

FORT BRAGG – CENTRAL COAST RISK POOL
ANNUAL SUMMARY REPORT
2012



Report prepared by: Kate Labrum* and Dwayne Oberhoff†

Fort Bragg Groundfish Association
A California Fish Marketing Act Corporation

Central Coast Sustainable Groundfish Association
(Now: Central California Seafood Marketing Association)
A California Fish Marketing Act Corporation

The Nature Conservancy
A District of Columbia Non-profit Corporation

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* The Nature Conservancy

† Ecological Assets Management, LLC

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Introduction

In 2011 the west coast groundfish fishery transitioned into a catch share fishery, or Individual Fishing Quota management system. Under this type of management system, the annual total allowable catch is divided into shares, or quota, and allocated to individual fishermen. Fishermen are afforded some flexibility under this system as to where and when to fish, and the quota is transferable so it can be leased or bought and sold. The west coast groundfish fishery is comprised of over 90 species of flatfish, rockfish, roundfish and others; six of these species are federally designated as overfished and therefore only small amounts of quota for these species are available to the fishery on an annual basis. The overfished species present a challenge to fishermen because the limited amount of quota available constrains their ability to harvest more abundant stocks. Under the catch share system, a fisherman cannot fish if they have a quota deficit, and therefore if the harvest of any species exceeds a fisherman's quota allocation they are required to cease fishing until they have obtained adequate quota to cover the deficit. Because harvesting overfished species is not entirely predictable (i.e. these species can be caught incidentally), a fisherman could unintentionally harvest his or her entire annual quota allocation for one or more of the overfished species during one trip or set, even when taking reasonable measures necessary to avoid them.

This report describes a collaborative effort along the coast of California to pool overfished species quota and minimize the risk of catching these species during the 2012 fishing season. The Fort Bragg Groundfish Association (FBGA) and the Central Coast Sustainable Groundfish Association (CCSGA, an organization that has now evolved into the Central California Seafood Marketing Association, CCSMA) entered into an annual risk pool arrangement (the "Risk Pool") for the second consecutive year. The two associations signed a formal agreement to pool their 2012 overfished species quota pound allocations and draw on the quota pool to cover deficits incurred from harvesting overfished species. As parties to the Risk Pool agreement, the two associations developed and enforced regional fishing plans complete with fishing prescriptions designed to minimize the risk of catching overfished species in the geography between Cape Mendocino and Point Conception. Deficits of overfished species quota incurred by members of the two associations were filled at no charge, provided that all harvesting activities were conducted in compliance with the regional fishing plans. The goals of each fishing plan were to promote the long term success of the fishery and its supporting port communities by:

- (i) Maximizing the harvest of target species from the fishery;
- (ii) Minimizing the harvest of overfished species from the fishery;
- (iii) Safeguarding sensitive fish habitat; and,
- (iv) Contributing to the rebuilding of overfished stocks.

In 2012, 11 individual fishing operations were party to the Risk Pool agreement through their membership with FBGA or CCSGA. The Risk Pool was governed by a three member Advisory Committee made up of one representative from each fishing association and one representative

from The Nature Conservancy (TNC). TNC owns quota in the west coast groundfish fishery and is engaged in the fishery with the goal of working with the industry to develop and implement best practices for an economically and environmentally sustainable fishery and fishing communities. TNC believes local cooperative fishing arrangements, such as the Risk Pool, hold promise for stabilizing fishery activity in our ports, bringing high quality seafood to the consumer, and protecting the health and productivity of our oceans. TNC collaborated with FBGA and CCSGA to develop regional fishing plans, implement technology solutions for sharing data, and invest quota into the Risk Pool.

Risk Pool Fishing Plans

As stipulated by the Risk Pool agreement, FBGA and CCSGA developed regional fishing plans covering 15 million acres with prescriptions to minimize the risk of catching overfished species. The regional fishing plans cover spatially explicit geographic regions and are specific to certain gear types. The fishing plans are created collaboratively by combining the best available science and technology with fishermen's knowledge, past fishing history, and habitat information to spatially delineate risk zones; fishing prescriptions – or best management practices – are then assigned to zones to reduce the risk of catching overfished species. The associations presented the regional fishing plans to the Risk Pool Advisory Committee to be approved. The fishing plans are “living documents” and are revised and updated to improve the Risk Pool's fishing performance based on information collected during the fishing season. Figure 1 provides an example of the spatial component of a regional fishing plan that identifies risk zones (note this is just an example, not an actual plan).

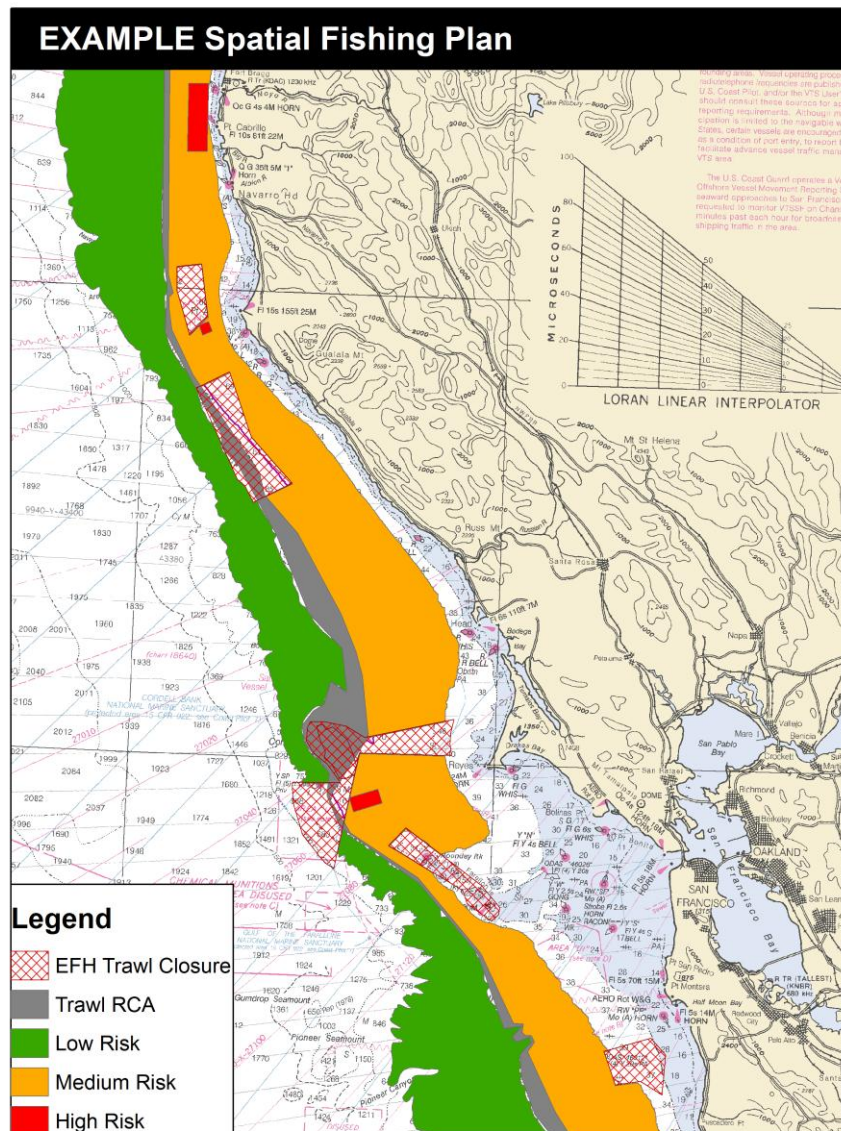


Figure 1. Example of spatial component of regional fishing plan in the central coast of California that depicts high, medium and low risk zoned areas as well as existing management closures. Each zone is paired with specific fishing prescriptions designed to reduce the risk of catching overfished species.

Technology

The act of sharing of fisheries data is a fundamental component ensuring effective operations of collaborations like the Risk Pool. Members of the Risk Pool need to know almost immediately where, when and how many overfished species were harvested in order to reduce the risk of catching more overfished species and update and adapt spatial fishing plans. Risk Pool managers also need to ensure that fishing is occurring in compliance with spatial fishing plans in order to fill deficits for overfished species quota and effectively monitor fishing operations. To achieve this, Risk Pool members share spatially accurate and near-real time data on the harvest of

overfished species using a tool developed by TNC called eCatch (www.ecatch.org). This technology allows fishermen to easily capture logbook information using an iPad, visualize and query data on web-based maps, and share those maps with others if it makes sense to do so. This technology reduces the cost of data entry and enables the sharing of fishing information in near-real time. It also provides Risk Pool managers with a tool to ensure compliance with spatial fishing plans and even specific fishing prescriptions such as duration of trawl tows. During the 2011 fishing season, the Risk Pool piloted eCatch use on iPads, and in 2012 six vessels in the Risk Pool successfully logged catch data using the eCatch application on iPads. All other vessels in the Risk Pool submitted logbook data to eCatch manually through the webpage. After operating for two consecutive years and capturing data using eCatch, Risk Pool participants are building a library of valuable fisheries information that can be used to analyze long-term catch trends, optimize collective harvest planning and spatial fishing plans, and even inform predictive modeling of overfished species distributions.



Figure 2. The eCatch application (www.ecatch.org) allows fishermen to easily capture logbook data using an iPad and then query that data and visualize it on on web-based maps.

The Risk Pool has also participated in the development of an innovative fisheries tool called the Fish Hub. The Fish Hub is a software platform that provides a suite of web-based applications or tools that are designed to streamline the operations of a collaborative organization like a risk pool or permit bank. The collection and management of high volumes of complex fisheries data such as quota balances is essential for the operation of collective fishing arrangements like risk pools, but current access and tools for managing these data sources are not meeting the needs of the fishing industry involved in these collaborative arrangements. The Risk Pool engaged in a partnership with the Cape Cod Fisheries Trust to identify major obstacles surrounding data management and analysis for risk pools and permit banks and worked to develop the Fish Hub as a potential solution to these obstacles. The Fish Hub (www.fishhub.org) is an online site for managing fisheries business information and enables quota program managers to share

information in near-real time using three main applications. The Risk Pool will continue to engage in this initiative to test and improve the Fish Hub as an effective fisheries data management tool.

Overfished Species Quota Holdings Summary

After signing the Risk Pool agreement, members of FBGA, CCSGA, and TNC deposited their overfished species quota into various holding accounts (*e.g.* vessel accounts) to be managed by the Risk Pool. Because of regulations governing the catch share program, the Risk Pool cannot deposit all overfished species quota into a single holding account. Instead, the Risk Pool managers distributed the overfished species quota in four separate holding accounts so as not to exceed the annual and daily associated quota pound limit on how much quota can be deposited into a single vessel account. The Pacific Fisheries Management Council approved changes to risk pool regulations under the catch share management program in late 2011 that will allow a risk pool vessel holding account to hold overfished species quota above the currently established vessel account caps. When this change is implemented it will greatly streamline Risk Pool operations and provide cost savings.

The Risk Pool's total overfished species quota holdings for 2012 are presented in Table 1 and Figure 3 below. For the purposes of this report, widow rockfish has been included in the list of overfished species in all tables, figures and analysis. The Risk Pool recognizes that widow rockfish is no longer an overfished species and considered fully rebuilt to the management target of B_{MSY} (or $\geq 40\%$ of the unfished biomass) under the west coast groundfish fisheries management plan, but we have included it in this report because it was managed collectively by the Risk Pool in 2012 and also allows the Risk Pool's 2012 fishing results to be easily compared to the 2011 fishing results.

Overfished Species	2012 Risk Pool Holdings in Quota Pounds	2012 Total Allowable Catch for Fleet in Quota Pounds	2012 Risk Pool Holdings as Percentage of Total Allowable Catch
Bocaccio rockfish	77,020	132,277	58%
Canary rockfish	3,639	57,761	6%
Cowcod	2,478	3,968	62%
Darkblotched rockfish	19,012	548,808	3%
Pacific Hailibut	-	232,856	0%
Pacific ocean perch	-	263,441	0%
Widow rockfish*	69,641	755,352	9%
Yelloweye rockfish	87	1,323	7%
Total	171,876	1,995,786	9%

Table 1. Risk Pool quota holdings of overfished species in 2012 compared to the total allowable catch for the west coast groundfish fleet. *Widow rockfish is no longer an overfished species but has been included in this report because it was collectively managed by the Risk Pool in 2012.

2012 Risk Pool Overfished Species Quota Holdings

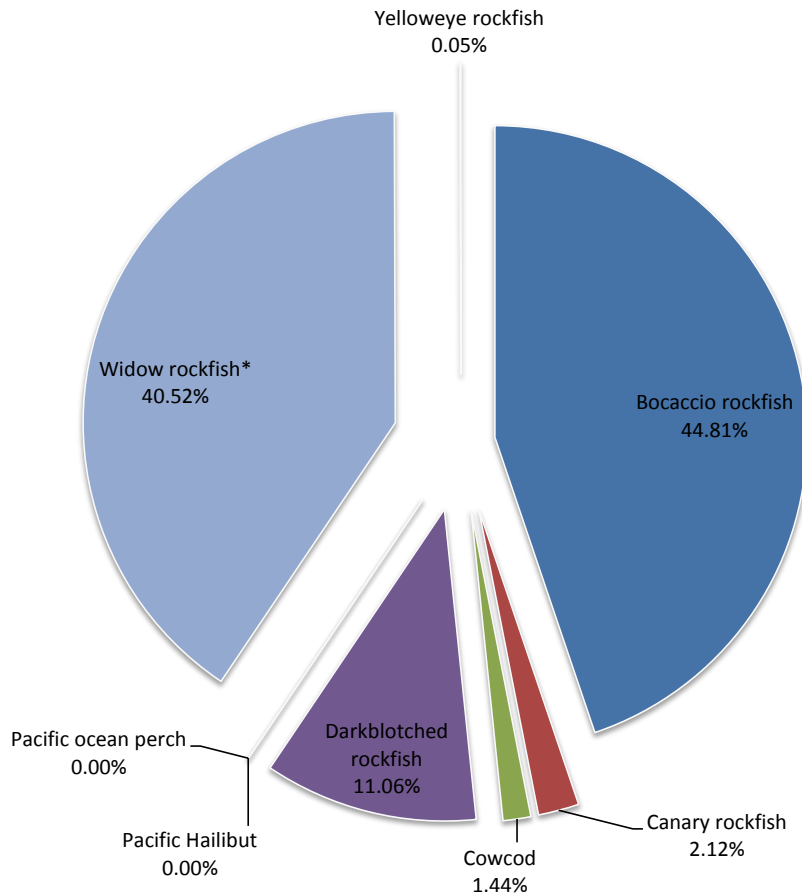


Figure 3. Pie chart showing breakdown of Risk Pool quota holdings of overfished species in 2012. *Widow rockfish is no longer an overfished species but has been included in this report because it was collectively managed by the Risk Pool in 2012.

Risk Pool Fishing Results

In Table 2 and Figure 4, the Risk Pool's total use of overfished species quota is presented as well as the total quota balance that was retransferred pro rata back into Risk Pool members' vessel accounts at two different points during the fishing season. These quota pounds were transferred back into members accounts after projections based on collective harvest plans indicated it would be optimal to take the quota out of the Risk Pool and make it available on the open market.

Overfished Species	2012 Risk Pool Holdings in Quota Pounds	2012 Risk Pool Total Catch	2012 Risk Pool Catch as Percentage of Holdings (Utilization Rate)	2012 Total Quota Pounds Retriggered
Bocaccio rockfish	77,020	8,442	11.0%	68,578
Canary rockfish	3,639	770	21.2%	2,869
Cowcod	2,478	113	4.6%	2,365
Darkblotched rockfish	19,012	4,046	21.3%	14,966
Pacific Hailbut	-	-	0.0%	-
Pacific ocean perch	-	-	0.0%	-
Widow rockfish*	69,641	1,290	1.9%	68,351
Yelloweye rockfish	87	6	6.9%	81
Total	171,876	14,667	8.5%	157,209

Table 2. Risk Pool overfished species quota holdings, total catch, utilization rates, and total retriggered quota.

During the 2012 fishing season, Risk Pool members had available a total of 171,876 pounds of overfished species quota and collectively used a total of 14,667 pounds, or 8.5% of total holdings.

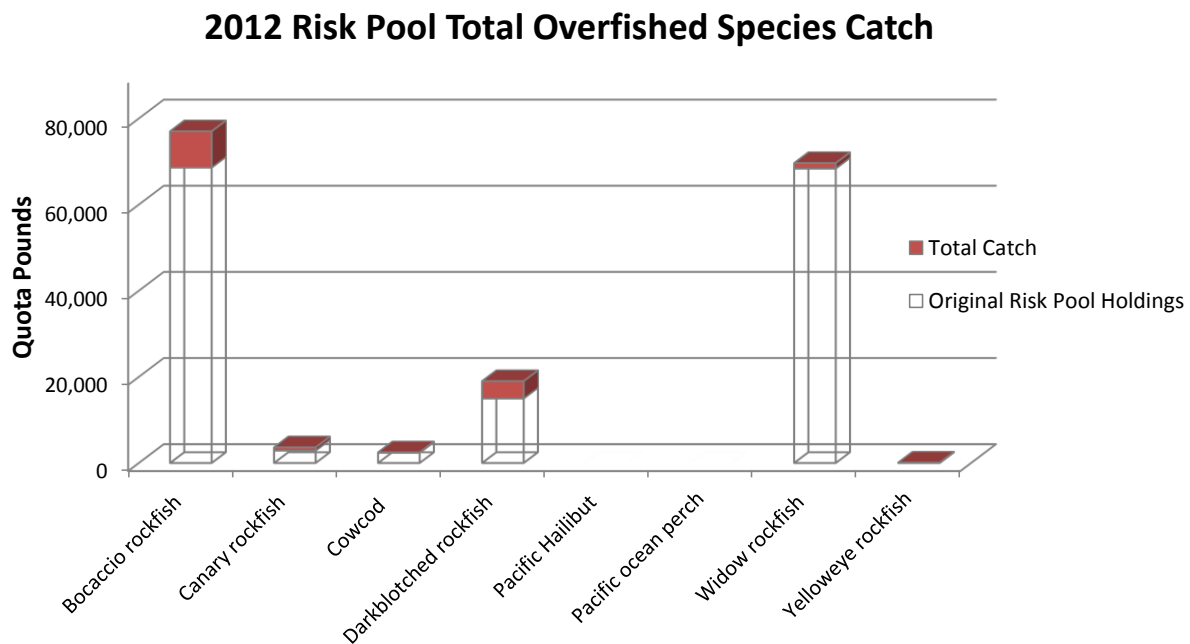


Figure 4. Total Risk Pool holdings (clear bars) and total catch of overfished species quota pounds (red bars).

The groundfish fleet (including the Risk Pool members) used a total of 773,861 pounds of the available 1,995,786 pounds of overfished species quota, or 38.8% of the total allowable catch

(Table 3). When the Risk Pool's holdings and catch are removed from the fleet at large, the overall fleet usage of the total allowable catch for overfished species increases to 41.6%.

Overfished Species	2012 Risk Pool		2012 Total		2012 Total	2012 Total
	Holdings in Quota	2012 Risk Pool	Allowable Catch	2012 Total Catch	Allowable Catch	Catch with
	Pounds	Total Catch	for Fleet in Quota	for Fleet	for Fleet with Risk	Risk Pool
			Pounds		Pool Quota	Catch
					Removed	Removed
Bocaccio rockfish	77,020	8,442	132,277	19,461	55,257	11,019
Canary rockfish	3,639	770	57,761	15,942	54,122	15,172
Cowcod	2,478	113	3,968	204	1,490	91
Darkblotched rockfish	19,012	4,046	548,808	197,915	529,796	193,869
Pacific Hailibut	-	-	232,856	81,907	232,856	81,907
Pacific ocean perch	-	-	263,441	118,136	263,441	118,136
Widow rockfish*	69,641	1,290	755,352	340,220	685,711	338,930
Yelloweye rockfish	87	6	1,323	76	1,236	70
TOTAL	171,876	14,667	1,995,786	773,861	1,823,910	759,194
Percent Utilization of Overfished Species Quota		8.5%		38.8%		41.6%

Table 3. Total quota holdings and total catch shown for the Risk Pool (panel 1), the entire groundfish fleet including the Risk Pool members (panel 2), and the groundfish fleet with the Risk Pool quota holdings and catch removed (panel 3).

These results from 2012 show that, similar to what was evident in 2011, the Risk Pool was able to effectively keep its utilization rate of overfished species quota to a lower level than the rest of the fleet combined (refer to Figure 5). In 2011, the FBGA and CCSGA through a similar Risk Pool agreement, were able to keep the utilization of available overfished species quota to just 2.1% within the Risk Pool, while the rest of fleet utilized 35% of overfished species quota. It was noted that results from 2011 should be evaluated with caution because it was the first year under a new management system and the Risk Pool did not begin fishing operations until part way through the calendar year; yet the results from 2012 indicate that the Risk Pool was able to keep utilization of overfished species quota lower than the rest of the fleet after fishing operations adapted to the catch share program and operated for a full fishing season.

2012 Risk Pool Utilization vs Fleet Utilization

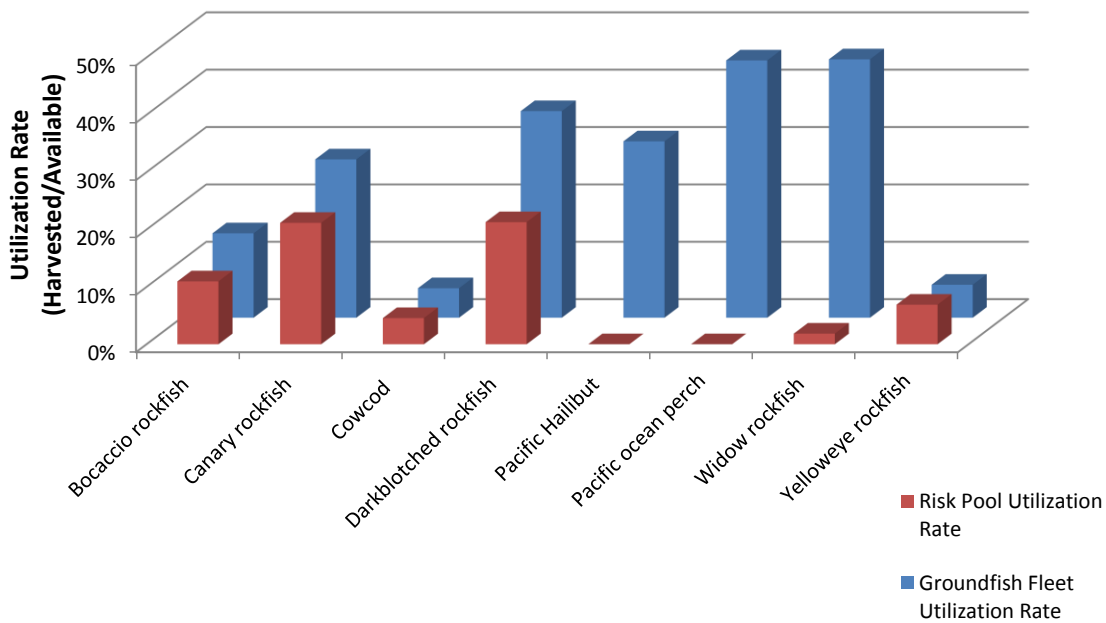


Figure 5. Utilization rates (in percent) for overfished species quota compared between the Risk Pool (red bars) and the rest of the groundfish fleet (blue bars).

Through eCatch, the Risk Pool was able to map, in near real-time, where overfished species were caught and the abundance of overfished species harvested by Risk Pool members during the 2012 fishing season. Areas of high catch intensity can indicate higher potential risk of catching overfished species over time (Figure 6), and this information is used by the Risk Pool to adaptively manage the regional fishing plans and update spatial restrictions or rules.

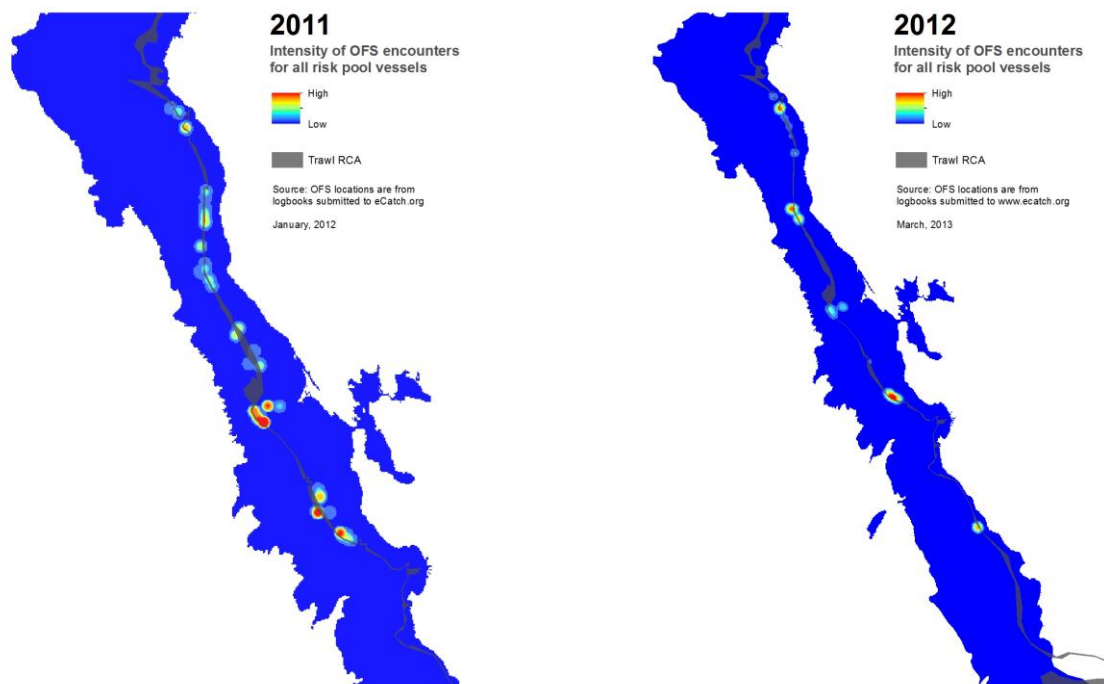


Figure 6. Maps created using eCatch data depicting the intensity of overfished species (OFS) encounters for all Risk Pool vessels during 2011 (left) and 2012 (right). Intensity is calculated as frequency of fishing sets where OFS were harvested.

A bycatch ratio is an additional metric that can be used to evaluate the performance of the Risk Pool and the groundfish fleet. Using information available on total catch of overfished species and total catch of target species (*i.e.* species other than overfished species managed under the catch share program), a simple bycatch ratio can be determined by dividing the total catch of overfished species by the total catch of target species (including discards). Overall when all species are included for 2012 the members of the Risk Pool had a bycatch ratio of 0.46%, while the rest of the groundfish fleet had a bycatch ratio of 0.42%. Whiting comprises a large amount of quota pounds landed by the west coast groundfish fleet and is not targeted by the Risk Pool members, so bycatch ratios were also calculated with whiting removed. Without whiting, the groundfish fleet had a bycatch ratio of 1.88%, while the Risk Pool has a bycatch ratio of 0.47%. This metric aligns with the utilization rates presented above and indicates that the Risk Pool reduced its bycatch of overfished species compared to the rest of the non-whiting sector of the groundfish fleet.

The data collected by Risk Pool members using eCatch makes it possible to easily evaluate bycatch ratios on a trip by trip basis. Overall, the Risk Pool members encountered overfished species in approximately 17% of all sets, which provides a measure of the risk of encounter.

Utilization of Target Species Quota

A primary goal of the Risk Pool and its associated fishing plans is to maximize the harvest of target species from the groundfish fishery. This goal is not exclusive of the other goals of the Risk Pool – to minimize the bycatch of overfished species, safeguard sensitive habitat, contribute to the rebuilding of overfished species stocks and participate in collaborative fisheries research – but the Risk Pool provides the needed insurance against deficits of overfished species that allows the fishermen members to profitably manage their fishing businesses (refer to Figure 7). In 2012, overfished species quota deficits incurred after trips where overfished species were harvested were generally filled by the Risk Pool manager within minutes to a few hours of being notified by the respective association. The result was no loss in fishing time for the members of the Risk Pool, because it was unnecessary for the fishermen to spend time searching, buying or trading for overfished species quota to fill such deficits.

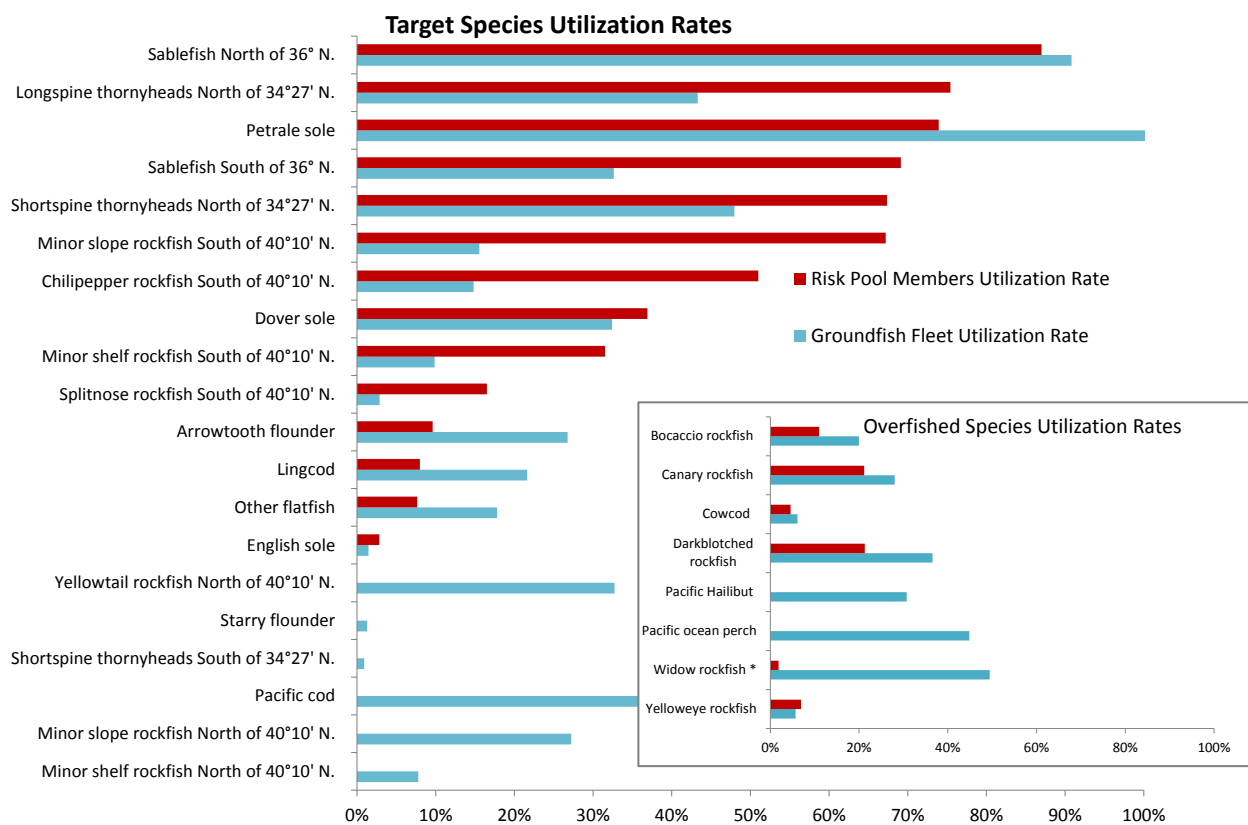


Figure 7. Utilization rates (in percent) for the 20 non-whiting target groundfish species compared between the Risk Pool (red bars) and the rest of the groundfish fleet (blue bars). Utilization rate is calculated as pounds harvested divided by quota pounds available. Inset shows overfished species utilization rates for the Risk Pool (red bars) and the rest of the groundfish fleet (blue bars).

Target species within the groundfish fishery generally depend upon the gear type being deployed by the individual fishing operation. In 2012, Risk Pool members used various gear

types including trap, hook and line, Scottish seine and trawl. Typical high value target species for these gear types include petrale sole, sablefish, chilipepper rockfish, dover sole, and thornyheads. The high value associated with these target species can be a result of either the high quantity caught, high quality of the product, or higher than average ex-vessel price per pound based on consumer demand. Compared to the rest of the groundfish fleet, the Risk Pool member's combined utilization rate of quota for thornyheads, chilipepper, and dover sole was higher than the rest of the fleet (Figure 8).

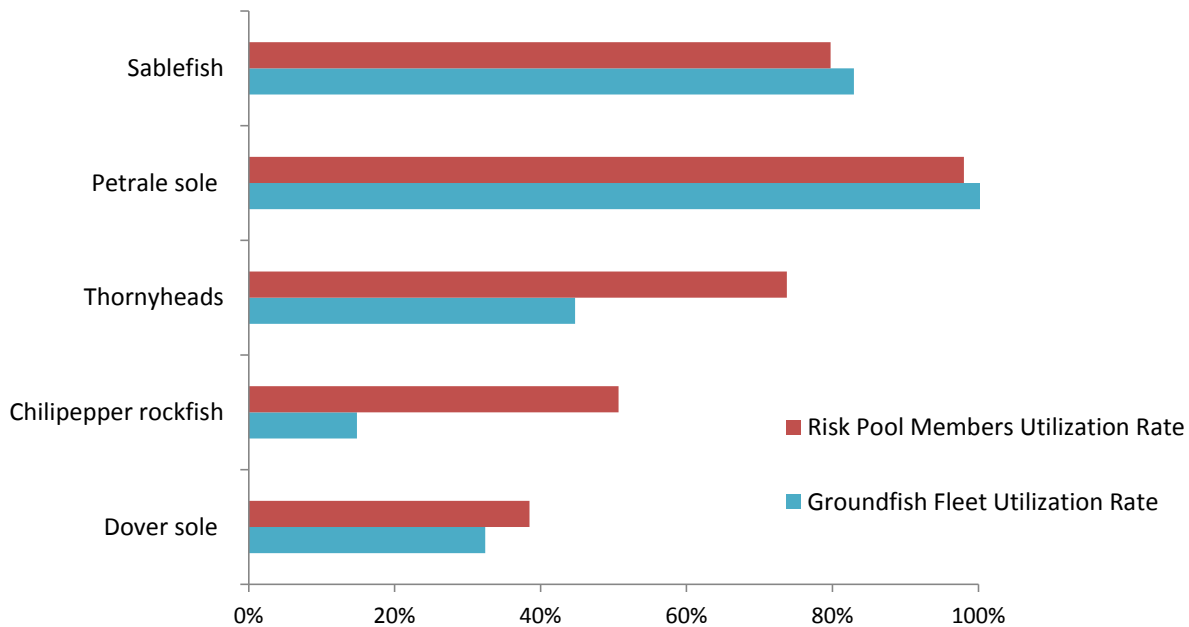


Figure 8. Utilization rates (in percent) of five high value species or species groups compared between the Risk Pool (red bars) and the rest of the groundfish fleet (blue bars). Utilization rate is calculated as pounds harvested divided by quota pounds available.

The Risk Pool members collectively caught a total of 3.2 million pounds of the 20 non-whiting target species during 2012 and landed just under 3.1 million pounds of those target species. The estimated total ex-vessel value of Risk Pool member target species landings is over \$2.7 million (Figure 9). The ex-vessel value of landings is estimated based on the species-specific average price per pound received by Risk Pool members.

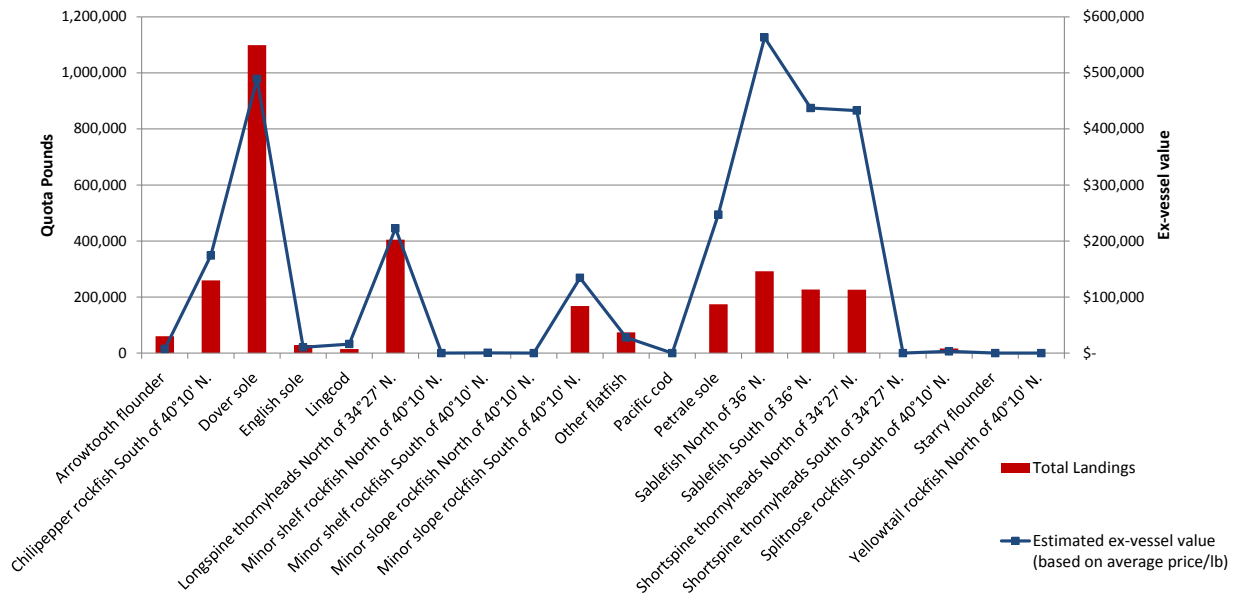


Figure 9. Total landings of 20 non-whiting target species for Risk Pool members (red bars) and estimated ex-vessel value of total landings (blue squares) based on average price per pound received by Risk Pool members.

Compliance and Monitoring

The 2012 Risk Pool agreement that was executed by the associations established steps that would be taken in the event of a compliance issue or possible violation by one of the associations' vessels of their respective fishing plan regional rules. As directed by the Advisory Committee, the Risk Pool manager was responsible for reviewing all vessel and trip specific data (i.e. spatial data, landings, etc.) with incidents of overfished species to ensure compliance with regional fishing plans. In addition, to determine compliance with spatial fishing restrictions, the Risk Pool used eCatch and the Advisory Committee reserved the right to require subsequent audits of Vessel Monitoring Systems (VMS) data from suspected or violating vessels. Because there were no incidences of non-compliance or suspected violations there were no VMS audits during 2012.

Research

The Risk Pool has actively engaged in collaborative fisheries research in the west coast groundfish fishery in order to inform local and regional management decisions. During the 2012 fishing season, the Risk Pool engaged with TNC to initiate a study investigating the Rockfish Conservation Areas (RCAs) off the west coast, which are depth-based closures that have been effective fishery management tools for reducing the catch of overfished species. However, they have also prevented access to underutilized target species that have healthy populations. Underutilized groundfish species such as yellowtail rockfish and lingcod had overall utilization rates of 32% and 21%, respectively, in 2012. The RCAs have been in place for almost ten years and yet there has been little research on the finer-scale distribution patterns of overfished species. In an effort to better understand the demographics and distributional patterns of these overfished

species within the RCA, the CCSGA submitted an application to the Pacific Fishery Management Council and was granted an Exempted Fishing Permit (EFP) in 2012 to conduct the research in 2013 and 2014. The EFP authorizes a collaborative research effort that will focus on developing predictive maps of the distribution, abundance, and size of overfished species; ground-truthing the predictive maps with directed fishing efforts and visual surveys; and characterizing the abundance, length, and habitat associations of the overfished species. The Risk Pool plans to contribute overfished species quota pounds to the research effort and will review and approve directed fishing plans submitted by the research group to the Risk Pool Advisory Committee. This research project will advance understanding of the spatial distribution, size and abundance of overfished species in order to inform both fishing and management decisions that result in bycatch reduction as well as finer-scale management and enhanced profitability in the fishery.