

Universal Data Collection Components

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1 Introduction

In February 2022, the North Pacific Fishery Management Council (Council) tasked staff to develop a discussion paper identifying a few (e.g., 2-4) economic data components, including crew data, that 1) are not currently collected across all sectors but that could improve Fishery Management Plan (FMP) and regulatory impact analyses if collected from all sectors or all vessels participating in federally managed fisheries, and/or 2) should continue to be collected from catch share programs and could inform potential revisions to current Economic Data Reports (EDR) requirements. This discussion paper should also evaluate the appropriate data collection mechanism and the suitable frequency that minimizes burden and collection costs.

2 Background

The Council and the NMFS have implemented four data collection programs in the federally managed groundfish and crab fisheries of Alaska, Economic Data Reports or EDRs. The EDRs gather various levels of ownership, revenue, cost, vessel operations, and employment information from vessel owners, vessel operators, processors, permit holders, and leaseholders who participate in several of the catch share programs in the North Pacific fisheries. The catch share programs that are subject to some form of EDR requirements are the Bering Sea and Aleutian Islands (BSAI) Crab Rationalization Program, BSAI Amendment 80, and the American Fisheries Act (AFA) pollock fisheries. In addition, the Council and National Marine Fisheries Service (NMFS) implemented EDR requirements for the Gulf of Alaska (GOA) trawl catcher vessels and processors in fisheries not yet managed under a catch share program.

In general, the purpose of the EDR requirements is to gather information to improve the Council's ability to analyze the economic effects of the catch share or rationalization programs, understand the economic performance of participants in these programs, and help estimate the impacts of future issues, problems, or proposed revisions to the programs covered by the EDRs. The EDR programs were first initiated in 2006 under the Crab Rationalization program. In 2015 the Council initiated the latest program, the GOA trawl catcher vessel data collection.

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In February 2022 the Council finalized changes to the EDR program including the removal of third-party audits, changes in the confidentiality requirement, and the removal of the GOA trawl catcher vessel EDR requirement. The Council also requested a review of beneficial data components applicable to multiple sectors, not just those that already complete EDRs, that could be brought forward to improve Council analyses.

3 Data Components

This discussion paper highlights and explores four data components that may be of particular value in a universal data collection program: crew licenses/positions, crew compensation, fuel/lube costs, and lease costs. These components were selected due to either prior use in analytical documents or requests by stakeholders or analysts.

3.1 Crew Licenses/Positions

Accounting for crew can be done in several ways. These methods may include collecting driver's license numbers, addresses, or other personal information. In the current EDR program participating Alaska Department of Fish and Game (ADF&G) or the Commercial Fisheries Entry Commission (CFEC) crew licenses are recorded. This single piece of information is sufficient to determine crew participation by community and is the least intrusive.

Crew licenses have been a required field in several Council EDRs to date, and are mainly used to assess crew participation by community for potential community impacts. Crew residence has historically been the most widely used EDR data component in Council analyses.

Below is an example of a crew residency table that is typically provided for Council analyses. If the Council were to require all vessels fishing Federally in the North Pacific to submit information on crew residence, it is expected this data component would be widely used in management action analyses and regulatory documents.

Table x-xx. Crew Licenses Harvesting Bering Sea Snow Crab by Community , 2012-2020 (Crew License)

Community										Annual
	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average 2012-2020 (number)
Akutan	1	2	2	2	3	0	1	0	0	1.2
Anchorage/Palmer/Wasilla	45	49	46	55	41	35	37	44	33	42.8
Dutch Harbor/Unalaska	23	22	22	28	20	12	18	19	3	18.6
Homer/Seldovia	37	29	31	39	27	22	24	26	18	28.1
King Cove	4	2	4	8	9	6	9	6	3	5.7
Kodiak	70	70	76	83	60	62	54	50	24	61.0
Other Ak	52	42	45	50	39	40	32	35	151	54.0
Saint Paul	0	0	3	2	1	1	2	1	0	1.1
Alaska	232	216	229	267	200	178	177	181	232	211.2
Seattle	57	49	47	185	43	145	121	107	48	89.1
Other Washington	224	214	208	120	219	84	92	88	96	149.4
Washington	281	263	255	305	262	229	213	195	144	238.6
Oregon	63	61	65	80	71	52	53	55	21	57.9
Other States	143	136	134	196	201	148	139	167	175	159.9
Grand Total	719	676	683	848	734	607	582	598	572	667.6

Source: Economic Data Reports, data compiled by AKFIN

Currently, when EDR data is not collected, the vessel owner’s city and state, as registered with CFEC, is the data component provided to assess community impacts. Vessels often utilize crew from communities other than the vessel owner’s residence. There does appear to be a weak correlation between vessel owner addresses and crew residence. For example, in the crab program, approximately 10% of the crew reside in the same community as the vessel owner. Scenarios may arise where a crew’s residence, hired captain’s residence or a vessel homeport may be a better indicator of a vessel’s community impact than the vessel owner’s residence. Analysts could use crew residence, homeport, and vessel owner residency to create a better data point than vessel owner residence to determine impacted communities or present the multiple layers of interaction with communities.

Crew licenses by residence do historically have quality issues. Issues may arise due to incorrect identifiers being submitted on EDRs or issues with vessel reporting. Although improvements may be warranted, crew residence does appear to be a better indicator of crew participation than vessel owner residence.

The Council may be interested in other beneficial data components in addition to residence, to assess crew participation by fishery. The number of crew positions, processing positions on board in the case of catcher processors, and hired captains, if present, would help provide the overall paid positions created by a fleet. Currently, eLandings and Observer data provide estimates of crew positions. These data sources do not note the type of position. Hired captains may or may not be included in these data sources. Flagging if a captain was hired may be useful as it is typically a more lucrative position.

There were approximately 5,798 crew positions on 1,102 catcher vessels and 2,857 crew positions on 59 catcher processors in 2021 in the Federal fisheries of Alaska. Of the total 8,655 crew positions, an estimated 1,183 positions are subject to the current EDR collection which includes the Crab

Rationalization program and Amendment 80 program. Gulf Trawl vessels provided an additional 331 crew positions in 2021, these vessels will no longer provide crew license information in conjunction with the removal of the EDR requirement. Of note, the 8,655 crew positions would be a substantially higher number of crew licenses. There is nearly a two-to-one ratio for crew licenses to crew positions observed in the EDR program. This is likely due to the duration of employment upon a vessel and highlights why it may be beneficial to collect both crew licenses and the number of positions employed.

3.2 Crew Compensation

Another useful element in the umbrella of crew is pay or compensation. Crew compensation may be a part of the community impact section although this data point has not been widely used. Crew compensation is potentially the largest cost component for some vessels. The A80 EDR collected estimated that the pay for a crew position is approximately \$65,000 as of 2020 which, extrapolated to the 8,655 crew positions for all vessels participating in federal fisheries, would equate to \$563 million. This is most likely an overestimate of crew compensation as it is based on vessels participating in the Amendment 80 program that operates year-round and a large portion of crew positions would be seasonal, however, it may lend insight to the potential scope of this data component. In this regard, crew pay can function as a cost metric, an indication of how revenue flows downstream to communities, and the value of a crew position.

Crew compensation could be aggregated or separated between crew, processing positions, and hired captains, however, this level of detail may not be helpful beyond identifying how paid captains impact the overall cost of crew to vessels. It is worth noting that there is no intention or benefit to link crew license and pay. Compensation would be collected at a total level for all crew positions with a possible exception of hired captains' pay.

The table below represents a potential way of displaying crew costs.

Table x-xx. Amendment 80 Vessels Crew Compensation per Ton of Groundfish , 2015-2021 (2021 real dollars)

Amendment 80 Vessels	2015	2016	2017	2018	2019	2020	2021	Annual Average 2015-2021
Crew Compensation per Ton	\$309.42	\$305.95	\$456.28	\$434.57	\$385.53	\$291.36	\$289.55	\$353.24

Source: Economic Data Reports, data compiled by AKFIN

Crew cost is potentially not as variable as fuel/lube costs or lease costs though trends may be noteworthy. It is possible to bring crew compensation into analysis regularly, however that approach has not been put forth in the past which would leave the data component as something typically seen in a program review or potentially an annual report.

3.3 Fuel/Lube Cost

Fuel and lube are highly variable costs that may impact the ability of vessels and sectors to operate. This data component would most likely not be seen in routine analysis and would more likely appear in a program review-type document. If fuel/lube costs become burdensome having a metric to track the cost and potentially allow for emergency rules to reduce the burden of operation on sectors may be beneficial.

Fuel/lube costs likely do not need to be itemized to evaluate the overall fuel/lube burden for a fleet or sector. Itemization of fuel/lube is also burdensome and problematic. Averaging annual fuel costs would be intended to show broad trends and may not be suited for fishery-specific detail.

Below is an example of how annual average fuel data might be presented. The average cost of fuel in 2022 is currently at \$4.45 per gallon which is 42% above the 7-year average from 2015-2021.

Table x-xx. Amendment 80 Vessels Fuel/Lube Cost per Ton of Groundfish and Average Price per Gallon , 2015-2021 (2021 real

Amendment 80 Vessels	2015	2016	2017	2018	2019	2020	2021	2022*	Annual Average 2015-2021
Fuel/Lube Cost per Ton	\$132.68	\$104.20	\$116.44	\$135.04	\$134.08	\$96.07	\$132.90	N/A	\$121.63
Price per Gallon	\$3.63	\$2.77	\$2.92	\$3.33	\$3.37	\$2.87	\$3.03	\$4.45	\$3.13

Source: Economic Data Reports, data compiled by AKFIN

*Estimate as of 8/8/2022

One example of fishery-specific fuel/lube costs could be the GOA Rockfish Program. Using fuel/lube costs to estimate the average fuel cost of vessels participating in the program may be very different from the actual fuel cost of the program. There may be vessels that tender salmon or participate in fisheries in the BSAI that create an overestimate of the fuel costs associated with the GOA Rockfish program. Quantifying the direct cost of a fishery may be extremely difficult even with itemized fuel/lube costs as transiting between ports and fishing grounds may not be consistently accounted for. One possible solution may be to incorporate VMS (Vessel Monitoring System) data. Analysts could potentially overlay an annual fuel cost with VMS activity and create a fishery-specific fuel cost metric. This has not been done previously and could be problematic but may be achieved by distributing fuel costs across days with the distance the vessel traveled. These fuel use days could then be attributed to fishing activity on a given day. This method still has shortcomings; VMS would estimate the distance traveled based on a straight line between sequential records that would underestimate the distance traveled², VMS is not required for all vessels with many vessels less than 58' opting out of coverage, and fuel costs associated with vessel maintenance or reaching the fishing grounds may not be appropriately quantified. One additional note, variables other than miles transited could affect fuel costs like environmental conditions (weather) and fishing activity.

Although this data element has not been utilized in the past and may not be seen in typical analytical documents, it may be very beneficial in understanding difficult scenarios that may arise due to cost fluctuations.

3.4 Regulatory Expenses (Lease Costs)

Similar to fuel/lube costs, lease costs may be a useful highly variable data component to collect. Lease costs could potentially be a barrier to entry for vessels and sectors. New entrants may have particular

² Watson JT, Haynie AC (2016) Using Vessel Monitoring System Data to Identify and Characterize Trips Made by Fishing Vessels in the United States North Pacific. PLoS ONE 11(10): e0165173. doi:10.1371/journal.pone.0165173

difficulty with high or volatile lease costs. Analytical documents would typically not have lease costs presented, similar to fuel/lube costs, yet analysts do routinely inquire about lease costs especially as IFQ is concerned. An example of how lease costs may appear is shown below.

Table x-xx. Crab IFQ Lease Cost per Pound, , 2012-2021 (2021 real dollars)

Crab Fishery	2012	2013	2014	2015	2016	2017	2018	2019	2020	Annual
										Average
										2012-2020
Bristol Bay Red	\$4.61	\$4.38	\$3.93	\$4.64	\$6.03	\$5.15	\$5.99	\$7.27	\$6.90	\$5.70
Bering Sea Snow	\$1.05	\$1.15	\$1.13	\$0.96	\$1.30	\$1.90	\$1.80	\$2.09	\$1.80	\$1.57

Source: Economic Data Reports, data compiled by AKFIN

To be a useful data component lease costs would almost certainly need to be itemized. Although one could average lease costs similar to fuel costs for the vessel’s total activity, averaging would not show the particular issue of concern. The above example shows how variable lease costs are between species and years.

In addition to lease costs; the reporting of regulatory costs such as observer fees, taxes, and licensing expenses are part of current EDR programs (i.e., Amendment 80 and Crab Rationalization Program). Licensing costs are one additional regulatory cost that may be considered and are a possible barrier to entry into a fishery. However, variability in financing makes it extremely difficult to be a productive data component. Vessels may lease a license, purchase a license outright or service debt to pay for a license. The license prices also vary substantially depending on endorsements. The cost of licenses on a per ton or per pound basis is unlikely to be reconciled and a gross estimation of total costs of licensing would produce a highly variable cost that would be difficult to utilize.

Although collecting regulatory expense data may be problematic and burdensome in comparison to the other data components it may be the most manageable piece of cost data collected. Fishery managers could theoretically affect regulatory expenses to a greater degree than fuel/lube costs or crew costs. It may be appropriate to consider alternative methods for collecting lease costs to appropriately distribute the burden of data collection.

4 Collection

4.1 Mechanism

An annual survey of vessels that participate in a federally managed fishery or a fishery jointly managed by NMFS and the state of Alaska may be an appropriate mechanism to implement the universal data collection. This would be in a similar format to EDR efforts whereas the list of vessels active would be determined from the prior year. The vessel owners would then be contacted and requested to complete the form as necessary. Currently, Pacific States Marine Fisheries Commission (PSMFC) operates as the independent third-party Data Collection Agent (DCA) for the EDR program. In collaboration with AFSC, PSMFC has developed a robust infrastructure for administering EDRs, including an online portal for submission, data validation, and data distribution. PSMFC may be able to integrate a new data collection in an annual format with the current EDR efforts.

If lease costs are to be collected a portion could potentially be administered as part of, or linked to annual IFQ applications which are administered by RAM (NMFS Restricted Access Management Division). This

collection would be a complication of the current EDR program and, for it to reach all participants, would need an additional collection effort.

4.2 Burden Reduction

Tools that may be utilized to reduce participants' burden of reporting could potentially include an opt-out provision, a rolling participation strategy, or a periodic survey. It may also be reasonable to have a tiered rollout where one data element is brought forward at a time.

Opting out would allow vessels that find the data collection particularly burdensome to be excluded from the requirement to participate. This may affect fleets in which vessels tend to be smaller operations differently from larger operations as an opt-out provision like time constraints, health issues or accounting problems would likely not apply to larger vessels. An opt-out provision may also be useful when a transfer of vessel ownership occurs in a given year.

A rolling participation strategy would allow a certain percentage of the vessels to participate and a certain percentage to opt out each year. This may only slightly reduce the burden. The annual collection is likely easier on participants as it becomes routinized. This routinization may negate any or most of the benefits of rolling participation.

A survey every three years or five years is another potential way to reduce the burden however this would be the least beneficial option. Not only would vessels not routinize the survey, but the survey would also lack years in a time series. Without a time series, significant shocks may be missed entirely in the data.

The tiered rollout would implement data components in stages. This would allow for participants to routinize one or two components before the next component is requested. This could reduce the burden as participants may become proficient at one portion of the data collection before an additional one is added after an appropriate time. The main issue with a tiered rollout would be the management required to review the collection periodically.

Due to the burden on vessels associated with reporting itemized lease costs, it may be more equitable to require quota shareholders and LAPP program participants to submit this data component. This separate submission may be administered for halibut and sablefish IFQ holders as part of the Application for Temporary Transfer of Halibut/Sablefish Individual Fishing Quota(IFQ) similar to how the Application for Transfer Between Individual Fishing Quota (IFQ) and Guided Angler Fish (GAF) reports transfer amounts in dollars and pounds. Lease costs in the A80 and Crab IFQ program are captured under the current EDR program. Transfers for AFA, CDQ, and GOA Rockfish Program are not currently recorded and would require an additional collection if lease costs were to be universally recorded.

5 Possible Solutions

The simplest, most utilized, and least burdensome data component to include in a universal data collection would be crew licenses/positions specifically for the ADFG or CFEC crew licenses active on vessels operating in federal or jointly managed fisheries. The variability of fuel/lube costs could be the most important piece to track for future impacts on fishing vessels, however, crew compensation may affect the most stakeholders, while lease costs may be the component upon which the Council has the greatest direct impact. The Council may consider moving forward with all components outlined that are critical to the long-term sustainability of vessel operations, however, the burden does change substantially from a notation of crew licenses in the first data component to accounting for costs accrued for fuel/lube and crew compensations to itemized costs for regulatory (lease) costs.

In regards to lease costs, the Council may need to specifically weigh the burden on vessel owners due to itemized data entry and may consider separating this component to be part of a quota shareholder or LAPP participant data collection program rather than the vessel owner data collection program. It should also be considered that the data components other than crew licenses would most likely be minimally used in analytical documents at least initially. It is conceivable as analysts and participants in the Council process become more familiar with these data components they may be brought forward more frequently.

One example of a possible solution would be to implement a tiered rollout to collect crew licenses/positions, crew compensation, and fuel/lube cost with an opt-out provision. The program could begin with the collection of crew licenses/positions to be reviewed after three years. With three years of implementation crew compensation and fuel/lube costs may be added to the collection. The Council may also signal a desire for RAM to update the Application for Temporary Transfer of Halibut/Sablefish Individual Fishing Quota(IFQ) to include dollars associated with the transfer.

If a universal data collection program was brought forward it may be beneficial to have an annual report of the data collection components. This could be particularly beneficial as it would familiarize user groups with the data components and may promote more inclusion in analytical documents. The report would also allow a venue for valuable industry feedback.

6 Preparers and Persons Consulted

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