

# Full Observer Coverage in the Gulf of Alaska Trawl Fishery Discussion Paper

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## 1 Purpose

In February 2015, the Council made the following motion:

*The Council requests staff develop a discussion paper that evaluates the effects of moving all GOA trawl vessels currently in the partial observer coverage category to the full (100%) observer coverage category. At a minimum, the paper should outline the effect on observer program fee revenues that would support non-trawl fleets that would remain in partial coverage and the potential cost impacts for AFA and non-AFA trawl vessels as a percent of ex-vessel revenue and daily observer costs. The paper should also identify observer companies currently supplying observers to full coverage fisheries and any observer availability issues.*

The Council discussed higher observer coverage levels for the Gulf of Alaska (GOA) trawl fleet in the context of bycatch management. Although the target observer coverage level for GOA trawl vessels in the partial coverage category has increased to 24 percent in 2015, the Council articulated that 100 percent coverage could improve Chinook salmon PSC estimates and enhance vessel-level accountability in the management of prohibited species catch (PSC). GOA trawl vessels are limited by seasonal and annual hard caps on Pacific halibut and Chinook salmon; National Marine Fisheries Service (NMFS) in-season managers close fisheries when those caps are met. At present, PSC levels in the partially observed fleet is estimated by extrapolating PSC rates (halibut or Chinook salmon per metric ton of groundfish) from observed hauls onto unobserved effort. The Council also noted that full observer coverage could improve our ability to deploy observers on trawl catcher vessels (CV) that deliver to tenders.

The scope of this paper is limited to the question of how placing all GOA trawl vessels into the full observer coverage category might impact the owners of those vessels – with regard to the cost of operating in the GOA – and the Observer Program itself. External effects, or the way in which such a change would affect vessel operations in other Alaska fisheries, would be addressed in a subsequent analysis if the Council develops alternatives related to the motion above. This paper addresses a potential change to observer coverage requirements independently of other developing Council actions. Full observer coverage has been publicly discussed as an element of a GOA Trawl Bycatch Management

program<sup>1</sup>. While this paper could inform that project, the details of those developing alternatives are not directly addressed or described here.

## 2 Background

### 2.1 North Pacific Groundfish and Halibut Observer Program

In 2013, the Council and NMFS restructured the Observer Program to place all vessels and processors in the groundfish and halibut fisheries into one of two categories: (1) the full coverage category, where vessels and processors obtain observers by contracting directly with observer providers, and (2) the partial coverage category, where NMFS has the flexibility to deploy observers when and where they are needed based on an annual deployment plan (ADP) developed in consultation with the Council. The ADP describes how NMFS plans to deploy observers to vessels (and processors) in order to meet scientifically based catch estimation needs while accommodating the realities of a dynamic fiscal environment. NMFS's goal is to achieve a representative sample of fishing events. Funds for deploying observers in the partial coverage category are provided through a system of fees based on the ex-vessel value of landings that did not occur in the full coverage category. The annual planning and reporting process is described in Section 1.2 of the 2014 Observer Program Annual Report (NMFS 2015). Vessels may be in full coverage for some fisheries, and in partial coverage for others.

Catcher/processors (CP), motherships, and CVs that are participating in a catch share program (limited access privilege program, or LAPP) that has transferable PSC allocations are already in the full coverage category. The Central GOA Rockfish Program (RP) is one such catch share program, and is a fishery in which many of the vessels potentially affected by this action also participate. For the RP, the full observer coverage was associated with the implementation of transferable PSC limits allocated to an entity. The management structure under an area-based, season-based, or sector-based PSC limit is fundamentally different from one in which a PSC limit is allocated to an entity. In programs where PSC limits are allocated to entities, NMFS has concluded that use of PSC rates from observed vessels to estimate the PSC by unobserved vessels is not appropriate, due to the incentive for unobserved vessels to fish differently than observed vessels. Also, it is difficult to enforce penalties for overages based in part on PSC rates from other vessels that were observed. Furthermore, the ability of vessels within a cooperative to collude might allow them to manipulate their PSC rates to the degree that NMFS would be unable to collect and estimate accurate PSC levels. For a PSC limit to be the most effective, estimation of PSC needs to be credible, and the process should create vessel-level incentives for PSC avoidance. The monitoring requirements that enable PSC accounting under a catch share program (where a PSC limit is allocated to an entity) impose large costs on the industry. However, these costs may be offset by, or be small in comparison to, the overall benefits that result from a catch share management infrastructure.

NMFS estimates the cost per day for full observer coverage in its Observer Program Annual Report. Observer providers submit copies of all invoices for observer coverage, and NMFS compiles them to calculate the average cost of full coverage. The 2014 Annual Report cites the average daily rate for trawl CVs as \$331 (NMFS 2015, Figure 2-1, p.34). The Annual Report provides a separate estimate of daily observer costs that includes both daily rate and observer providers' overhead costs (e.g. travel). For 2014, the total daily cost of full coverage was estimated to be \$371; however, that estimate is not specific to any particular vessel or processor type.

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<sup>1</sup> At its most recent meeting where GOA Trawl Bycatch Management was on the agenda (October 2014), the Council passed a motion describing a framework for a program of harvester and processor cooperatives that receive groundfish and PSC allocations to manage collectively.

The partial coverage category for groundfish is defined in regulation as all fisheries that are not in full coverage<sup>2</sup>. The ADP for 2015 describes the three partial coverage deployment pools, or “strata” (NMFS 2014a):

- Large vessel trip-selection: (1) **All CVs using trawl gear**, (2) CVs using hook-and-line (HAL) or pot gear that are greater than or equal to 57.5’ LOA, and (3) CPs exempted from full coverage requirements<sup>3</sup>;
- Small vessel trip-selection: CVs using hook-and-line (HAL) or pot gear that are greater than or equal to 40’ LOA, but less than 57.5’ LOA;
- No selection: CVs less than 40’ LOA, or vessels using jig gear, or vessels with a conditional release due to life raft capacity<sup>4</sup>.

The fees that fund the partial coverage category are generated by payments equal to 1.25 percent of the ex-vessel value of groundfish (and halibut, when applicable) delivered to a shoreside processor. The fee is intended to be split evenly between the vessel owner and the processor, such that each operation pays 0.625 percent of the total ex-vessel value of the landing<sup>5</sup>. The fee liability is determined by multiplying the standard price for groundfish by the round weight equivalent for each species and gear combination. Ex-vessel value is based on standard prices from prior years. The standard prices that will be used to determine 2015 liabilities are based on volume and value from 2011 through 2013. NMFS is not able to use a basis of actual ex-vessel prices at the time of the landing because (1) they are not always known or accurately reported on landings reports, (2) some prices are adjusted later in the season, (3) some processors and CVs do not have an independent relationship, and (4) it would be costly for NMFS to audit or investigate incidences of suspected inaccurate price reporting. In order to apply the most appropriate price to a landing, NMFS uses the standard price that reflects the location of the landing with the highest degree of precision. NMFS collects data at the port-level (e.g., Kodiak, Homer, or King Cove) and aggregates up to regulatory area, BSAI/GOA, state-level, or all ports including those outside Alaska, as is necessary to comply with confidentiality regulations. The standard groundfish prices for 2015 are listed on the region website by species, gear type, and port/area group<sup>6</sup>.

When fishing in State of Alaska waters, vessels that possess a Federal Fisheries Permit (FFP) are subject to the federal observer coverage requirements when catching species that are debited from a federal total allowable catch limit (TAC).

The at-sea budget for the deployment of partial coverage observers in 2015 was calculated to cover 5,518 observer-days<sup>7</sup>. This value results from conversions of dollars to days as derived from confidential contract information negotiated between NOAA's Acquisition and Grants Office and the observer provider that holds the partial coverage contract. NMFS anticipated the budget for 2015 deployment to be approximately \$5.5 million, of which \$3.2 million is projected revenue from fees for the 2014 calendar year. The remaining funding includes fees carried over from 2014 and federal funds from NMFS.

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<sup>2</sup> Specific partial coverage definitions are included for halibut/sablefish IFQ CVs, CVs fishing CDQ, certain CPs, and stationary floating processors, but those would not pertain to the group of vessels affected by this potential action.

<sup>3</sup> Possible CP exemptions are defined at 50 CFR 679.51(a)(2)(iv).

<sup>4</sup> Vessels participating in Electronic Monitoring Cooperative Research are also placed in the no selection pool; this does not pertain to trawl vessels.

<sup>5</sup> <http://alaskafisheries.noaa.gov/sustainablefisheries/observers/observerfees.pdf>.

<sup>6</sup> <http://alaskafisheries.noaa.gov/sustainablefisheries/observers/2015standardprices.xlsx>. The most current standard prices are also noticed in the Federal Register at 78 FR 73842.

<sup>7</sup> The methodology for calculating the anticipated need for observer days is detailed in Appendix C of the 2015 ADP (NMFS 2014a).

Under the 2015 ADP, trawl CVs – which are in the large vessel trip-selection stratum by definition– have a 24 percent chance (rounded) of having their trip selected for coverage by a human observer. The trip selection probability for those vessels was 15.1 percent in 2014, and was between 11 percent and 15 percent in 2013 (NMFS 2014a).

### **2.1.1 Observer Coverage for Partial Coverage Vessels Delivering to Tenders**

For vessels delivering to tenders, a fishing trip ends when the vessel returns to a port with a processor that has a Federal Processor Permit (FPP). This requirement is necessary because existing regulations do not allow the deployment of observers from, or on, tenders. Further, NMFS existing regulations do not establish tender vessel operators' responsibilities for accommodating or staging observers. Therefore observers on vessels delivering to tenders must be returned to a port from which they can travel, or from which they can be deployed onto another vessel. As a result of those requirements, the operator of a CV delivering to a tender can complete multiple tender deliveries before he or she is required to log another trip in the Observer Declare and Deploy System (ODDS). In the 2013 and 2014 Annual Report, NMFS analyzed trip metrics for partial coverage CVs. Thus far, that analysis has shown no indication that observed CVs delivering to tenders fished differently than unobserved CVs delivering to tenders. However, the inability to randomly deploy observers on CVs delivering to tenders remains an outstanding issue that could be addressed by authorizing the deployment of observers from tenders<sup>8</sup>, or by moving the CVs that deliver to tenders from partial coverage to full coverage. Moving trawl CVs delivering to tenders from partial coverage to full coverage would not, in and of itself, change the sampling methods that are available to observers on trawl CVs, nor would it necessarily accomplish the Council's objective of collecting genetic samples from all salmon PSC in the GOA trawl fisheries. These issues are described in more detail in the 2014 Observer Program Annual Report (NMFS 2015), and the October 2014 discussion paper on GOA trawl bycatch management<sup>9</sup>.

## **2.2 Description of the Potentially Affected Trawl Fleet**

Of the total 156 CVs that fished with trawl gear in Alaska region waters during the 2010 through 2014 period, 84 CVs targeted groundfish in the GOA. During the analyzed period, between 67 and 70 unique CVs trawled for groundfish in the GOA in a given year. Forty-six of the 84 GOA CVs also fished with trawl gear in the BSAI. AKFIN reports that 22 CVs made landings on days when they fished exclusively in Alaska state-waters (inside of three nautical miles), though no CV participated exclusively in state-waters. Because vessels carrying an FFP that fish off of a federal TAC are still subject to federal observer regulations, revenues from GOA state-waters are part of the fee basis for the partial observer coverage category that could be affected by this action<sup>10</sup>.

The recently active GOA CV trawl fleet ranges in vessel length (LOA) from 57 feet to 124 feet. Under the 2015 ADP, LOA no longer determines the trip selection stratum in which a CV is placed. As noted above, all trawl CVs are in the large-vessel trip selection stratum, and have roughly a 24 percent chance of being selected for coverage on a given trip. For descriptive purposes, however, note that the median CV LOA is 85.5 feet, and the average is 81 feet. The lower average reflects the 30 GOA CVs that are 58 feet LOA or smaller.

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<sup>8</sup> Deployment of observers from tender vessels is tentatively scheduled to be taken up as a separate issue at the February 2016 Council meeting.

<sup>9</sup> <http://npsmc.legistar.com/gateway.aspx?M=F&ID=40ad31b4-d26e-495f-bbbc-e5750f9347ae.pdf>.

<sup>10</sup> The data used for this report does not break out state-waters catch by FMP area, but that relatively small adjustment could be made in the event of a future analysis.

Table 1 summarizes the GOA trawl fleet's ex-vessel revenues from 2010 through 2014. These data do not include harvest made under cooperative quota for the RP, since that activity is already subject to full observer coverage. Note that these ex-vessel revenue figures reflect the actual standard prices for each year; this would differ from the rolling three-year average the NMFS uses to assess the 1.25 percent partial coverage fee liability associated with fishing in that year. The RP harvest and effort of the 32 GOA trawl CVs that were active under that program are described in the following subsection. All GOA and state-waters catch was delivered to shoreside processors. (Eight GOA CVs made mothership deliveries while trawling in the BSAI.)

The **bolded** rows in Table 1 provide the data that are most directly related to the impacts of a change in trawl CV coverage requirements in the GOA. Some portion of the Alaska state-waters activity would also likely fall under a new GOA coverage requirement. The information on this fleet's BSAI and total activity are provided in order to give a more robust overview of GOA trawlers' annual fishing plans. Vessels included in the annual total but not in the GOA row would be those that trawled in the GOA in some *other* year during the 2010 through 2014 period.

Table 2 breaks down ex-vessel revenues by target species, as determined in the NMFS Catch Accounting System (CAS). A trip that is classified as having targeted one species likely includes retained catch of other species. For example, an arrowtooth flounder trip might include rex sole, or a Pacific cod trip might include other flatfish. As noted in Section 2.1, the partial coverage fee is calculated on the basis of standard prices for each delivered species. The trip-level ex-vessel values, provided by AKFIN and based on CFEC Fish Ticket data, reflect the standard prices and weights of the mix of groundfish species that are delivered from a multi-species trawl trip.

GOA trawl CVs follow generally predictable patterns of fishing for different target species throughout the course of a given calendar year. In very broad terms, CVs target pollock and Pacific cod when the season opens on January 20; harvest may begin later depending on roe content, fish aggregation, or market factors. Central GOA CV trawlers tend to move into flatfish after the pollock and cod seasons close. The RP fishery opens for CVs in May, at which point flatfish effort slows down, but some fishing for unallocated flatfish does continue during the summer. Many Western GOA CVs participate in directed salmon fisheries during the summer. Effort shifts back to pollock and Pacific cod when the fall seasons open on August 25 and September 1, respectively. The Western GOA CV fall fishery for Pacific cod (B season) is very small compared to the beginning of the year (A season). In the fall and early winter, Central GOA CV trawlers finish the year with flatfish and what remains of the RP fishery, which closes by regulation on November 15.

**Table 1 Ex-vessel revenues (\$) for CVs that trawled in the GOA during the 2010 through 2014 period**

Year	Area	# Vessels	Ex-Vessel (\$)		
			Total	Average	Median
2010	<b>GOA</b>	<b>67</b>	<b>40,807,487</b>	<b>609,067</b>	<b>460,275</b>
	BSAI	35	24,487,878	699,654	416,898
	AK State Waters	11	668,980	60,816	52,608
	<b>Total</b>	<b>73</b>	<b>65,964,345</b>	<b>903,621</b>	<b>651,594</b>
2011	<b>GOA</b>	<b>68</b>	<b>43,827,968</b>	<b>644,529</b>	<b>446,592</b>
	BSAI	38	37,549,719	988,151	581,373
	AK State Waters	7	572,251	81,750	50,140
	<b>Total</b>	<b>73</b>	<b>81,949,938</b>	<b>1,122,602</b>	<b>837,227</b>
2012	<b>GOA</b>	<b>70</b>	<b>54,387,721</b>	<b>776,967</b>	<b>744,844</b>
	BSAI	39	43,484,773	1,114,994	732,875
	AK State Waters	9	1,055,801	117,311	54,632
	<b>Total</b>	<b>74</b>	<b>98,928,295</b>	<b>1,336,869</b>	<b>1,007,460</b>
2013	<b>GOA</b>	<b>69</b>	<b>49,239,923</b>	<b>713,622</b>	<b>596,240</b>
	BSAI	35	35,740,549	1,021,159	760,029
	AK State Waters	14	1,031,596	73,685	53,032
	<b>Total</b>	<b>75</b>	<b>86,012,068</b>	<b>1,146,828</b>	<b>902,838</b>
2014	<b>GOA</b>	<b>69</b>	<b>55,256,598</b>	<b>800,820</b>	<b>695,162</b>
	BSAI	31	30,358,371	979,302	721,124
	AK State Waters	19	697,306	36,700	33,422
	<b>Total</b>	<b>75</b>	<b>86,312,275</b>	<b>1,150,830</b>	<b>921,931</b>

Note: GOA catch made under the CGOA Rockfish Program is excluded.

Source: Catch Accounting System data compiled by AKFIN in Comprehensive\_BLEND\_CA.

**Table 2 GOA trawl ex-vessel revenues (\$) by target species for CVs that trawled in the GOA during the 2010 through 2014 period**

Target Species	2010	2011	2012	2013	2014	Total
<b>Pollock</b>	26,973,626	28,343,738	37,446,262	34,139,142	39,925,326	<b>166,828,095</b>
<b>Pacific Cod</b>	7,956,120	8,145,715	11,635,995	9,322,372	9,756,336	<b>46,816,538</b>
<b>Arrowtooth Flounder</b>	2,739,936	5,116,361	2,746,952	3,342,603	3,551,881	<b>17,497,733</b>
<b>Shallow Water Flatfish</b>	2,424,154	1,461,368	2,032,538	2,034,409	1,356,126	<b>9,308,595</b>
<b>Other *</b>	713,651	760,785	525,974	401,397	666,930	<b>3,068,736</b>
<b>Total</b>	<b>40,807,487</b>	<b>43,827,968</b>	<b>54,387,721</b>	<b>49,239,923</b>	<b>55,256,598</b>	<b>243,519,697</b>

\* Other = rex sole, flathead sole, rockfish, deep water flatfish, sharks/skates, and sablefish, in descending order of total ex-vessel revenue (2010 through 2014); species are aggregated in order to comply with confidentiality rules.

Note: GOA catch made under the CGOA Rockfish Program is excluded.

Source: Catch Accounting System data compiled by AKFIN in Comprehensive\_BLEND\_CA.

This document uses two different data sources to describe the GOA trawl CV fleet's effort in terms of fishing time, or trip length. Trip length is a key measure for estimating the effect of moving the fleet to full coverage on both vessel owners and on Observer Program resources.

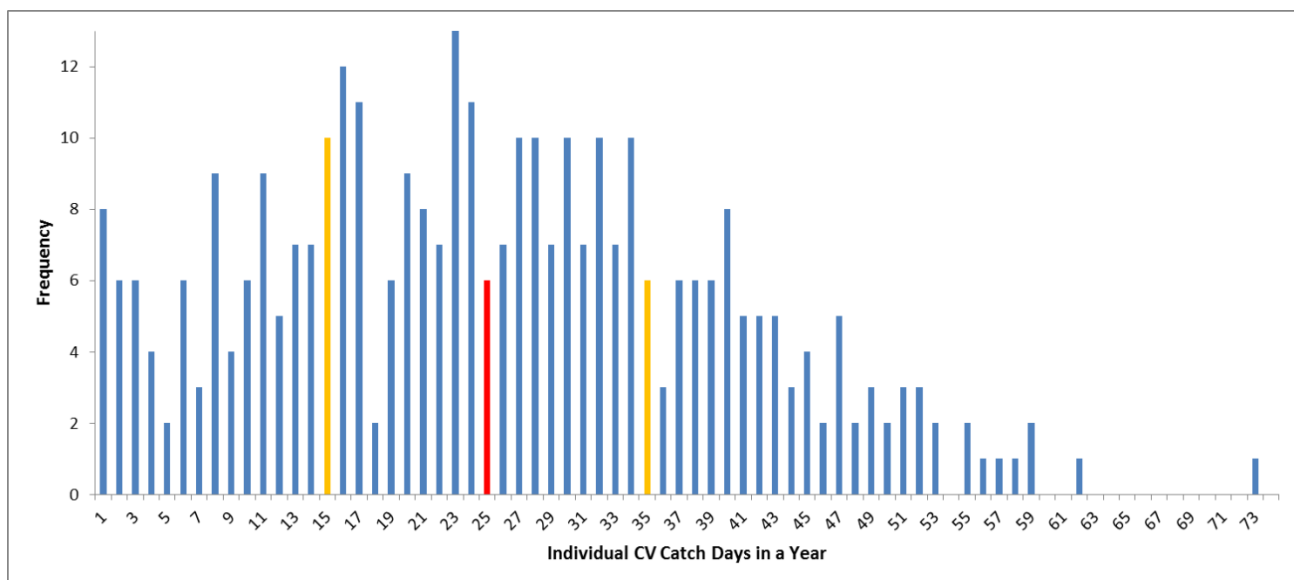
1. Table 3-3 in the 2014 Annual Report (NMFS 2015, p.55) reports the number of vessels, number of vessels observed, total trips, and observed trips for each of the Observer Program strata. The 2014 trip selection stratum – which is equivalent to the 2015 large-vessel trip selection stratum – included 293 vessels that made a combined 4,390 trips (not all of these vessels/trips were from the GOA trawl CV sector). Of the 293 vessels in the trip selection pool, 199 were selected to carry an observer for at least one trip. Of the 4,390 trips in total, a partial coverage observer was on board for 662. AFSC's Fisheries Monitoring and Analysis (FMA) Division provided staff with a further breakdown of 2014 total effort (observed and unobserved) in the GOA trawl CV fleet.

2. Some portions of this document rely on a measure of fishing effort reported by AKFIN, referred to here as “catch days”. NMFS Catch Accounting System (CAS) contains a field for the number of days on which groundfish was brought onboard, or caught. This is likely an underestimate of the total number of days that a vessel was out of port, and on which a full coverage vessel would be carrying an observer under full coverage. Catch days are derived from CFEC Fish Tickets. Trip departure and return dates are recorded in paper logbooks, but that information is not electronically entered into CAS. Catch days have been utilized by the Alaska Fisheries Science Center (AFSC) in the past, and the data field is thought to be a useable input for estimating total trip length after making some adjustment. Where catch days are utilized in this paper, it is simply presented with the caveat that it is an underestimate of total trip length. Despite its limitations, staff sometimes relies on catch days because it is more easily identifiable at the vessel-level, whereas data on invoiced partial coverage days would have to be specifically queried through the Observer Program. Staff is working to pull in data on total trip length for use in future analyses.

Per the FMA data referenced above, 69 trawl CVs made 2,040 trips during 2014, which covered a total of 5,864 days. This total naturally excludes RP activity, as effort in that fishery would have fallen under the full coverage category. By these figures, the average GOA CV trawl vessel made around 30 non-RP trips in 2014, and fished for a total of roughly 85 days. The average trip length was around three days. No median or variance is presented, as staff does not have access to vessel-level Observer Program data. Given the nature of the GOA trawl CV fleet, which includes some vessels that are present in the area year-round and others that spend only a portion of the year using trawl gear in the GOA, it is reasonable to assume that some vessels are active for 100 or more days in a year, while others fish the GOA as only one part of a portfolio of harvest opportunities.

Figure 1 shows a frequency distribution for the number of non-RP GOA trawl “catch days” individual CVs recorded in a given year, over the 2010 through 2014 time period, using the AKFIN measure. Each vessel-year combination is treated as a separate observation. In other words, a vessel that fished in all five years would appear in Figure 1 as five different data points. The total number of observations is 343. The median is 25 (shown in red). This should be interpreted as six CVs having trawled for 25 days during some year within the period. Thirty-five catch days is at the 75<sup>th</sup> percentile (shown in yellow), meaning that 75 percent of trawl CV vessel-years consisted of 35 catch days or fewer. In total, non-RP CVs recorded groundfish trawl catch on 8,757 days from 2010 through 2014. This figure is useful for understanding the variation in effort levels across vessels, but is acknowledged to be well below the number of days for which an observer would have been required if the CVs were operating in full coverage.

**Figure 1 Frequency of GOA CV vessel-level catch days, 2010 through 2014**



Source: Catch Accounting System data compiled by AKFIN in Comprehensive\_BLEND\_CA.  
Note: Red = 50<sup>th</sup> percentile; Orange = 25<sup>th</sup> and 75<sup>th</sup> percentile.

### CGOA Rockfish Program CVs

From 2010 through 2014, 32 unique CVs made landings in the RP. The total ex-vessel value of those RP landings was around \$33.4 million. Since RP trips are made under a LAPP, vessels are already carrying full observer coverage. According to the AKFIN measure of “catch days,” the 32 RP CVs brought groundfish onboard on a total of 277 catch days, over the course of the analyzed years. The median and average number of catch days were both nine, the minimum was one day, and the maximum was 16 days.

Each of the 32 RP CVs made non-RP groundfish trawl landings during the 2010 through 2014 period, with combined ex-vessel revenues of around \$222.4 million. Twelve RP CVs used trawl gear only in the GOA, with non-RP ex-vessel revenues totaling \$57.9 million. The other 20 RP CVs fished in both the GOA and the BSAI, and recorded \$161.4 million in non-RP ex-vessel revenues. Of the 20 RP CVs that trawled in both areas, BSAI activity accounted for 31 percent of the vessels’ aggregate state-wide ex-vessel revenue, though variance was high. Only three of the 20 CVs generated more than half of their ex-vessel revenues in the BSAI; 14 generated 40 percent or less of their total revenues in the BSAI, and five generated less than 10 percent of total revenues in the BSAI.

Seventeen RP CVs made non-RP landings on days when they fished exclusively in State of Alaska waters (AKFIN data). That catch accounted for \$3.2 million in ex-vessel revenue.



**Table 3 Ex-vessel revenues and catch days for CVs that actively fished under the Central GOA Rockfish Program, 2010 through 2014**

		# Vessels	Ex-Vessel (\$)			Catch Days		
			Total	Average	Median	Total	Average	Median
GOA	Rockfish Program	32	33,417,427	1,044,295	907,669	277	9	9
	Limited Access	32	156,050,209	4,876,569	5,095,851	654	20	21
BSAI		20	63,205,715	3,160,286	2,938,347	152	8	8
AK State Waters		17	3,156,181	185,658	138,134	44	3	2
<b>Total</b>		<b>32</b>	<b>255,829,532</b>	<b>7,994,673</b>	<b>8,617,387</b>	<b>1,127</b>	<b>35</b>	<b>37</b>

Source: Catch Accounting System data compiled by AKFIN in Comprehensive\_BLEND\_CA.

### 3 Potential Effect on the Observer Program

#### 3.1 Observer Program Management

NMFS Observer Program staff is responsible for training new observers, briefing experienced ones, and debriefing observers after their deployments end. In addition, Observer Program staff manage observer data, including quality control on data submitted electronically, data entry on information submitted by fax, and application development and maintenance to make observer data accessible to scientists, fishery managers, and vessel owners. Actions that increase observer coverage can be expected to increase demands on Observer Program resources. Trip debriefing backlogs already exist under the current Observer Program structure; these tend to occur as observers on 90 day contracts return from the early-year pollock and Pacific cod seasons. The increase in demand on Observer Program resources would be a function of how many observers must be trained or briefed, and how many additional trips are being observed and debriefed as a result of the considered action. If the increase in either is significant, the Observer Program could find itself in need of additional staff.

In further regards to Observer Program staff time and associated costs, an action that moves vessels into full coverage would increase the amount of observer data that is submitted to the Observer Program. Moving vessels to full coverage will likely result in more data submitted by fax, which would require more staff time for data entry, and could also increase the time needed for debriefing. NMFS existing partial coverage contract makes the contractor responsible for ensuring that observers enter data electronically and transmit data to NMFS at the end of each fishing trip. If these vessels are moved to the full coverage category, and no changes are made to the observer data entry equipment and software requirements applicable to these vessels, the full coverage observers assigned to these boats would need to fax data rather than entering it electronically in the field. Currently, NMFS estimates that approximately three hours of staff time are required to hand-key observer data for each observed delivery, at an estimated cost of \$50 per hour. Data transmission by fax, in the absence of data checking capabilities built into the NMFS-issued software, increases the likelihood of data errors that would need to be fixed during the debriefing process, possibly increasing the time needed for each debriefing.

This rest of this subsection uses data from the 2014 Annual Report and information provided by AFSC's Fisheries Monitoring and Analysis (FMA) Division to gauge the extent to which moving the GOA CV trawl fleet into full coverage would increase the number of observed trips and required observers in a manner that is significant, relative to the status quo.

The realized sampling rate for the 2014 trip selection stratum was 15.1 percent, meaning 15.1 percent of trips logged in ODDS were selected to take a partial coverage observer. For 2015, the target sampling rate

for the large-vessel trip selection stratum is around 24 percent. Assuming the non-RP GOA trawl CV fleet of 69 vessels was sampled at 15.1 percent (noting that the fleet represents only a portion of the 2014 trip selection stratum, and its realized selection rate may differ slightly), 308 of the fleet's total 2,040 trips would have carried an observer. If that level of effort (trips) had been sampled at 24 percent, 490 trips would have carried an observer. All 2,040 trips would have carried an observer if the fleet was in the full coverage category. Applying the three-day average trip length<sup>11</sup> noted in Section 2.2, GOA trawl CVs carried observers for around 925 days in 2014. If the fleet had been sampled at the 2015 target rate of 24 percent, 1,469 observer-days would have been required. Under 100 percent coverage, all 5,864 days would have been covered. If the 2015 GOA trawl CV fleet were in full coverage, NMFS would have had to debrief observers from 1,550 additional trips (2,040 – 490 = 1,550), assuming effort levels are relatively unchanged from those of 2014. The need to debrief more trips is a fairly certain outcome of transitioning to full coverage. The Observer Program may need to consider whether that increased work load requires additional staff, or whether it can be managed with current resources. The cost of increasing staff size might be weighed against longer turn-around times for the results of debriefing, and whether increased lag could adversely affect inseason fishery management.

Aside from debriefing costs, an analysis should consider whether an additional observed trip has a positive one-to-one correlation with the need to train more observers. In 2014, 376 individuals served as at-sea observers in full coverage fisheries (FMA Div., Pers. Comm. 2015<sup>12</sup>). Companies that provide full coverage observers should be able to absorb additional demand for sea-days by moving human resources around to account for fishing seasons and the timing of fishing effort. However, observer providers' ability to redeploy their contractors is limited by the pulse nature of groundfish fisheries. A significant increase in observed trips – resulting from changing the GOA trawl CV fleets selection rate from 24 percent to 100 percent – will likely require additional hiring (by providers) and training (by NMFS).

Using FMA data, staff estimates that 44 additional full coverage observers might have been necessary in order to provide GOA trawl CVs with 100 percent coverage in 2014. This represents an 11.6 percent increase relative to the 376 full coverage observers who were deployed in 2014. Staff would qualify this estimate by noting that a retrospective analysis of 2014 effort levels is not necessarily indicative of effort in future years.<sup>13</sup> The 376 full coverage observers logged 37,676 sea-days, or an average of roughly 100 days per individual.<sup>14</sup> Based on 2014 data, increasing coverage from 24 percent to 100 percent would have required 4,395 additional sea-days. Assuming no change in observer-productivity (sea-days per observer), that additional coverage would require approximately 44 additional observers to meet demand. Section 3.3 discusses the full coverage observer provider companies' anecdotal feedback on their ability to scale up operations. Regardless of the providers' ability to supply qualified labor, NMFS would assume additional training costs unless all of the added observers had experience from previous years.

Sixty individuals served as partial coverage observers in 2014. If this action reduces sea-day demands in the partial coverage category, some trained individuals could shift their employment to full coverage providers. It should be noted, however, that the partial coverage provider deploys its contractors across more than just the GOA CV trawl fleet. BSAI trawl CVs, fixed-gear fisheries, and some CPs that are exempt from full coverage must also be observed with partial coverage.

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<sup>11</sup> This estimate fits with the three to five day average length of partial coverage category trips listed in the 2014 Annual Report (NMFS 2015, p.32).

<sup>12</sup> Personal communication data from FMA has also been provided to the National Observer Program for its Annual Report, which has not yet been published.

<sup>13</sup> AKFIN's "catch days" metric for 2014 was the highest during the 2010 through 2014 period (2,177, compared to an average of 1,751).

<sup>14</sup> FMA Div., Pers. Comm. 2015. FMA staff arrived at sea-days by subtracting "plant-days" from the total number of full coverage days that were invoiced.

Factors that are external to the decision of moving vessels into the full coverage category could affect the annual number of trips taken by the GOA trawl CV fleet. Two such factors are noted here. First, as mentioned in Section 1, the Council is considering a range of alternatives for implementing a cooperative quota-based management regime in the GOA trawl fisheries. If such a program results in “catch shares”, one likely effect would be fewer total fishing trips. This outcome would be especially likely if the revised trawl program removes existing trip limits on catch. Moreover, a cooperative-based program might shift active fishing effort to the more efficient vessels in the fleet, which could also reduce the number of trips required to harvest the TAC. Second, changes in either TAC levels or annual PSC limits could influence the number of trips that occur in future years.

### 3.2 Partial Coverage Category

#### Reduced Partial Coverage Observer Demand

The estimates in the previous section can be used to consider how this action might reduce demand for observer-days in the partial coverage category. Recall that if the 2014 level of GOA trawl CV effort had been sampled at the 2015 target rate of 24 percent, around 490 of 2,040 trips would have been covered. Assuming an average three-day trip length, removing the GOA CV trawl fleet from partial coverage would mean that the Observer Program would have had to fund roughly 1,469 fewer observer-days. Staff has not accessed Observer Program data for 2013, and data is not available for 2010 through 2012 as the Observer Program restructure had not yet occurred. However, AKFIN’s “catch day” data indicates that 2014 effort was 16 percent to 29 percent higher than the levels recorded in 2010 through 2013. Using that information, demand for partial coverage would have been reduced by between 1,047 and 1,241 days per year over that set of years (Table 4). NMFS estimates the total number of partial coverage observer-days that it can afford when developing its ADP. The estimated total number of observer-days was 4,122 days in 2013, 4,728 days in 2014, and 5,518 days in 2015. The estimated reductions in demanded partial coverage days, listed in Table 4, would represent around 25 to 30 percent of the total number of days budgeted for partial coverage in 2013 and 2014 (NMFS 2013 and NMFS 2014a).

**Table 4 Estimated reduction in demand for partial coverage sea-days, indexed to 2014 effort level**

Year	% 2014 Effort	Est. Reduction in Partial Coverage Sea-Days
2010	72%	1,064
2011	71%	1,047
2012	84%	1,241
2013	75%	1,098
2014	100%	1,469

Effort calculation based on Catch Accounting System data compiled by AKFIN in Comprehensive\_BLEND\_CA. Reduction is relative to a 24 percent sampling rate for the partial coverage category.

Note: 2010 through 2012 are projections modeled on effort from fishery data, prior to the establishment of the partial coverage category through the 2013 restructuring of the Observer Program.

#### Fee Revenues for the Partial Coverage Category

The Council may also wish to consider how this action might affect payments into the fee base for the partial coverage category. Recall that, aside from GOA CV trawl vessels, the partial coverage category includes fixed-gear (HAL, pot, and jig) vessels, CPs that are exempt from full coverage, and some BSAI trawl CVs. Groundfish (and halibut) catch delivered by vessels that are designated on an FFP is subject to a fee based on 1.25 percent of the standard prices for the species delivered, priced in round weight

equivalents and accounting for gear type and port (or port group). As described in Section 2.1, standard prices are based on volume and values for prior years (e.g. 2014 prices are based on 2010 through 2012). The 2014 Observer Program Annual Report lists the observer fee liability for GOA trawl vessels at \$874,919 (NMFS 2015, Table 2-3, p.27). The fleet's fee liability for 2013 was reported as \$621,731 (NMFS 2014b, Table 2-2, p.18). These figures represent the amount of funds that would not have been paid into the partial coverage budget if the GOA CV trawl fleet were in full coverage. On the other hand, the partial coverage category would have had fewer observer days to purchase (see Table 4 for estimates based on a 24 percent sampling rate for the partial coverage category).

The 2014 Annual Report estimates the cost of a partial coverage observer-day at \$1,067 (NMFS 2015).<sup>15</sup> At that rate, the GOA trawl CV fleet's fee liability represents the funds needed to purchase 820 partial coverage observer days.<sup>16</sup> Removing the funding equivalent of 820 days would represent an 18 percent decrease in the total number of days that could be afforded, absent other revenue streams. Given that GOA trawl CVs were observed for approximately 925 days in 2014 (assuming 2,040 three-day trips sampled at 15.1 percent), it would appear that the fleet's fee liability was not "funding" observer days for other vessel sectors in the trip selection stratum. Rather, in the past, it is likely that the funding to cover the GOA trawl CV fleet has been a combination of fees paid by that fleet, fees paid into the partial coverage fee base by vessels in other liable sectors, NMFS funds, and rollover funds from the previous year. This statement serves only to point out that the GOA trawl CV fleet has not been a source of excess partial coverage funding that was used to cover other partial coverage sectors, and that the removal of that trawl fleet from partial coverage would not, by itself, dramatically impair NMFS's ability to provide adequate coverage for the sectors that remain in partial coverage. NMFS collects the 1.25 percent fee set in regulation from all partial coverage vessels, and independently determines how best to allocate the afforded observer-days across multiple strata to collect the data required for sound management.

In anticipating effects on the partial coverage category, it might be useful to investigate whether or not the impact of reducing the fee base is linear in terms of the Observer Program's ability to provide coverage. It is possible to imagine a case where removing one fleet from the partial coverage category eliminates the need to service certain higher-cost ports during a period in the year. For instance, moving GOA trawl CVs into full coverage could mean that the partial coverage observer provider does not need to service Sand Point or King cove during the C and D pollock seasons (depending on the activity of fixed gear vessels operating out of that port in the fall). Such adjustments could lower the provider's overhead costs (e.g., travel), which are rolled into the estimate of overall annual the daily cost of providing a partial coverage observer. This type of effect might allow the Observer Program to purchase more sea-days with each dollar of funds that remain after removing the GOA CV trawl fleet from the fee base.

Section 2.1 of the 2014 Observer Program Annual Report (NMFS 2015) describes the collection partial coverage fees from processors, budget rollovers, and requests to NMFS for additional funding. Among the listed reasons for the NMFS fund request was \$550,000 to offset a shortfall in fee collection due to declining ex-vessel values during the period used to calculate standard prices. This serves as a reminder that the bulk of the partial coverage category's funding is exposed to the global fish market. As in all cases of market exposure, diversification provides stability. Removing the GOA trawl CV fleet from partial coverage would increase the category's reliance upon price stability in halibut and sablefish markets, though the category would still include some BSAI groundfish trawlers and vessels that target groundfish with fixed gear (mainly Pacific cod).

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<sup>15</sup> That cost reflects the daily rate of an observer when on a vessel or at a processing plant, reimbursable travel costs, as well as the provider's overhead costs for days that the observer is not deployed (e.g. training, traveling, and debriefing).

<sup>16</sup> \$874,919 divided by \$1,067/day = 820 days

### 3.3 Full Coverage Observer Providers

The Council requested that staff identify the observer companies that are currently supplying observers to full coverage fisheries, and any potential issues with supplying additional observer days to meet increased demand for full coverage.

There are currently four active certified full coverage observer providers that compete for business in Alaska fisheries. Observer companies contract directly with the vessel owners and operators in the full coverage category. The pool of certified companies was reduced through competition from a high of 10 providers in 1991. The ability of a new provider to enter this market is uncertain. NMFS declined the last application from a new provider in 2012, mainly because the application coincided with the implementation of the restructured Observer Program and there were concerns about confusion that might be caused by a new provider and a new program being launched at the same time. Staff has spoken to representatives from Alaskan Observers, MRAG Americas, Saltwater, and Techsea in order to make them aware of the Council's various observer initiatives and to receive feedback on foreseeable challenges with meeting additional demand for their services in the GOA.

The need to service additional full coverage vessels in the GOA – where one provider currently supplies most of the deployments – represents a business opportunity for these private companies. Representatives from the full coverage providers generally felt positive about their ability to recruit and hire additional field staff as needed, assuming that the required observer training qualifications remain unchanged (i.e. observers do not need to be lead-level qualified, making them costly to recruit and train). Providers shared a consensus opinion that the greatest challenge would fall to NMFS in training new observers and debriefing additional trips. Providers noted that NMFS caps the size of observer training classes, which could slow the process of ramping up field staff capacity. One provider stated that their company currently finds itself turning away applicants, which would indicate that latent labor supply exists. Given that a change to the GOA trawl fleet's coverage category would be in development for one or more years prior to implementation, providers felt confident that they could grow to meet demand if necessary. Aside from hiring and training new observers, some full coverage demand might be filled by individuals who were previously employed by the partial coverage provider. That type of workforce realignment would depend on the level of observer days required for the remaining partial coverage fisheries.

GOA trawl fisheries tend to have short deployments, and effort is clustered around high-pulse fisheries such as the pollock A season and the beginning of the RP season. Some providers commented that the newly added field staff might have little to do outside of the GOA peak times, for which the additional positions would have been created.

## 4 Potential Effects on Trawl Vessels

The impacts of new coverage requirements for the GOA trawl CV fleet include direct payments, potential behavior changes, and any issues that vessels might have with compliance.

This document uses information from the 2013 and 2014 Annual Reports as a starting point for the comparison of direct payments. The preliminary analysis below suggests that vessels would have higher direct observer costs under the full coverage category.

**Full Coverage:** The 2014 Annual Report cites an average full coverage daily rate of \$331 for trawl CVs, though no distinction is made between GOA and BSAI (see Section 2.1). This amount would be paid by the vessel owner directly to the provider company. Due to confidentiality, this estimated average rate is based on all full coverage invoices divided by observed days. While it is a coarse

measure, observer company representatives have anecdotally confirmed that it is within a reasonable range of their actual invoiced rates. NMFS FMA Division reports that GOA trawl CVs fished 5,864 days in the partial coverage category (i.e., excluding RP activity) during 2014. Using that figure, the fleet would have paid, in aggregate, around \$1.94 million to full coverage providers. That equates to roughly 3.51 percent of total ex-vessel revenues, based on the data reported in Table 1. If effort is scaled to 2014 as it is in Table 4, full coverage costs would have ranged between 2.95 and 3.44 percent of total ex-vessel revenues between 2010 and 2013.

**Partial Coverage:** Vessels in partial coverage pay half of the 1.25 percent ex-vessel fee (0.625 percent).<sup>17</sup> Section 3.2 reports that the GOA trawl CV sector's total fee liability was roughly \$622,000 in 2013 and \$875,000 in 2014. Half of those amounts would equate to aggregate payments by vessel owners of \$311,000 and \$437,500 in each year, respectively. With 69 vessels active in the GOA during those years, the average vessel's liability would have been around \$4,500 in 2013 and \$6,340 in 2014. Using AKFIN fishery data, as opposed to the total fleet liability in the Observer Program's Annual Reports, staff estimates the median vessel-level partial coverage liability to have been around \$3,700 in 2013 and \$4,300 in 2014.

If the cost of full coverage is presumed to be higher than that of partial coverage (status quo), the Council would want to consider what additional benefits vessel owners might receive at this price. If full coverage is framed as a prerequisite for the implementation of a LAPP that includes transferable PSC allocations (see the definition of the full coverage category in Section 2.1), then the benefits could be linked to the overall impacts of that program. Taking the shift to full coverage in isolation, benefits for CVs might include the following:

- Better information on catch and discards, which could improve overall fishery data and potentially allow managers to recommend higher TAC levels.<sup>18</sup>
- Minimization of fishing time that is lost while waiting in port for a partial coverage observer to be deployed. While the Observer Program and its partial coverage provider expend great effort to avoid circumstances where fishermen have to wait for an observer to arrive for a trip selected through ODDS, such instances have occurred. In some cases, the amount of time between when a trip is logged into ODDS and when the vessel intends to embark is not sufficient to get an observer to a remote location (due to travel time, weather delays, or other factors). A vessel operator who has an established relationship with a full coverage provider could give more notice about his or her fishing plans ahead of time, and the provider could anticipate deployment needs with greater certainty.
- Increased vessel-level accountability for PSC.
- Elimination of the need to extrapolate PSC rates from observed hauls to unobserved effort in order to estimate total GOA trawl CVs' PSC. Extrapolation exposes vessels with better-than-average PSC performance to the fishing outcomes of other vessels. Crediting well-performing vessels with their actual PSC rates might keep fisheries with hard cap PSC limits open longer.<sup>19</sup> However, when the hard cap is shared by all vessels, the benefit of keeping the fishery open

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<sup>17</sup> Since shoreside processors pay half of the 1.25 percent ex-vessel fee under partial coverage, but are not required to contribute to a full coverage CV's daily observer rate, shifting this fleet to full coverage would benefit processors by eliminating one of their costs.

<sup>18</sup> NMFS staff noted that this benefit, relative to status quo, may be limited due to the fact that most TACs for GOA groundfish species are set equal to the ABC (or set equal to the ABC minus any state-GHL, in the case of pollock and Pacific cod. TACs that are not set equal to the ABC are those for GOA flatfish that have very high ABCs, which the fleet has not shown an ability to harvest under current management (e.g., arrowtooth flounder and flathead sole).

<sup>19</sup> On the other hand, increased observer coverage could result in higher credited PSC rates, relative to the status quo, if it was the case that many unobserved vessels were benefitting from the data of observed vessels that were achieving PSC rates better than those of the unobserved vessels.

would also be shared – regardless of performance. (It would be difficult, if not impossible, to determine whether or not full coverage reduces PSC levels in and of itself, as there would be no counterfactual<sup>20</sup> for any given year.)

A full analysis would consider how a vessel operator might change his or her fishing plan, given the knowledge that there will be an observer on board at all times, as opposed to only when a trip is selected through ODDS. Under full coverage, the direct cost of an observer becomes a function of how much time is spent at sea. By contrast, the cost of participating in the partial coverage category is a function of fishing revenue, and therefore a function of catch. In a way, the full coverage observer becomes a new variable cost to the vessel operator, similar to fuel. Vessels could potentially save money by catching the same amount of groundfish in fewer days. This could potentially lead to fishing more hours per day, or fishing closer to port to minimize running time. Future analysis might consider indirect impacts on human safety and the effects of locally concentrated effort due to fishing in areas closer to ports. These effects might be small, as fishermen are already operating under the constraints of other variable costs. In other words, it is possible that fishermen are already doing nearly everything in their power to prosecute the fishery in as few sea-days as possible.

Two particular characteristics of the GOA limited access trawl sector could exacerbate the presumed additional costs associated with a move to full observer coverage. Both relate to voluntary negotiations – either fleet-wide pre-season price negotiations with processor markets, or the intra-fleet negotiations about voluntary catch sharing plans that occur when a TAC or PSC limit is being approached. First, when a fleet is voluntarily standing down, it is common for one or a few vessels to do “test fishing” to check for fish aggregation, roe content, or bycatch hot spots. Test vessels are not typically operating at full capacity. Under full coverage, such a vessel would be paying a full daily rate while bringing in only a portion of its potential revenues, all while serving the interests of both the fleet and NMFS. Second, voluntary fleet negotiations can, in some cases, break down. Under limited access management, the first vessel to abandon the stand-down will trigger a race for fish. Being aware of this possibility, vessel operators who seek to minimize their competitive disadvantage in a pulse-fishery might feel compelled to keep a full coverage observer on-hand in the case that a race begins. Each day that negotiations continue, under the possibility of a limited access race, represents a deadweight loss to vessel owners that is equal to the number of vessels times the full coverage daily rate. Extended negotiations would not place an incremental daily observer cost on processors, which could, as a result, have an incentive to draw out negotiations to the point where harvesters simply cannot afford to stay tied up.

In developing a range of alternatives, the Council may wish to address a vessel operator’s responsibilities in a case where there is a shortage of qualified observers. An operator could be adversely affected if vessels are required to wait in port until an observer becomes available. This impact would be greatest in a limited access fishery where the available TAC is not allocated to individual vessels. Impacts would also be significant in directed fisheries where time is a constraint – for example, when pollock roe content is high, or when a vessel might lose its delivery market as a plant shifts operations to different product lines (e.g. from groundfish to salmon). These impacts would likely only occur in the short-term, as observer providers would have strong private incentives to adjust the size of their workforce to meet demand.

The Council may wish to consider how observer coverage requirements for trawl vessels align across management areas. As noted in Section 2.2, 46 of the 84 trawl CVs that were active in the GOA between

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<sup>20</sup> One would need to observe the same fishery operating under the same conditions, but with partial observer coverage and PSC estimation done through extrapolation. Comparing a year under full coverage to a previous year under partial coverage would not be sufficient, because PSC levels have many causal factors, such as environmental conditions and the distribution of fishing effort over time and space.

2010 and 2014 also fished in the BSAI<sup>21</sup>. To the extent practicable, keeping a particular vessel in one observer category throughout its yearly fishing calendar simplifies management, enforcement, and catch estimation. For vessel owners, remaining in one category throughout the year would simplify business planning and contracting with full coverage observer providers. The latter of the three administrative tasks – catch estimation – might be particularly impacted by vessels moving in and out of coverage categories in the future, as the catch and discard estimation methodology is shifted from using a blend of partial and full coverage observer data to the estimation of each category separately.

Under current regulations, GOA trawl CVs might fish under full coverage in the Central GOA RP and the BSAI pollock fishery (AFA), but would be in partial coverage for GOA limited access groundfish and BSAI Pacific cod fisheries. NMFS currently allows vessels to voluntarily carry a full coverage observer in the BSAI Pacific cod fishery – though they must still pay the partial coverage observer fee – though not all vessels in that fishery choose to do so. The Council is presently considering an action that would allow BSAI trawl CVs to move officially into full coverage for all fishing in that area. For management consistency throughout the region, it would be prudent to consider the scope and path of the BSAI CV observer action when weighing whether and how to move forward in the GOA. If trawl CVs are placed in full coverage in the GOA, but can remain in partial coverage in the BSAI, the adverse impact of the expected cost increase – estimated at the beginning of this section – would fall more heavily on vessels that spend most or all of the fishing year in the GOA.

## 5 Regulatory Changes Necessary to Implement Full Coverage

The Council requested that staff outline the regulatory changes that would be needed to implement a change in observer coverage requirements for GOA trawl CVs. Observer requirements are covered in §679.51 of the federal regulations. §679.51(a)(2)(i) lists the classes of vessels on which an observer must be present at all times that the vessel is harvesting groundfish<sup>22</sup>. That list currently includes CPs, motherships, and CVs while they are directed fishing for pollock in the BS, using trawl gear or hook-and-line gear while groundfish CDQ fishing, or participating in the CGOA Rockfish Program. The list of qualifications for full observer coverage on CVs would be amended by adding a fourth class, to the effect of “[CVs while] Using trawl gear in the GOA.” NMFS staff would draft any proposed regulatory language resulting from Council action.

## 6 References

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<sup>21</sup> Twenty-eight of those vessels are members of AFA cooperatives.

<sup>22</sup> The full coverage requirement also includes all times during which the vessel is harvesting halibut, but that is not applicable to the GOA trawl fishery.



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