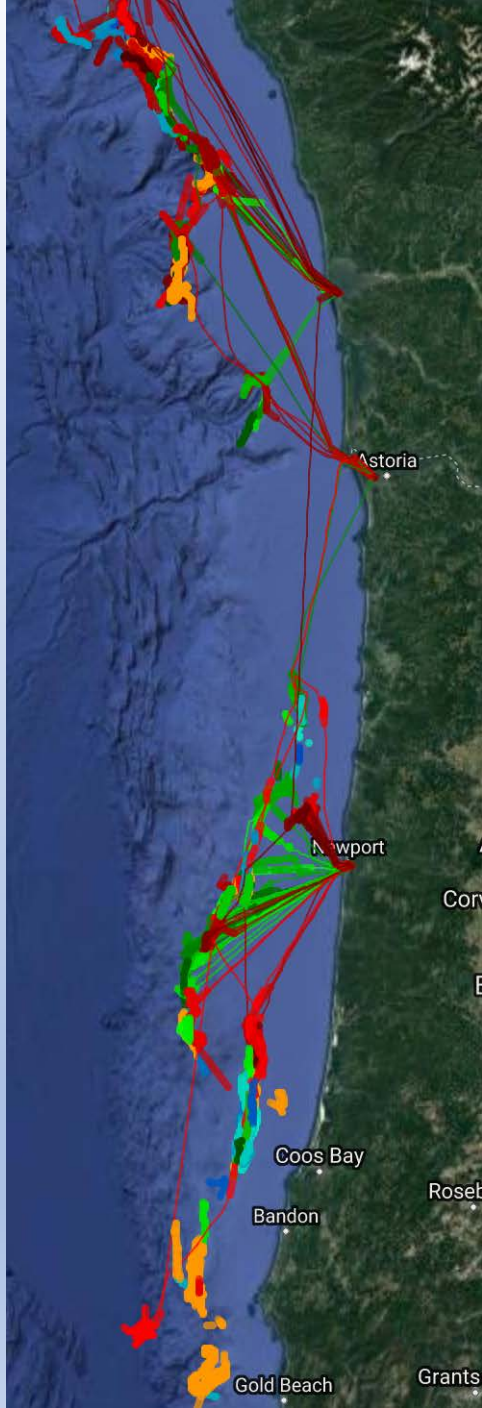
# Add shortbelly



Show trips with high bycatch rates for:

- ☐ Canary Rockfish > 0.345 KG/MT GF (35 events) ■
- ☐ Widow Rockfish > 2.907 KG/MT GF (120 events) ■
- ☒ Dark Blotched Rockfish > 0.46 KG/MT GF (118 events) ■
- ☐ Pacific Ocean Perch > 1.923 KG/MT GF (18 events) ■
- ☐ Yelloweye Rockfish > 0.001 KG/MT GF (1 events) ■
- ☒ Chinook Salmon > 0.025/MT GF (69 events) ■
- ☒ Shortbelly Rockfish > 0.877 KG/MT GF (105 events) ■
- ☐ Yellowtail Rockfish > 1.426 KG/MT GF (472 events) ■
- ☐ Rougheye Rockfish > 0.165 KG/MT GF (285 events) ■
- ☐ Sablefish > 0.248 KG/MT GF (73 events) ■

# Add widow

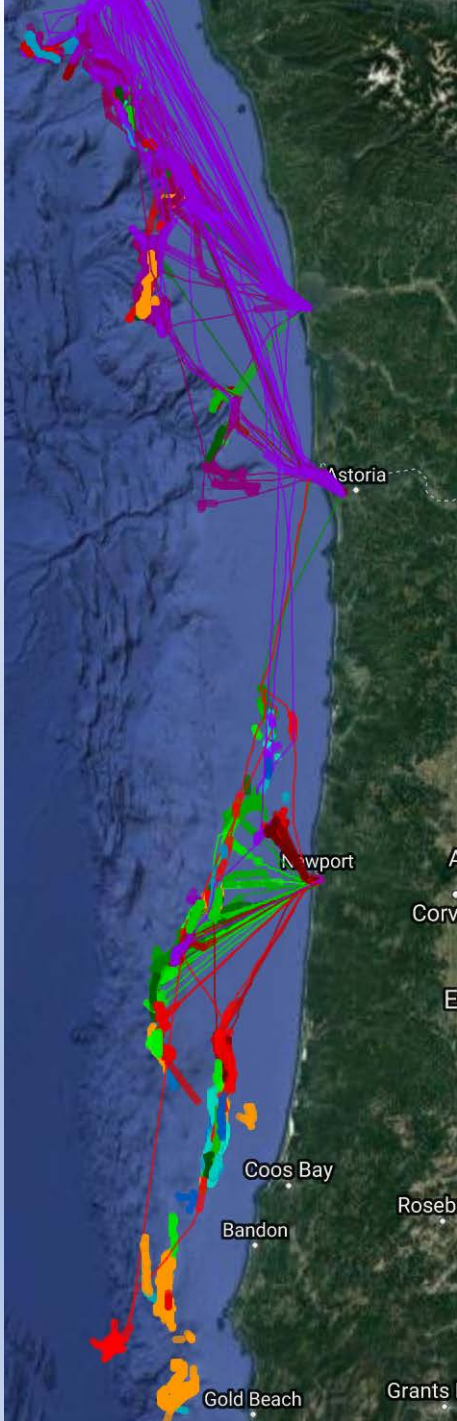


Show trips with high bycatch rates for:

- ☐ Canary Rockfish > 0.345 KG/MT GF (35 events) ■
- ☒ Widow Rockfish > 2.907 KG/MT GF (120 events) ■
- ☒ Dark Blotched Rockfish > 0.46 KG/MT GF (118 events) ■
- ☐ Pacific Ocean Perch > 1.923 KG/MT GF (18 events) ■
- ☐ Yelloweye Rockfish > 0.001 KG/MT GF (1 events) ■
- ☒ Chinook Salmon > 0.025/MT GF (69 events) ■
- ☒ Shortbelly Rockfish > 0.877 KG/MT GF (105 events) ■
- ☐ Yellowtail Rockfish > 1.426 KG/MT GF (472 events) ■
- ☐ Rougheye Rockfish > 0.165 KG/MT GF (285 events) ■
- ☐ Sablefish > 0.248 KG/MT GF (73 events) ■



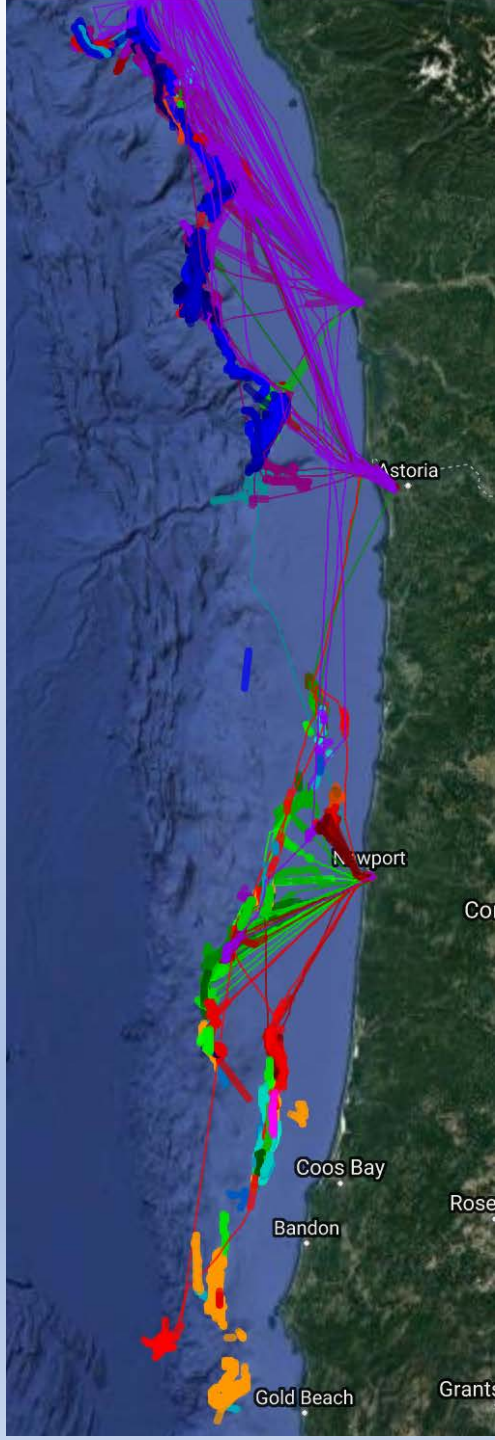
# Add yellowtail



Show trips with high bycatch rates for:

- ☐ Canary Rockfish > 0.345 KG/MT GF (35 events) ■
- ☒ Widow Rockfish > 2.907 KG/MT GF (120 events) ■
- ☒ Dark Blotched Rockfish > 0.46 KG/MT GF (118 events) ■
- ☐ Pacific Ocean Perch > 1.923 KG/MT GF (18 events) ■
- ☐ Yelloweye Rockfish > 0.001 KG/MT GF (1 events) ■
- ☒ Chinook Salmon > 0.025/MT GF (69 events) ■
- ☒ Shortbelly Rockfish > 0.877 KG/MT GF (105 events) ■
- ☒ Yellowtail Rockfish > 1.426 KG/MT GF (472 events) ■
- ☐ Rougheye Rockfish > 0.165 KG/MT GF (285 events) ■
- ☐ Sablefish > 0.248 KG/MT GF (73 events) ■

# Add rougheye, canary and sablefish



Show activity between 5/15/2019 and 6/23/2019

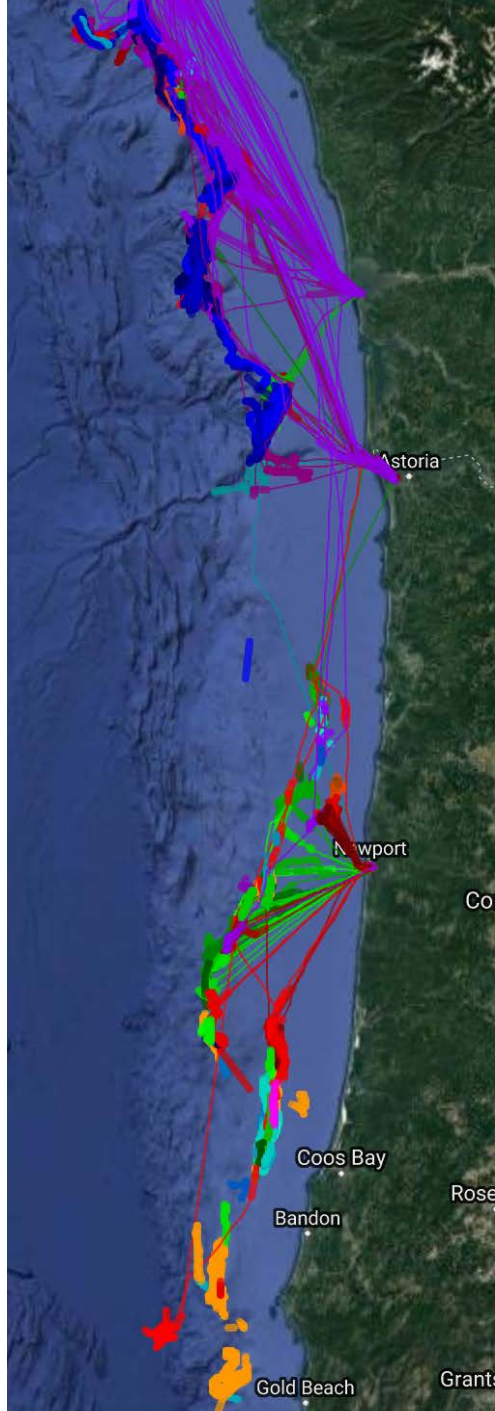
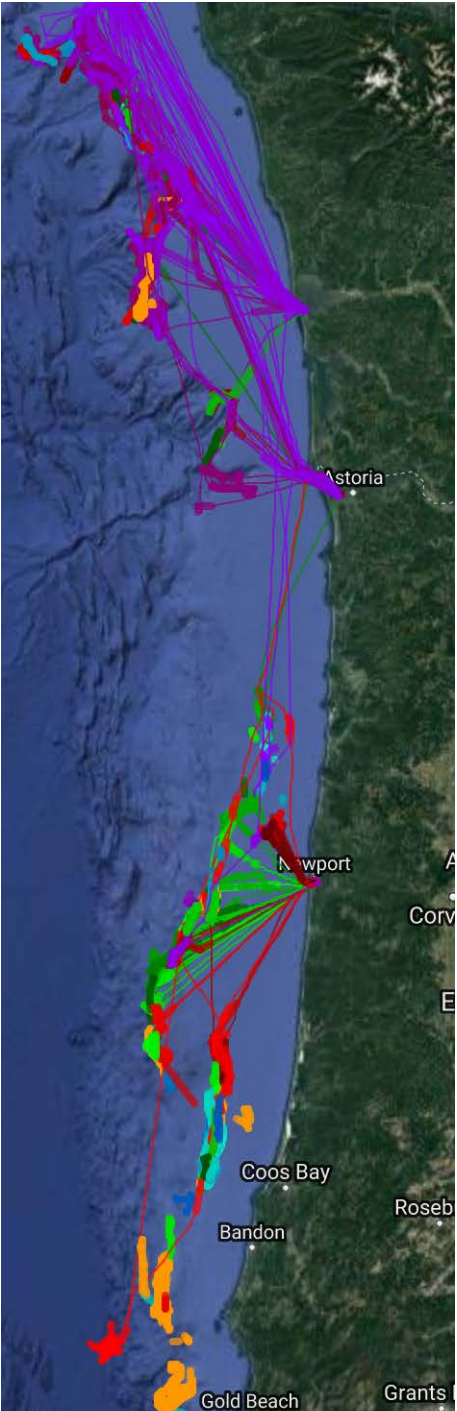
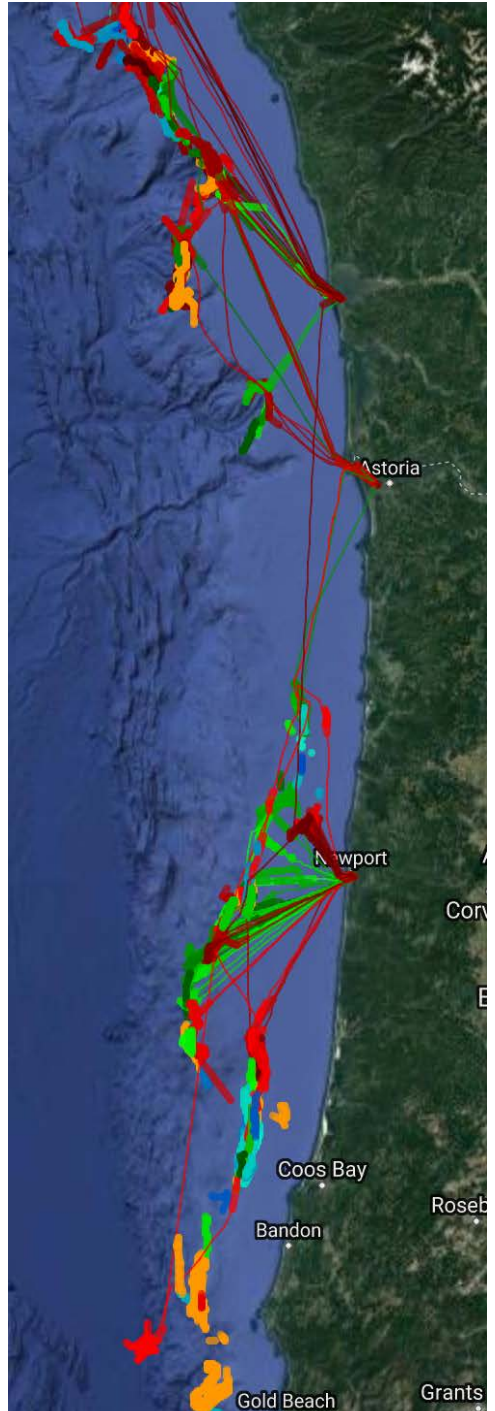
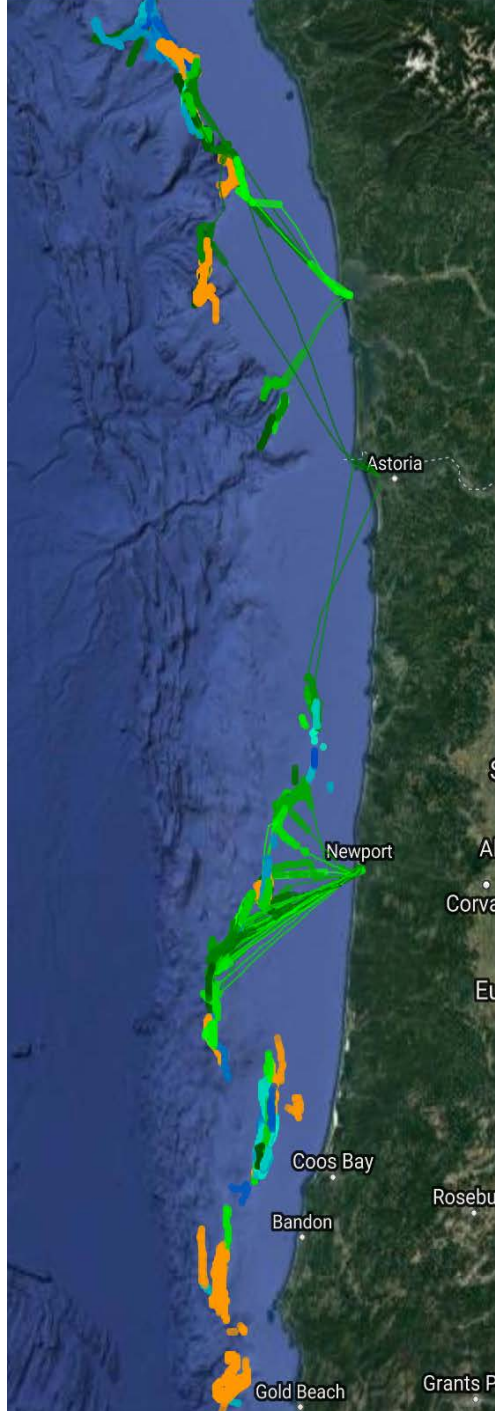
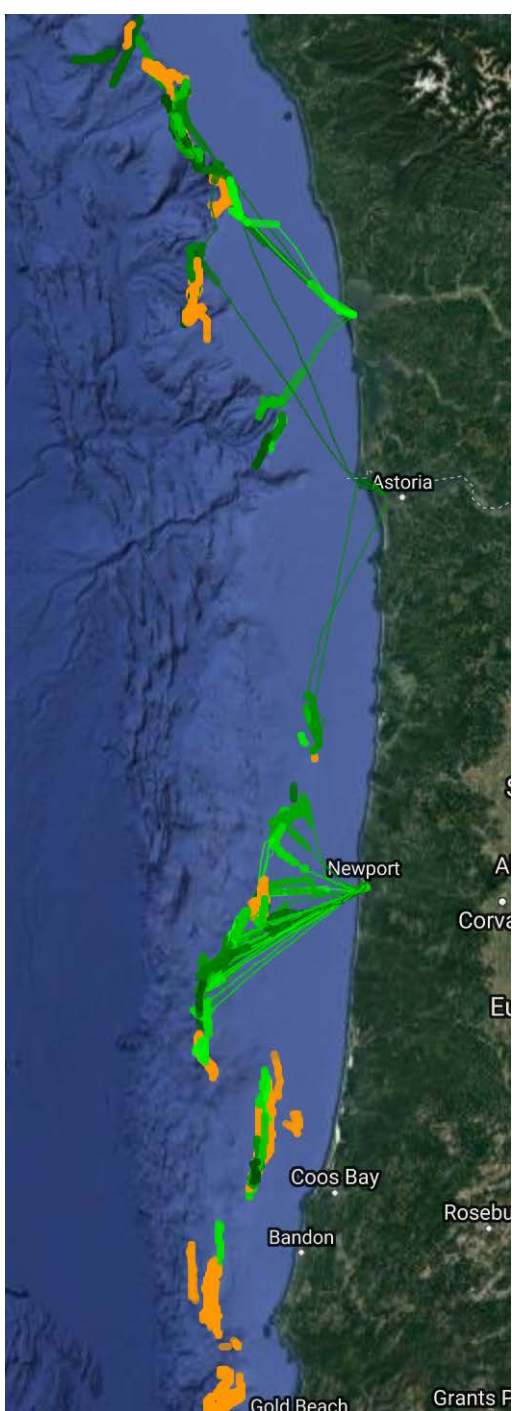
Filter fishing activity by vessel type:

☒ CP ☒ CV ☒ M

Show trips with high bycatch rates for:

- ☒ Canary Rockfish > 0.345 KG/MT GF (35 events) ■
- ☒ Widow Rockfish > 2.907 KG/MT GF (120 events) ■
- ☒ Dark Blotched Rockfish > 0.46 KG/MT GF (118 events) ■
- ☒ Pacific Ocean Perch > 1.923 KG/MT GF (18 events) ■
- ☒ Yelloweye Rockfish > 0.001 KG/MT GF (1 events) ■
- ☒ Chinook Salmon > 0.025/MT GF (69 events) ■
- ☒ Shortbelly Rockfish > 0.877 KG/MT GF (105 events) ■
- ☒ Yellowtail Rockfish > 1.426 KG/MT GF (472 events) ■
- ☒ Rougheye Rockfish > 0.165 KG/MT GF (285 events) ■
- ☒ Sablefish > 0.248 KG/MT GF (73 events) ■





- On June 5 all hell breaks loose with 144 mt taken as bycatch, including 62 mt in one haul.
- WMC manager declares 2 emergency closures and advisory areas on June 9.
- Daily spreadsheets updated to include shortbelly
- Automatic alarms updated to include shortbelly













- Status1
- ☒ advisory
  - ☒ closed

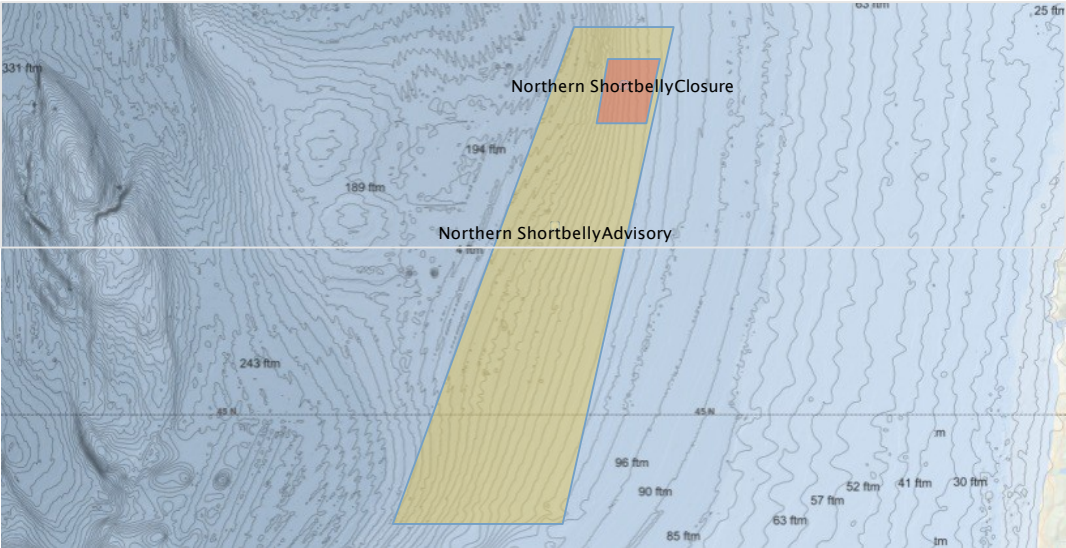
Nickname1

- ☐ 47 30 finger
- ☐ 47 45 finger
- ☐ Bandon High Spot 200 N
- ☐ Bandon High Spot 200 S
- ☐ Canary Box
- ☐ Dark Blotch 44 55
- ☐ Finger
- ☐ Grandma's House
- ☐ Gray's Canyon N edge
- ☐ Grays finger
- ☐ Halibut Hill
- ☐ Heceta DKB
- ☐ JDF Canyon
- ☐ JDF SE finger
- ☐ Juande Fuca
- ☐ Juan de Fuca annex
- ☐ Nelson Island
- ☐ Nelson Island advisory
- ☐ Nitnak
- ☒ Northern Shortbelly Advis..
- ☒ Northern Shortbelly Closure
- ☐ NW Heceta corner
- ☐ Outhouse Moon
- ☐ Sablefish Grandma's
- ☐ Shale Pile
- ☐ Shale Pile 200 Advisory
- ☐ South Astoria DKB spot

Polygon Coordinates

Nickname1	Latitude degrees	Latitude minutes	Longitude degrees	Longitude minutes	Status1	
Northern Shortbelly Advisory	45	12	124	22.00	advisory	
	45	12	124	17.60	advisory	
	44	56.5	124	22.50	advisory	
	44	56.5	124	30.00	advisory	
	45	12	124	22.00	advisory	
Northern Shortbelly Closure	45	11	124	20.50	closed	
	45	11	124	18.20	closed	
	45	9	124	18.80	closed	
	45	9	124	21.00	closed	
	45	11	124	20.50	closed	

Closed Areas















Status1  
☒ advisory  
☒ closed

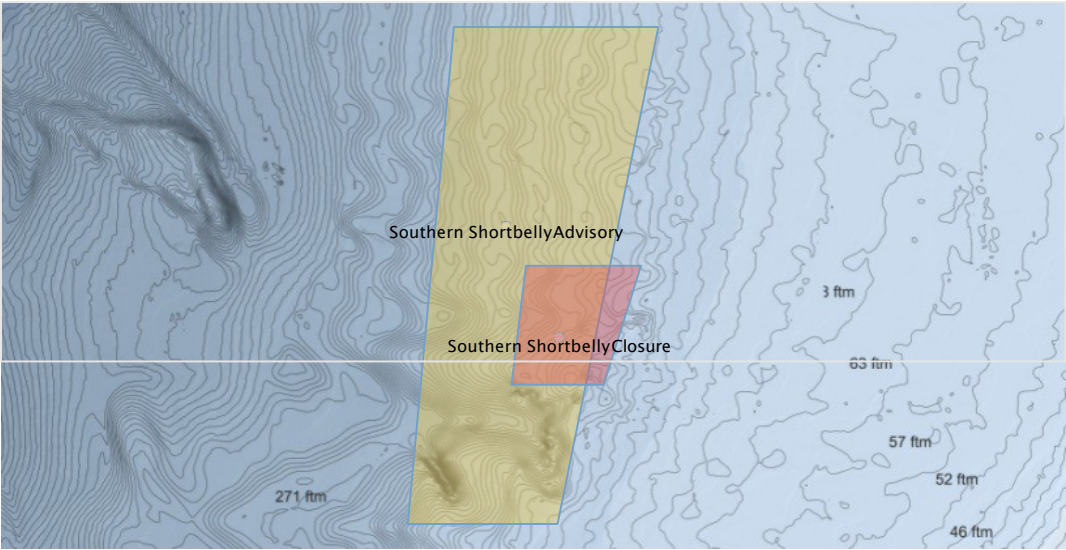
Nickname1

- ☐ 47 30 finger
- ☐ 47 45 finger
- ☐ Bandon High Spot 200 N
- ☐ Bandon High Spot 200 S
- ☐ Canary Box
- ☐ Dark Blotch 44 55
- ☐ Finger
- ☐ Grandma's House
- ☐ Gray's Canyon N edge
- ☐ Grays finger
- ☐ Halibut Hill
- ☐ Heceta DKB
- ☐ JDF Canyon
- ☐ JDF SE finger
- ☐ Juande Fuca
- ☐ Juan de Fuca annex
- ☐ Nelson Island
- ☐ Nelson Island advisory
- ☐ Nitnak
- ☐ Northern Shortbelly Advis..
- ☐ Northern Shortbelly Closure
- ☐ NW Heceta corner
- ☐ Outhouse Moon
- ☐ Sablefish Grandma's
- ☐ Shale Pile
- ☐ Shale Pile 200 Advisory
- ☐ South Astoria DKB spot

Polygon Coordinates

Nickname1	Latitude degrees	Latitude minutes	Longitude degrees	Longitude minutes	Status1	
Southern Shortbelly Advisory	43	39.5	124	40.00	advisory	
	43	39.5	124	32.90	advisory	
	43	27	124	36.40	advisory	
	43	27	124	41.60	advisory	
	43	39.5	124	40.00	advisory	
Southern Shortbelly Closure	43	30.5	124	38.00	closed	
	43	33.5	124	37.50	closed	
	43	33.5	124	33.50	closed	
	43	30.5	124	34.80	closed	
	43	30.5	124	38.00	closed	

Closed Areas



This message was generated on 6/11/2019 at 11:30 PM

Haul 1182 on 6/1/2019 for vessel Muir Milach has a Shortbelly Rockfish bycatch rate of 16.906 KG/MT, 19.3 x the base rate of 0.877 KG/MT.

Whiting: 57.272 MT

Shortbelly Rockfish: 968.24 KG

VMS track: <https://acct.seastateinc.com/Seastate/Members/PnwWhitingMap.aspx?alarmId=113270&alarmIdHash=a3fcb439e5fa605390c4d2f4f10bab0a>

Haul 88 on 6/1/2019 for vessel Perseverance has a Shortbelly Rockfish bycatch rate of 16.315 KG/MT, 18.6 x the base rate of 0.877 KG/MT.

Whiting: 70.986 MT

Shortbelly Rockfish: 1158.11 KG

VMS track: <https://acct.seastateinc.com/Seastate/Members/PnwWhitingMap.aspx?alarmId=113271&alarmIdHash=76b045d4a8c272db6660900c78378d6d>

Haul 50 on 6/1/2019 for vessel Traveler has a Shortbelly Rockfish bycatch rate of 13.231 KG/MT, 15.1 x the base rate of 0.877 KG/MT.

Whiting: 40.491 MT

Shortbelly Rockfish: 535.74 KG

VMS track: <https://acct.seastateinc.com/Seastate/Members/PnwWhitingMap.aspx?alarmId=113272&alarmIdHash=48f6a7a8c7ca4c974d186072a520c00d>

Haul 1183 on 6/1/2019 for vessel Lisa Melinda has a Shortbelly Rockfish bycatch rate of 26.735 KG/MT, 30.5 x the base rate of 0.877 KG/MT.

Whiting: 66.23 MT

Shortbelly Rockfish: 1770.66 KG

VMS track: <https://acct.seastateinc.com/Seastate/Members/PnwWhitingMap.aspx?alarmId=113273&alarmIdHash=f979ea8a1468d9199320552b1c019388>

Haul 89 on 6/1/2019 for vessel Miss Sarah has a Shortbelly Rockfish bycatch rate of 162.899 KG/MT, 185.7 x the base rate of 0.877 KG/MT.

Whiting: 54.933 MT

Shortbelly Rockfish: 8948.47 KG

VMS track: <https://acct.seastateinc.com/Seastate/Members/PnwWhitingMap.aspx?alarmId=113274&alarmIdHash=c7b7f2c7c49c205caaf79aed6e81c015>

Haul 387 on 6/1/2019 for vessel Western Dawn has a Shortbelly Rockfish bycatch rate of 179.752 KG/MT, 205 x the base rate of 0.877 KG/MT.

Whiting: 40.772 MT

Shortbelly Rockfish: 7328.78 KG

VMS track: <https://acct.seastateinc.com/Seastate/Members/PnwWhitingMap.aspx?alarmId=113275&alarmIdHash=11b5fd8153f95fa5a6198e9544b1a518>

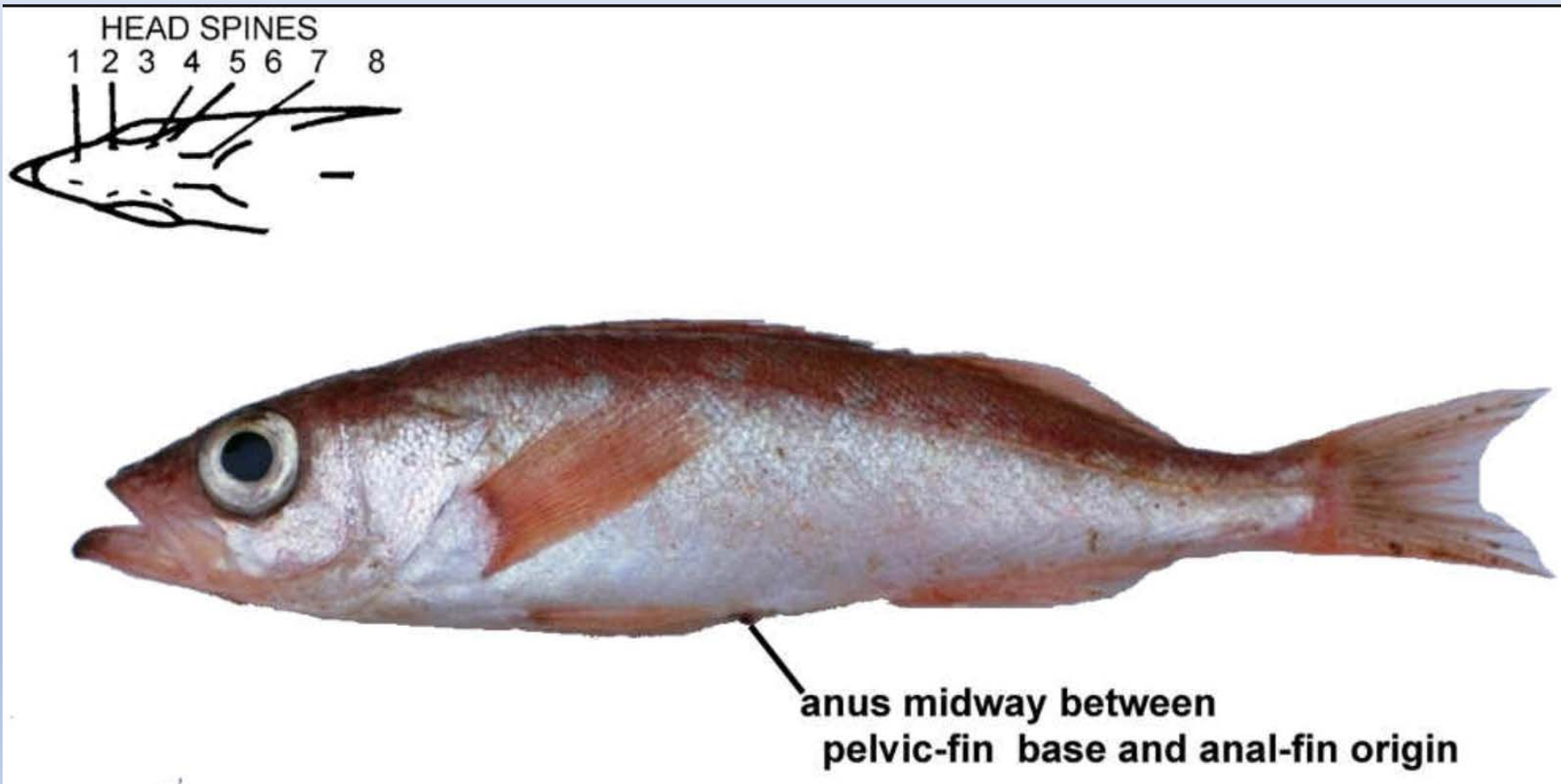
Haul 51 on 6/1/2019 for vessel Mark I has a Shortbelly Rockfish bycatch rate of 70.459 KG/MT, 80.3 x the base rate of 0.877 KG/MT.

Whiting: 42.476 MT

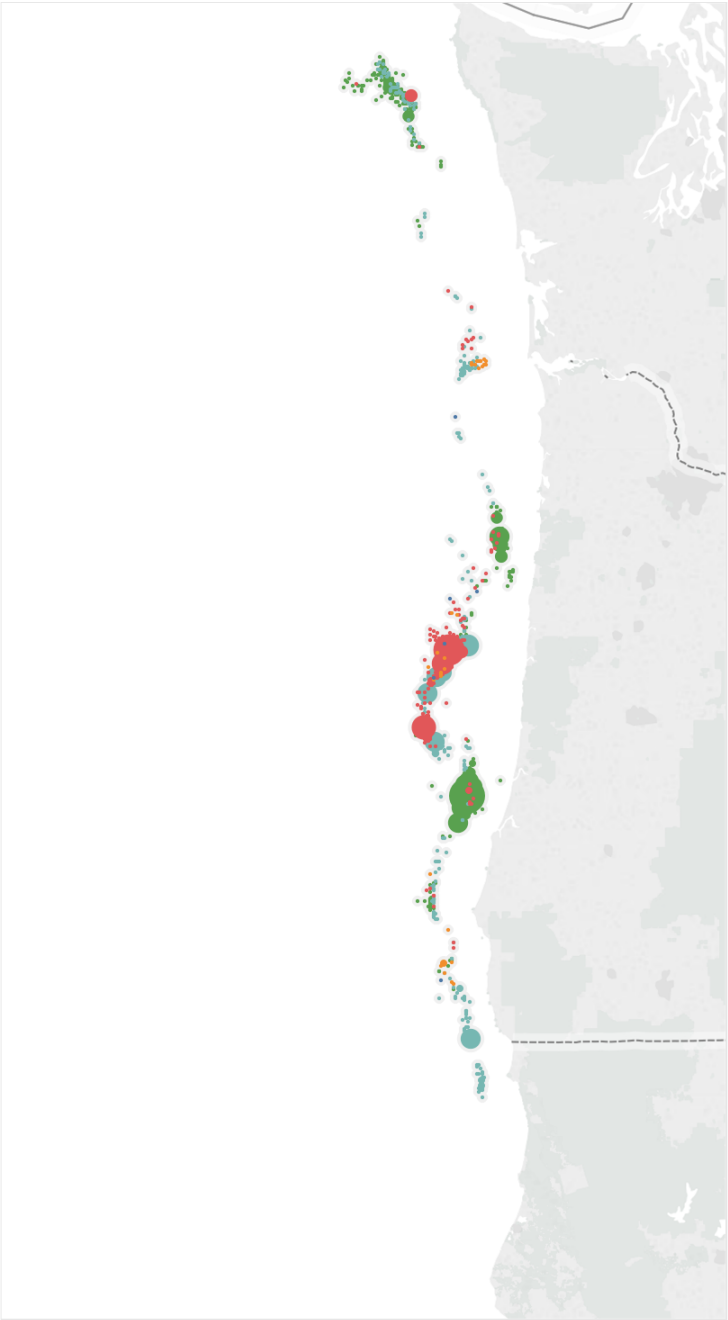
Shortbelly Rockfish: 2992.82 KG

VMS track: <https://acct.seastateinc.com/Seastate/Members/PnwWhitingMap.aspx?alarmId=113276&alarmIdHash=c59442a0eef285a4bfff8328b57e66be>

And now everyone has a chance to learn about a new rockfish species (new to us)!



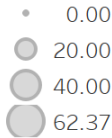
Shortbelly in whiting



sector history

Yr	Vessel Type	
	CP	M
2008	0.0	0.0
2009	0.0	0.0
2010	0.0	0.0
2011	0.0	0.0
2012	0.0	0.3
2013	0.0	0.7
2014	0.0	0.0
2015	0.0	0.0
2016	0.2	1.9
2017	140.6	27.8
2018	85.9	141.9
2019	30.2	346.3

Shortbelly Rockfish Wt



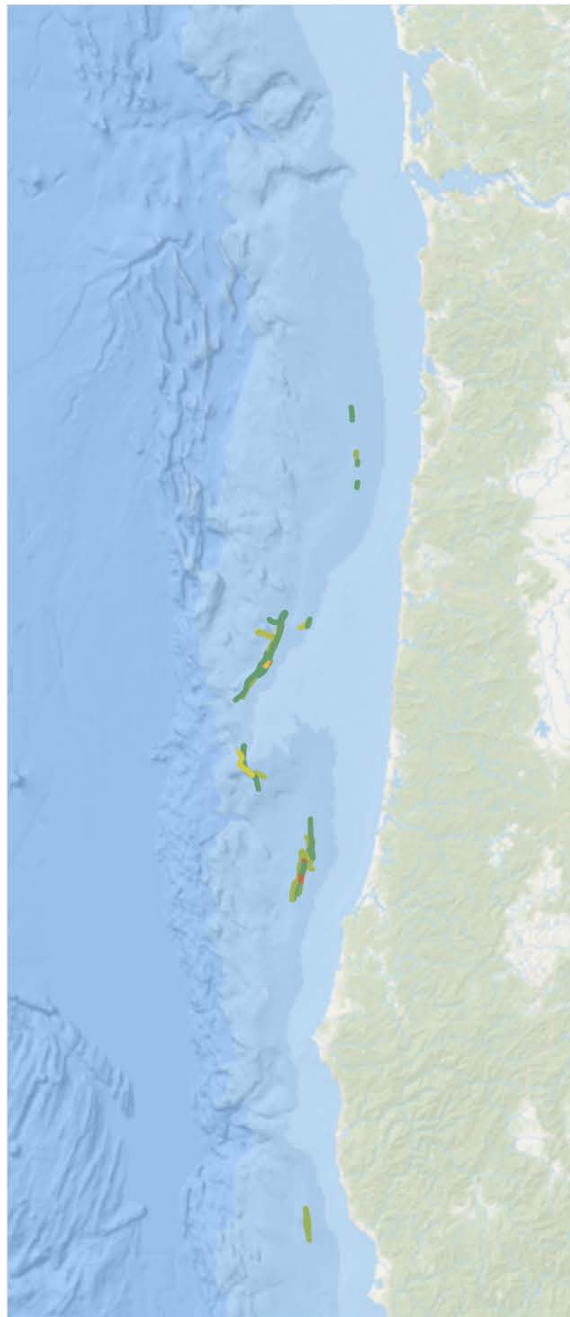
Year of Haul Date



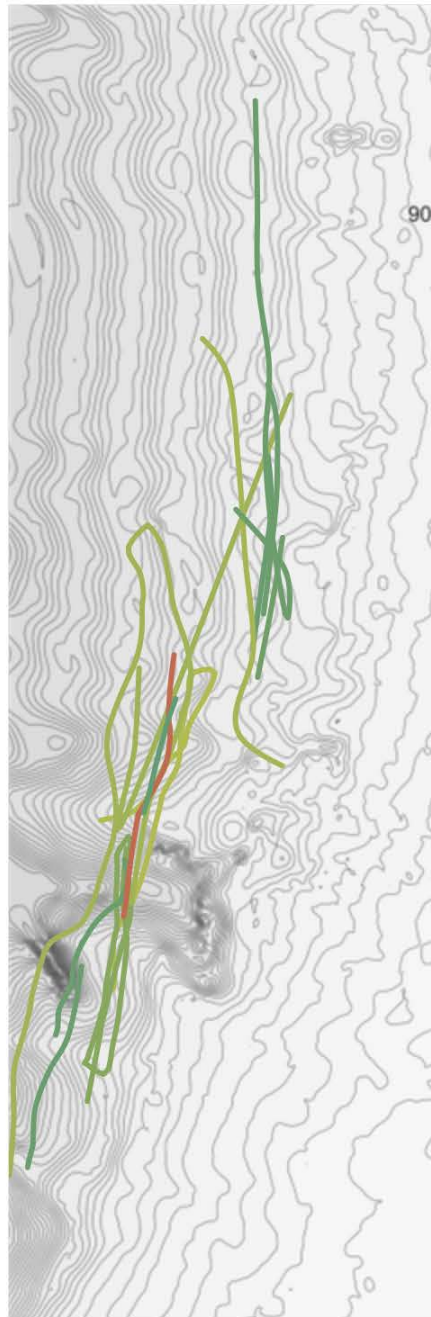
Shortbelly rockfish bycatch in the hake fishery: color indicates year, size of circle indicates amount in tons with at least some shortbelly (>0), ranging from 0.01 to 62 mt.



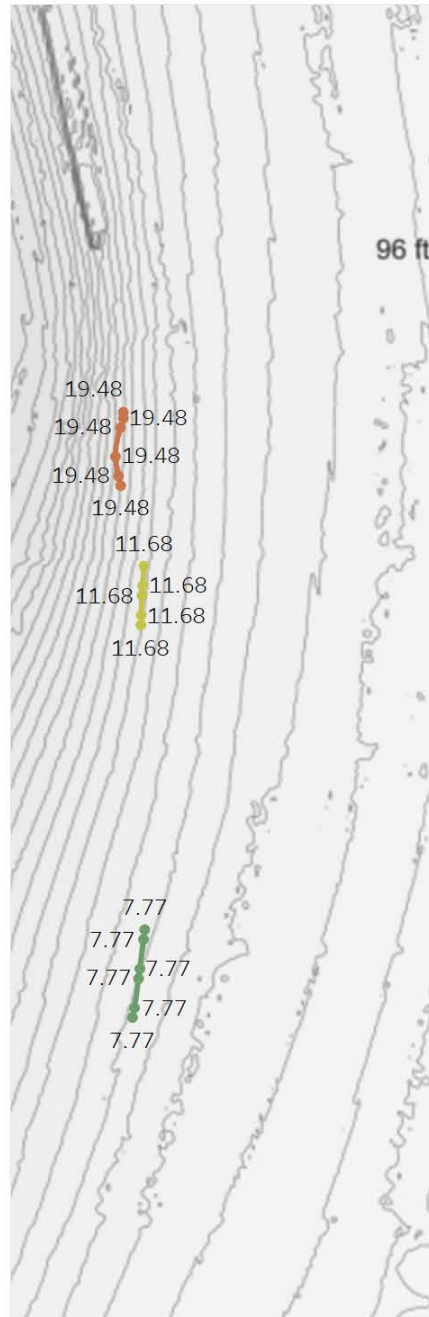
Detailed tracks




June 5 tows



Detailed test tows



Bycatch Species Wt  
5.04  62.37

Bycatch species  
Shortbelly

Left pane shows tracks of offshore sector whiting hauls off Oregon (June 2019) with  $\geq 5$  mt of shortbelly. Middle pane, red track is 62 mt haul. Right hand pane shows short test tows that had shortbelly (repeated numbers indicate mt of shortbelly in tow -- the label is repeated for each tow in the track line). Location points are a combination of VMS and AIS. Most tows are around 120 fm or deeper. Very high bycatch tows in middle panel were made during period of extreme low tides on June 5.





←1/2

LF N1

5

60

80

92.9

100

108

