

Limiting other gear on board vessels jigging for Pacific cod in the Gulf of Alaska

North Pacific Fishery Management Council

Expanded discussion paper – May 2012

I. Introduction

The North Pacific Fishery Management Council (Council) has requested staff develop an expanded discussion paper on limiting other gear types on board vessels while jigging for Pacific cod in the Gulf of Alaska (GOA). This tasking stems from, and is related to, other GOA Pacific cod management issues though is considered a separate action for purposes of analysis.¹ This expanded discussion identifies possible issues for the Council to consider at its June meeting when determining whether to move forward with a full analysis on implementing other gear prohibitions for vessels using jig gear to fish for Pacific cod. The Joint Protocol Committee received a briefing on this issue at its March 2012 meeting. The Enforcement Committee also received a prior draft of this discussion and reported to the Council at its March/April 2012 meeting, and will review this expanded paper during the June 2012 Council meeting.

Generally, this expanded paper includes further discussion on management issues previously identified in prior iterations, suggestions from the Advisory Panel (AP), and recommendations from the Enforcement Committee. The paper discusses possible gear type limitations, such as deployable groundfish gear, other groundfish gear types, and the number of jig gear hooks allowed on board. The ability for a vessel to fish two gear types concurrently is also evaluated. The most current State and Federal regulations are compared to assess whether the Federal approach significantly differs from the State's, complicating reporting and catch accounting for individual gear types. The discussion also evaluates the degree of flexibility afforded in possible federal regulations while ensuring accurate catch reporting. Possible mixed-gear fishing trip scenarios are described, as are opportunities for jig vessels to operate other gear left on fishing grounds during a previous trip or left by another vessel to circumvent a jig-only gear restriction. Finally, the discussion touches upon possible operation standards to prevent jig vessels from deploying other fishing gear during a jig-only fishing trip.

A. Background

Under the recently implemented Amendment 83 GOA Pacific cod sector split management structure, there could be incentives to increase the duration of one sector's season at the expense of another—specifically extending the longline or pot seasons by misreporting catch as jig-caught and/or increasing the likelihood that the jig sector will attain 90% of its allocation and receive a yearly 1% step-up of the total allowable catch (TAC). Staff have considered a variety of input from agency staff and jig fishermen, who have provided the data and observations available to support the numerous outcomes possible through limitations on other groundfish gear aboard vessels jigging for Pacific cod in the Gulf.

At its April 2011 meeting, the Council considered a range of other cod management issues, including the option to prohibit the use of any gear type other than jig on board while operators are jigging for Pacific cod in the now moot and defunct Federal reverse parallel jig fishery. The Council postponed taking any further action until a time no sooner than after its December 2011 meeting to provide an opportunity for the Alaska Board of Fisheries (Board) to comment and take action on various GOA Pacific cod management issues during its October 2011 regulatory meeting.² At its December 2011 meeting, the

¹ See the discussion papers on the GOA Pacific cod A season opening dates from November 2011 and March/April 2012, and GOA Pacific cod jig management from March/April 2012.

² *Id.*

Council tasked staff with developing a discussion paper on limiting other gear on board Pacific cod jig vessels. The Council also moved to add the issue to the Joint Protocol Committee’s agenda and to have the discussion paper reviewed by the Enforcement Committee whenever it is to be presented before the Council.

B. Amendment 83 – Pacific cod sector split

Intended to promote the goals and objectives of fishery conservation and management, the Council passed Amendment 83 to the GOA groundfish FMP to establish separate Pacific cod allocations in among the jig, trawl, hook-and-line, and pot sectors. In its discussion on the need for such an action, the Council cited reducing uncertainty and contributing to the stability across the sectors, while providing consideration of fishing communities and entry-level opportunities for the jig sector. Separate sectors also limited access to the parallel fishery for Federal fishery participants. In its December 2009 final action on the GOA Pacific cod sector split, the Council supported increasing entry-level fishing opportunities for the jig sector, recognizing that fishery as the primary tool for the Council and the Board of Fisheries to provide true entry-level fishing opportunity in the GOA.

As one of the most commercially valuable stocks in the GOA, Pacific cod is the primary species target of vessels using pot and hook-and-line gear (longline), and is an important species for vessels using trawl gear. Smaller amounts of Pacific cod are taken by vessels using jig gear. Under Amendment 83, the Council supported expanding opportunities for jig vessels by: 1) potentially extending the Federal jig sector seasons to allow additional access to Federal waters; 2) providing an initial allocation that is higher than the sector's historical catch in the fishery; and 3) potentially increasing the jig allocation, if a prior annual allocation is fully harvested. Historically, jig gear has been used by small-boat operators, and the Council sought to enhance access for those entry-level participants.

Under Amendment 83, the jig sector received an initial allocation higher than its historic catch: **1.5% of the Western and 1% of the Central TAC**. In addition, the jig allocation will increase by 1% if 90% of the TAC in an area is harvested in any given year; i.e., the jig sector will “step-up” by 1%, to be capped at 6%. The jig allocation will decrease, however, by 1% in the following year if at least 90% of the previous year’s allocation is not harvested within two consecutive years; i.e., the jig allocation will “step-down” by 1%, but will not fall below the initial allocation of 1.5% and 1% to the Western and Central federal management areas, respectively. After the jig sector’s allocation is taken off of the top of the TAC, the other sectors receive a certain percentage, as described in the table below:

Table 1. Sector allocations under the final rule implementing Amendment 83 for the Western and Central GOA areas, in the Federal fisheries

Western GOA sectors	Seasonal allowances		Central GOA sectors	Seasonal allowances	
	A season (%)	B season (%)		A season (%)	B season (%)
Hook-and-Line CV	0.70	0.70	Hook-and-Line CV < 50 ft.	9.31552	5.28678
			Hook-and-Line CV ≥ 50 ft.	5.60935	1.09726
Hook-and-Line CP	10.90	8.90	Hook-and-Line CP	4.10684	0.99751
Trawl CV	27.70	10.70	Trawl CV	21.13523	20.44888
Trawl CP	0.90	1.50	Trawl CP	2.00334	2.19451
Pot CV/CP	19.80	18.20	Pot CV/CP	17.82972	9.97506

Source: NMFS (79 FR 74670, 74688)

The 2012/2013 harvest specifications are the first Pacific cod allocations under the sector split and are overall similar to the allocations in 2011. The Central GOA received 42,705 mt of Pacific cod TAC in 2012 compared to 40,362 mt. in 2011. The Western GOA received 21,024 mt in 2012 compared to 22,785 mt in 2011.³ Specifically, the jig sector received 315 mt in the Western Area and 427 mt in the Central for the 2012 season. The currently projected 2013 seasonal apportionments do not reflect the anticipated 1% step-up in the TAC for the jig sector; assuming a 1% step-up in 2013, the Western area will receive 2.5% of the overall TAC, or 525 mt (approximately 1.2 million lbs.); the Central will receive 2% of the TAC, or 854 mt (approximately 2 millions lbs.).

II. Participation in GOA Pacific Cod Fisheries

As of May 19, 2012, NMFS has recorded fisheries—including jig—that are closed to prevent fishing from exceeding the TAC allotment, and made closure projections for the sectors captured in the tables below.⁴ As of release of this document, the jig and hook-and-line (longline) sectors in the Western area remain open. The Federal B season is scheduled to open June 10 for the jig sector and September 1 for the hook-and-line, and will close December 31 or when the TAC allocation is reached. Catch data and vessel participation for the 2012 State and Federal Pacific cod fisheries will be available to analysts sometime in late April or early May 2013.

Table 2. Central GOA Pacific cod sectors (current through May 19, 2012)

Jig	Closed March 6 through June 10
Hook-and-line CP	Closed February 23 through September 1
Hook-and-line CV < 50 ft.	Closed March 4 through September 1
Hook-and-line CV > 50 ft.	Closed March 20 through September 1
Pot CV/CP	Closed February 10 through September 1
Trawl CV	Closed April 1 through September 1
Trawl CP	Closed April 8 through September 1

Table 3. Western GOA Pacific cod sectors (current through May 19, 2012)

Jig	20 vessels have reported 115 mt and 74 mt remains. Effort is low. Currently, no closure date is projected for the federal fishery. The B season allocation becomes available at noon, June 10, 2012.
Hook-and-line CP	8 vessels have reported 1,958 mt. Setting aside 55 mt for incidental catch, 245 mt remains. Catch rates have decreased and at the current rate a closure is not projected.
Hook-and-line CV	Closed April 2 through September 1
Pot CV/CP	Closed February 6 through September 1
Trawl CP	Closed February 14 through September 1
Trawl CV	Closed February 22 through September 1

A. Historical participation

A Federal regulation limiting or prohibiting other gear on board vessels while jigging (or requiring other gear to be inoperable or stowed) would only be binding on vessels fishing in federal water, the State would need to implement complimentary regulations. Participation in the Federal jig fishery over the last

³ Published in the Federal Register on March 14, 2012 (77 FR 15194).

⁴ NMFS fishery summary as of May 18: <http://www.fakr.noaa.gov/sustainablefisheries/reports/outlook.txt>.

17 years is shown in the table below, which does *not* include State GHL or State waters parallel participation:

Table 4. Jig vessels with a retained catch from Federal Pacific cod fisheries, 1995-2011

Year	Western GOA	Central GOA	Combined
1995	10	15	25
1996	7	13	20
1997	2	8	10
1998	2	16	18
1999	0	10	10
2000	2	16	18
2001	16	14	30
2002	26	7	33
2003	11	7	18
2004	22	30	52
2005	8	26	34
2006	1	24	25
2007	4	18	22
2008	9	10	19
2009	11	13	24
2010	29	22	51
2011	8	23	30

Source: NMFS Catch Accounting/Blend and ADF&G fish tickets, 1995–2011

B. Detailed 2010 and 2011 participation

In 2010, there were a total of 140 jig vessels participating in the State and Federal fisheries in either the Western or Central areas, or both (see tables below). Of these 140 vessels, 40 also longlined (hook and line), 23 also used pot gear, and 75 also used some other type of gear (troll, seine, etc.); none trawled. Of the 40 vessels that jigged and longlined, 14 specifically targeted Pacific cod and 2 specifically targeted Pacific cod with pot gear. *These groupings are not mutually exclusive; there could be overlap between vessels across gear types.*

Following below are three tables that show the number of vessels with a 2010 targeted Pacific cod jig landing, along with any other gear utilized on the vessel in 2010, for the Western, Central, and both areas combined, in both State and Federal fisheries.

Table 5. 2010 Western and Central GOA jig participation, combined, in State and Federal fisheries

Gear Type	Jig	Hook and line Pacific cod	Total hook and line	Pot	Other gear	Trawl
Jig	140	14	40	23	75	0
HAL Pacific cod	14	14	14	2	8	0
Total hook and line	40	14	40	11	25	0
Pot	23	2	11	23	17	0
Other gear	75	8	25	17	75	0
Trawl	0	0	0	0	0	0

Table 6. 2010 Western GOA jig participation, in State and Federal fisheries

Gear Type	Jig	Hook and line Pacific cod	Total hook and line	Pot	Other gear	Trawl
Jig	52	3	15	7	35	0
HAL Pacific cod	3	3	3	1	2	0
Total hook and line	15	3	15	4	11	0
Pot	7	1	4	7	6	0
Other gear	35	2	11	6	35	0
Trawl	0	0	0	0	0	0

Table 7. 2010 Central GOA jig participation, in State and Federal fisheries

Gear Type	Jig	Hook and line Pacific cod	Total hook and line	Pot	Other gear	Trawl
Jig	95	13	30	18	43	0
HAL Pacific cod	13	13	13	2	7	0
Total hook and line	30	13	30	9	17	0
Pot	18	2	9	18	13	0
Other gear	43	7	17	13	43	0
Trawl	0	0	0	0	0	0

Following below are three tables that show the number of vessels with a 2011 targeted Pacific cod jig landing, along with any other gear utilized on the vessel in 2011, for the Western GOA, Central GOA, and the Western and Central areas combined, in both State and Federal fisheries. These tables illustrate the potential for the cross over effects of a prohibition limiting other gear on board jig vessels with other vessels using other gear types to fish for Pacific cod in the GOA.

Table 8. 2011 Western and Central GOA jig participation, combined, in State and Federal fisheries

Gear Type	Jig	Hook and line Pacific cod	Total hook and line	Pot	Other gear	Trawl
Jig	239	9	54	53	139	1
HAL Pacific cod	9	9	9	1	7	0
Total hook and line	54	9	54	18	32	0
Pot	53	1	18	53	35	1
Other gear	139	7	32	35	139	0
Trawl	1	0	0	1	0	1

Table 9. 2011 Western GOA jig participation in State and Federal fisheries

Gear Type	Jig	Hook and line Pacific cod	Total hook and line	Pot	Other gear	Trawl
Jig	63	1	15	13	45	0
HAL Pacific cod	1	1	1	0	1	0
Total hook and line	15	1	15	3	12	0
Pot	13	0	3	13	11	0
Other gear	45	1	12	11	45	0
Trawl	0	0	0	0	0	0

Table 10. 2011 Central GOA jig participation in State and Federal fisheries

Gear Type	Jig	Hook and line Pacific cod	Total hook and line	Pot	Other gear	Trawl
Jig	185	8	41	41	97	1
HAL Pacific cod	8	8	8	1	6	0
Total hook and line	41	8	41	15	22	0
Pot	41	1	15	41	24	0
Other gear	97	6	22	24	97	0
Trawl	1	0	0	1	0	1

In 2011, there were a total of 239 jig vessels participating in the State and Federal fisheries in either the Western or Central areas, or both (see tables above). Of these 239 vessels, 54 also longlined (hook and line), 53 also used pot gear, and 139 also used some other type of gear (troll, seine, etc.). One vessel also trawled. Of the 54 vessels that jigged and longlined, 9 specifically targeted Pacific cod and one vessel specifically targeted Pacific cod with pot gear. *Again, these groupings are not mutually exclusive; there could be overlap between vessels across gear types.*

As evident in the above tables that describe jig vessel participation in 2010 and 2011, there was a significant uptick in Pacific cod landings between the years. The increase in vessels with a jig landing is found in both exclusive jiggers (140 to 239) and in ‘other gear’ (75 to 139), which includes all other gear types not under a specific allocation (i.e., non-FMP gear types). Again, catch data and vessel participation for the 2012 State and Federal Pacific cod fisheries will be available to analysts sometime in late April or early May 2013, which will be the first season under the sector split management structure and separate sector allocations.

C. Participation by vessel length

The vast majority of vessels participating in the North Pacific federal jig fisheries are small- to medium-sized boats; approximately 80% of commercial vessels are less than 60 feet LOA and many jig vessels fall into this length category. In addition, a large majority of jig vessels are homeported in Kodiak, Sand Point, King Cove, the South Central region, and Juneau (as of 2010), which are all relatively small coastal communities dependent upon fishing.

Table 11. Vessel Length of Western and Central Gulf Jig Vessel Targeting Pacific Cod in 2011

Vessel Length (feet)	Western & Central	Central	Western
0 – 24	18	18	0
25 – 49	185	136	55
50 – 74	32	27	8
75 – 99	3	3	0
100 – 124	1	1	0
Totals	239	185	63

III. Purpose and Need

In its December 2009 final action on the GOA Pacific cod sector split, the Council stated its intent to support increasing entry-level fishing opportunities for the jig sector, recognizing that fishery as the primary tool for the Council and the Board of Fisheries to provide true entry-level fishing opportunities in the Gulf. The possible need to limit other gear on board vessels fishing for Pacific cod in the GOA is an outgrowth of that intent. Under the new sector split management structure, there could be incentives to increase the duration of one sector’s season at the expense of another; specifically extending the longline or pot seasons by misreporting catch as jig-caught and/or increasing the likelihood that the jig sector will

attain 90% of its allocation and receive a 1% step-up. This Council action could level the playing field for jig vessels that may not have access to the more limited and exclusive fishing opportunities in the Gulf.

The need for limiting other gear on board vessels jigging for Pacific cod was discussed during the December 2011 Council meeting. The new management and allocation structure implemented by Amendment 83 and sector splits has created a degree of uncertainty as to how catch will be prosecuted and reported, particularly for the jig fleet. An un-observed vessel with jig and other gear on board is 'on its honor' as to how it reports the fish was caught. How catch is reported was not an issue before the sector splits because all sectors were fishing off of the same TAC; once the TAC was caught, the GOA Pacific cod season was over for all sectors. Prohibiting or limiting other gear on board jig vessels could alleviate this concern and eliminate this uncertainty. If a vessel is registered with the jig fishery, to remove all doubt, other gear could be prohibited, limited, or made inoperable.

IV. Current Gear Regulations

The sections below compare the current State and Federal regulations as of May 15, 2012 and January 1, 2012, respectively. If federal regulations are adopted to limit or prohibit other gear types on board vessels jigging for cod that differ significantly from state regulations, accurate reporting and catch accounting for individual gear types could be further complicated. Any federal regulations adopted must go through NMFS' rulemaking process, including public notice and comment. The Board of Fisheries would also need to meet and align the State's regulations with federal; the Board's process for amending regulations may take place on a much shorter time line. Until such a time when the Federal and State regulations mirror one another, adherence to regulations and accurate reporting will be problematic.

A. Federal regulations

Generally, all gear types are legal in the Federal Pacific cod fisheries, so long as the proper permits are filed, approved, and currently held. There is an exemption from the groundfish License Limitation Program (LLP) requirement in the Western and Central GOA for vessels using jig gear that use a maximum of 5 jigging machines, 5 lines, and 30 hooks per line; i.e., there is no LLP required for vessels jigging in the Federal fisheries (per Amendment 86, effective April 1, 2011).

Table 12. Federal Regulations for Pacific Cod in the GOA (updated as of January 1, 2012)
Source: NPFMC and NMFS

Pacific cod fisheries of the Exclusive Economic Zone, Gulf of Alaska			
	Western	Central	Eastern
NMFS Area(s)	610	620, 630	640, 649, 650, 659
State Area(s)	South Alaska Peninsula (M) Chignik (L)	Kodiak (K) Chignik (L) Cook Inlet (H)	Prince William Sound (E)
Management Plan	<i>Fishery Management Plan for Groundfish of the Gulf of Alaska</i> 50 CFR parts 600, 679-80		
Legal Gear See §679.2	All: trawl, pot, jig, and hook-and-line (i.e., longline) (Subject to limitations, §679.24)		
A Season, 60% TAC §679.23(d)(3)	January 1 – June 10 for hook-and-line, pot, and jig gear January 20 – June 10 for trawl gear		N/A – annual, all gears
B Season,^a 40% TAC §679.23(d)(3)	June 10 – December 31 for jig gear ^b September 1 – November 1 for trawl gear September 1 – December 31 for hook-and-line and pot gear		N/A – annual, all gears
Annual TAC by Gear/Operation Type §679.20(a)(12) or by Processing Type §679.20(a)(6)(ii)			
Inshore / Offshore	N/A		Inshore: 90% Offshore: 10%
Jig (off the top)	1.5% (1% step up possible, to 6% cap) ^c	1% (1% step up possible, to 6% cap) ^c	Annual TAC for all gears is approx. 3% of GOA total
Hook-and-line (i.e., longline)	CP: 19.8% CV: 1.4%	CP: 5.1% CV < 50 ft.: 14.6% CV ≥ 50 ft.: 6.7%	
Pot Gear	CV/CP: 38%	CV/CP: 27.8%	
Trawl Gear	CP: 2.4% CV: 38.4%	CP: 4.2% CV: 41.6%	
Pacific halibut PSC limits §679.21(d)	Ensures groundfish fisheries do not exceed a maximum mortality of Pacific halibut.		
Federal Fisheries Permit (FFP) §679.4(b)	All vessels targeting groundfish in Federal waters are required to have an FFP (see §679.4(b)(1)). Participants targeting Pacific cod are required to have a Pacific cod endorsement, (see §679.4(b)(5)(vi)) and meet observer requirements (see §679.50(a)). All harvesting vessels with an FFP endorsed with a hook and line, pot, or trawl Pacific cod endorsement are required to have an operational vessel monitoring system (VMS) as described at § 679.28(f)(6). Jig vessels are not required to use a VMS.		
LLP Requirement §679.4(k)	Participants in the groundfish fishery must have an LLP, which limits entry into the fishery. Jig vessels using up to a maximum of five jig machines, one line per jig machine, and a maximum of 30 hooks per line are exempt from the LLP requirements (see §679.4(k)(2)(iii)).		
Rollovers	Priority to CVs first, then to the combined CV and CP pot sector, and finally to all other CP sectors (see §679.20(a)(12)(ii)(B)), to be determined at the end of the B season.		
Sideboard limits	Apply to CVs qualifying under the AFA, crab vessels with QS, Amendment 80 vessels, and trawl CVs in the Rockfish program.		

^a Any A Season overage or incidental catch between June 10 and September 1 counts towards the B Season TAC.

^b Implementation of Amendment 83 changes the start date for the B season for jig gear from June 1 to June 10.

^c May increase by 1% if 90% of the allocation is harvested in a given year; will decrease by 1% in the following year if at least 90% of the previous allocation is not harvested in two consecutive years, but will not drop below the initial allocation.

B. State regulations

In general, pot and jig/hand troll gear are legal in all management areas of the State GHL Pacific cod fishery. Longline gear is also legal in Prince William Sound. Jig gear is limited to 5 machines, one line per machine, and 30 hooks per line, though these limits may be removed after a date certain in the fall if enough state GHL Pacific cod allocation remains. In the Cook Inlet, the jig/hand troll sector is limited to 15% of the GHL allocation; in the Chignik, to 10%, though a step up to 25% is possible. In the Kodiak area, the allocation is split 50/50% evenly between the jig and pot sectors. Actions taken by the Board of Fisheries in October 2011 and the jig season dates established under NMFS' final rule on the Amendment 83 GOA sector split allows for concurrent harvest in State and Federal waters. Jig vessels are able to harvest in the State waters parallel fishery concurrent with the Federal fishery.

Table 13. State of Alaska, ADF&G GOA Pacific cod regulations (updated as of May 15, 2012)

Source: ADF&G

State Area	Prince William Sound (E)			Cook Inlet (H)		Kodiak (K)		Chignik (L)		South Alaska Peninsula (M)	
NMFS Area	630/640			630		620/630		610/620		610	
Board Management Plan	5 AAC 28.081, 5 AAC 28.267			5 AAC 28.081, 5 AAC 28.367		5 AAC 28.081, 5 AAC 28.467		5 AAC 28.081, 5 AAC 28.537		5 AAC 28.081, 5 AAC 28.577	
Opening Date	24 hours after Federal CGOA pot A-season	24 hours after Federal CGOA jig A-season	7 days after Federal CGOA <50' HAL A-season or concurrent with Halibut opening, whichever is later	24 hours after Federal CGOA pot A-season	24 hours after Federal CGOA jig A-season	7 days after Federal CGOA pot A-season	48 hours after Federal CGOA jig A-season*	7 days after Federal CGOA pot A-season or March 7, whichever is later	March 15	7 days after WGOA pot A-season or March 7, whichever is later.	48 hours after Federal WGOA jig A-season**
Legal Gear	Pot	Jig/Hand troll	Longline	Pot	Jig/Hand troll	Pot	Jig/Hand troll	Pot	Jig/Hand troll	Pot	Jig/Hand troll
	5 AAC 28.050, 5 AAC 28.230, 5 AAC 28.267			5 AAC 28.050, 5 AAC 28.330, 5 AAC 28.367		5 AAC 28.050, 5 AAC 28.430, 5 AAC 28.467		5 AAC 28.050, 5 AAC 28.530, 5 AAC 28.537		5 AAC 28.050, 5 AAC 28.570, 5 AAC 28.577	
Gear Limits	60 pots, buoy tags required Limits may be removed after Oct. 30	5 lines, 30 hooks/line Limits may be removed after Oct. 30	None	60 pots, buoy tags required Limits may be removed after Oct. 30	5 lines, 30 hooks/line Limits may be removed after Oct. 30	60 pots, buoy tags required	5 lines, 30 hooks/line, 500 hooks in aggregate Limits may be removed after Sept. 1	60 pots, buoy tags required	5 lines, 30 hooks/line Limits may be removed after Oct. 30	60 pots, buoy tags required	5 lines, 30 hooks/line
Allocations	90% cap before Sept. 1	None	85% cap before Sept. 1	85% (step down to 75% if jig alloc achieved)	15% (step up to 25% if 90% of alloc. is achieved in a year)	50%	50%	90%	10% (step up to 25% possible)	Capped at 85%	None

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State Area	Prince William Sound (E)	Cook Inlet (H)	Kodiak (K)	Chignik (L)	South Alaska Peninsula (M)
Allocation to ≤58 ft. vessels	None	None	None	100%	100%
Allocation to >58 ft. vessels	None	Capped at 25% prior to Sept. 1	Capped at 25% prior to Sept. 1	0%, although may be allowed to register after Oct. 30	0%, although may be allowed to register after Oct. 30
Registration	Exclusive, may be lifted after Oct. 30	Exclusive, may be lifted after Oct. 30	Exclusive, may be lifted after Oct. 30	Superexclusive	Exclusive, may be lifted after Oct. 30
	5 AAC 28.020, 5 AAC 28.206	5 AAC 28.020, 5 AAC 28.306	5 AAC 28.020, 5 AAC 28.406	5 AAC 28.020, 5 AAC 28.506	5 AAC 28.020, 5 AAC 28.556
Rollover	Oct. 1	Sept. 1	Sept. 1	Aug. 15	Oct. 31
Delivery requirement	24 hours after close	24 hours after close	48 hours after close	48 hours after close	48 hours after close
	5 AAC 28.271	5 AAC 28.371	5 AAC 28.471	5 AAC 28.541	5 AAC 28.581
Bycatch and Retention requirements	Unless otherwise specified, 20% of the total round weight of Pacific cod aboard the vessel. All pollock must be retained if the directed pollock season is open. All rockfish must be retained. Rockfish in excess of 5% round weight of Pacific cod must be reported as bycatch overage on fish ticket. Lingcod may be retained after July 1 (with size restrictions).	Unless otherwise specified, 20% of the total round weight of Pacific cod aboard the vessel. All pollock must be retained if the directed pollock season is open. All rockfish must be retained. Rockfish in excess of 10% round weight of Pacific cod must be reported as bycatch overage on fish ticket. Lingcod may be retained after July 1 (with size restrictions).	Lingcod: 5% of Pacific cod catch by weight, after July 1 only (with size restrictions). Skates and Octopus: 20% of Pacific cod catch by weight. Black rockfish: 5% unless registered for the directed fishery or otherwise specified. All other species follow NMFS bycatch percentages.	All species not actively managed by the state follow NMFS bycatch percentages. Unless otherwise specified, bycatch limit for any species of groundfish is 20% by weight of Pacific cod.	All species not actively managed by the state follow NMFS bycatch percentages. Unless otherwise specified, bycatch limit for any species of groundfish is 20% by weight of Pacific cod. Black and dark rockfish: 5% unless registered for the directed fishery.
	5 AAC 28.070 5 AAC 28.075 5 AAC 28.210 5 AAC 28.270	5 AAC 28.070 5 AAC 28.075 5 AAC 28.310 5 AAC 28.370	5 AAC 28.070 5 AAC 28.07 5 AAC 28.410 5 AAC 28.470 5 AAC 28.472	5 AAC 28.070 5 AAC 28.075 5 AAC 28.510 5 AAC 28.540	5 AAC 28.070 5 AAC 28.075 5 AAC 28.560

* If the Central GOA Federal/parallel A-season jig sector harvest allocation has not been achieved by March 15, the parallel (0 to 3 nm) jig gear sector A-season may close and the Kodiak Area state-waters season for jig gear may open on March 15 or later, depending on ADF&G's ability to provide for orderly fisheries based on inseason assessment of effort, harvest rate or remaining quota.

** If the Western GOA Federal/parallel A-season jig sector harvest allocation has not been achieved by March 15, the parallel (0 to 3 nm) jig gear sector A-season may close and the South Alaska Peninsula Area state-waters season for jig gear may open on March 15 or later, depending on ADF&G's ability to provide for orderly fisheries based on inseason assessment of effort, harvest rate, or remaining quota.

V. Federal Permitting

All vessels harvesting or receiving fish from the EEZ are required to hold a Federal Fisheries Permit (FFP), which authorizes a vessel to deploy and conduct operations in the Gulf. An FFP must also specify the use of pot, hook-and-line (longline), or trawl gear in the Pacific cod fisheries (and Pollock and Alta mackerel). Data collected are used for making in-season and inter-season management decisions that affect the fishery resources and the fishing industry that utilizes them. An FFP collects owner and vessel information, including U.S. Coast Guard and State vessel registration numbers, and the vessel's home port. Harvesting vessels (CV and CPs) must indicate the gear type(s) the vessel will use for GOA groundfish fishing. NMFS reports harvest as hook-and-line (i.e., longlines), jig - mechanical, pot, trawl (nonpelagic/bottom), trawl (pelagic/midwater), troll (dinglebar, hand, and power gurdy), and other gear. If fishing for Pacific cod and using any gear other than jig gear, the vessel must indicate the gear type(s) and whether they have an endorsement for Pacific cod in the Gulf.

Amendment 86 exempts vessels that use jig gear from the requirement to hold an LLP license, so long as the vessel has at least one landing in the Pacific cod directed fishery from January 1, 2002, through December 8, 2008, and provided those vessels do not use more than five jigging machines, more than one line per machine, and more than 30 hooks on any one line (50 FR 15826). In addition, the 2000 License Limitation Program (LLP) limits access to federal (not state) groundfish fisheries (and crab) through criteria that must be met in order to receive a license based on historical fishing participation: generally, one landing within a 5-year period. Vessels that are less than 60 feet LOA and use jig gear in the GOA are exempted from the LLP requirement, but are limited to 5 machines, one liner per machine, and 30 hooks per line (i.e., no more than 150 deployed hooks). Vessels that hold an LLP and met the required jig landing are *not* limited to 5 jig machines or 150 hooks.

Federal regulations at 50 CFR 679.25 establish the authority for NMFS to modify the allowable gear types for use in all or part of a management area. NMFS also has the authority: to close, to extend a closure, or to open a fishing season in all or part of a management area; and to establish interim closures of statistical areas, or portions thereof, to directed fishing for specified groundfish species. However, current regulations limit NMFS authority to adjust a fishery in-season based on conservation and management concerns only, typically for an allocation or apportionment of a TAC or because a PSC limit has been or is estimated to be reached.

VI. Recordkeeping and Reporting Requirements

Upon offloading, a vessel is required to fill out a fish ticket that is determined by gear type for that landing. The operator must record the date the gear was deployed and hauled back in. Regardless of the target of the catch, each fish ticket reflects one gear type's catch.

Existing regulations requiring accurate landing reports are effectively unenforceable. Ideally, the most effective means by which to enforce accurate catch reporting and gear limitations would be strict adherence to the current federal regulations that require a vessel to record gear type(s) per trip. Section 679.5 governs the lengthy general recordkeeping and reporting requirements for fishing for groundfish. For example, operators are required to use a separate logsheet for each gear type utilized indicating the gear type used to harvest the fish. In addition, if using hook-and-line gear, the operator must describe the hook-and-line particulars such as whether fixed hook, autoline, or snap, length of skate, and number of hooks per skate. If using pot gear, the operator must record the number of pots set and lost each trip. Jig vessels must record the gear-begin and -end event; when the jig (or troll) gear enters or exits the water, the operator must record the date, time, and position.

5 AAC 39.130 is the primary regulation addressing State reporting regulations. Groundfish harvest is documented and submitted via the electronic reporting system “eLandings,” which generates a printable fish ticket. As a general rule, a fish ticket must be submitted for all fishing activity, off-loading, sales, processing, etc., that takes place within the State and State waters (0 to 3 nm). Upon completion of the off-load, all fish harvest purchased, retained, or discarded must be recorded on a fish ticket and submitted within seven days to the nearest State office. Any first purchaser, processor, exporter or transporter of raw fishery resources must complete and submit a fish ticket.

The eLandings system collects the following information: valid permits for that year and fishery (i.e., crab, IFQ sablefish and halibut, and groundfish); the vessel ID number, permit and port of landing location information for each entry at the time the off-loading begins; the State statistical area; species, delivery condition, and disposition categories, and any overages; dates of fishing and the duration of trip; the crew size, number of observers, and—most important—the State gear code. There is only one entry field for a possible gear type. The State code for “mechanical jigs” (number 26) corresponds with the NMFS code “Jig/Troll,” which in turn corresponds with the Pacific Fisheries Information Network (PacFIN) code “JIG.”⁵ The State recognizes a more diverse group of gear types than NMFS because of the fisheries it manages—22 different types.

One possibility to ensure accurate reporting of catch to gear type would be to require registration of one gear type utilized per fishing trip. A vessel would need to deliver catch and record the landing before undertaking another trip and another gear type. However, this option does not ensure that an operator is recording the actual gear type used during the trip unless directly observed.

VII. Enforcement Options

There are varied methods by which fishing regulations may be enforced, from direct observation to post landing analysis. Below is a brief description and discussion of these methods. Appendix A further discusses the Observer Program, Vessel Monitoring Systems (VMS), Geo-fencing, and Automated Information Systems (AIS); all of these methods, however, tell regulators nothing specific or certain about which gear types are being utilized, which are on board, or how the catch is ultimately landed and recorded.

A. Observer coverage and jig vessel exemption

Currently, jig vessels in the GOA are not required to have observer coverage, or are required to have 30% observer coverage, depending on vessel length. Under GOA FMP Amendment 76, Observer Program restructuring, NMFS has proposed that vessels using jig gear and catcher vessels ≤ 40 ft. LOA using pot and/or hook-and-line gear would not be selected to carry an observer in the initial year(s) of the program.⁶ Proposed regulations to add a funding and deployment system for observer coverage to the existing Observer Program and to amend existing observer coverage requirements for vessels and processing plants were published in the Federal Register on April 18, 2012 (77 FR 23326). As of release of this document, NMFS will receive public comment through June 18, 2012.

⁵ Funded by a grant from the National Marine Fisheries Service (NMFS), PacFIN is a joint federal and state project focused on fisheries data collection and information management.

⁶ For more details on the Observer Program revisions, please see Appendix A and go to alaskafisheries.noaa.gov/prules/77fr15019.pdf.

B. VMS coverage and jig exemption

Vessel Monitoring Systems (VMS) in Alaska is a relatively simple system involving a tamperproof VMS unit, set to report a vessel identification and location at fixed 30-minute intervals to the Office of Law Enforcement (OLE). Some of these units allow OLE to communicate with the unit and modify the reporting frequency. VMS is an essential requirement to show the vessel was at-sea, how long it was out, where it docked when it came into port, and the present vessel location. VMS units are required to be operated on all vessels permitted for directed fisheries for pollock, Pacific cod, and Atka mackerel during those times when these fisheries are open. The only exemption is for vessels using jig gear (§679.4(b)). The jig exemptions are intended to ensure that there are opportunities for vessels to use jig gear in the GOA Pacific cod fisheries. These exemptions meet the purpose and need for this action by providing a limited opportunity for entry-level vessel operators to participate in the Federal Pacific cod fishery without the obligations and costs that they may incur if a Pacific cod endorsement and VMS were required. As of April 2012, there were 56 jig vessels without a VMS unit and 11 vessels with VMS. Of those 56 vessels without VMS, 18 have an FFP. Of the Jig vessels that do have a VMS unit (11), 7 of those vessels have an FMP. CPs, however, are required to have VMS onboard, whether or not the CP is jigging. Between 2010 and 2012, there have been four CP vessels registered in the jig sector.

C. Geo-fencing

A geo-fence is a virtual perimeter for a real-world geographic area. When used in conjunction with VMS, geo-fencing allows enforcement to create an area which, when entered by a vessel equipped with VMS, will trigger an increased polling rate. When the vessel exits this area, the polling rate will be reduced to the normal rate. Geo-fencing also allows for alerts (generally email or text message) to be sent to the agency or VMS user if deemed necessary. Increased polling as well as email alerts would result in higher VMS costs that may need be borne by industry using these areas. Geo-fencing is a spatial management application not currently used in Alaska.

D. Automated Information System (AIS)

An alternative tool to VMS is the Automated Information System (AIS). This alternative to VMS could provide some of the location information that is provided by VMS. AIS is a shipboard broadcast system that functions similar to a transponder, operating in the VHF maritime band, and has a capacity 4,500 or more reports per minute. Each AIS system consists of one VHF transmitter, two VHF TDMA receivers, one VHF DSC receiver, and standard marine electronic communications links to shipboard display and sensor. Position and timing information is normally derived from an integral or external global navigation satellite system (e.g. GPS) receiver. There are significant issues with this system, however, because the information is not protected. Because anyone can get access to AIS information, many fishermen turn their AIS unit off while they are fishing to protect their fishing locations from their competitors. In addition, AIS is not a satellite based system, so it is contingent upon line of sight for communications and to receive locations. There are currently not enough AIS receivers around the state to provide accurate fishing locations.

VIII. Expected Impacts

Regulations limiting or prohibiting other gear types on board while a vessel is jigging for Pacific cod in the GOA would be of most benefit to those operators who exclusively jig for their catch of Pacific cod, providing a degree of protection from competition by larger operators and mixed gear operators. The table below displays exclusive jig history from 2006 through 2011 showing the number of jig vessels that targeted Pacific cod in the Central or Western GOA with jig gear and did not report a landing with any other gear type in the same year, i.e., vessels that were exclusively a jig vessel. Over six years, there were

a total of 249 events where a vessel exclusively jigged for Pacific cod – there were two instances where a vessel fished in both the Central and Western GOA strictly with jig gear. Most recently, in 2011 there were 59 vessels in the Central GOA and 53 in the Western area.

Fleets are usually defined by gear type, though may prosecute multiple gear types and target species.

Table 14. Vessels exclusively targeting Pacific cod with jig gear only, in State and Federal fisheries

Year	Central GOA	Western GOA
2006	28	1
2007	20	5
2008	23	12
2009	32	9
2010	36	12
2011	59	14
Totals	198	53

Source: NPFMC.

As discussed previously, there has been a remarkable uptick in jig participation from 2010 to 2011, which could be in anticipation of the implementation of the sector split and the possibility of an increased jig allocation each year if 90% of the TAC is harvested. Catch data and vessel participation for the 2012 State and Federal Pacific cod fisheries will be available to analysts sometime in late April or early May 2013.

A. Cross over with other fisheries – crab and salmon

There is potential for other fisheries to be affected by a Pacific cod jig regulation, notably the State Tanner (*Chionoectes bairdi*) and State Dungeness crab (*Cancer magister*) fisheries. The table below shows the number of vessels that had a Pacific cod jig landing in the State and Federal fisheries in the Western and Central GOA, with the corresponding number of vessels with a State Dungeness, Tanner, or king crab pot landing in the same year. Notably, there were 12 landings of Tanner crab by a jig vessels in 2010.

Table 15. Vessels with a Pacific cod jig landing and a State fisheries crab pot landing, 2006-2010

Year	Jig vessels with a Pacific cod landing		Jig vessels with a Dungeness crab landing		Jig vessels with a Tanner crab (<i>C. bairdi</i>) landing		Jig vessels with a king crab landing	
	Central	Western	Central	Western	Central	Western	Central	Western
2006	80	13	1	0	13	1	0	0
2007	69	16	3	0	8	1	0	0
2008	76	56	1	1	7	2	0	0
2009	103	31	1	1	6	0	1	0
2010	93*	49*	3	1	12	4	0	0

* The numbers here are less than other entries for 2010 because this table does not have the areas listed by all gear.

As discussed in the sections above that describe jig vessel participation in 2010 and 2011, there was a significant uptick in Pacific cod landings found in both exclusive jiggers (140 to 239) and in the ‘other gear’ group (75 to 139), which includes all other gear types not under a specific allocation (i.e., non-FMP gear types). Many of these ‘other gear’ vessels are thought to be salmon fishers, utilizing purse seiners, gillnetters, and trollers (i.e., the State commercial salmon boats). The ideal season for jig fishing for Pacific cod is primarily mid-March through the beginning of June, when the cod are aggregating to spawn and the weather and long daylight hours favor successful fishing trips. During the summer, however,

salmon are the favored target species. Spring fisheries may begin prior to May 1 if the winter troll season closes early due to the guideline harvest level of 45,000 fish being taken prior to April 30. Spring troll fisheries target Alaska hatchery-produced Chinook salmon. Each spring troll area is managed individually and fishing periods are opened in season, by emergency order. While initial openings are amongst the lower volume troll-caught salmon fisheries the season will go into full swing with more salmon returning throughout the summer and into September, as shown by the general salmon season opening schedule below:

- Apr. 15 – June 30: Spring King Salmon (Trolling)
- June 1 – Sept. 30: Summer Salmon Troll Season
- June 1 – Sept. 30: Summer Salmon Troll Season
- June 2 – Oct. 31: Yakutat Set Net Salmon
- June 8 – Sept. 15: General salmon season (gillnetting and purse seiners)
- June 8 – Sept. 30: Salmon gillnet season
- June 10 – Aug. 20: Salmon seasons with varying date
- Oct. 1 – Apr. 14: Winter King Salmon Season via Trolling

IX. Possible Alternatives and Options

If the Council chooses to initiate an analysis of limiting other groundfish gear on board vessels jigging for Pacific cod in the Gulf, possible Alternatives and Options could include those outlined and discussed below. In addition, in its March/April 2012 motion, the Council requested discussion on possible gear type limitations, such as deployable groundfish gear, other groundfish gear types, and the number of jig gear hooks allowed on board.

Alternative 1 Limit other groundfish gear on board:

- i. While on a fishing trip;
- ii. While jigging.

Alternative 2 Limit the ability of vessels to concurrently fish two gear types:

- iii. For groundfish;
- iv. For Pacific cod.

Option A Render other groundfish gear types on board inoperable or non-deployable.

Option B Limit the number of jig hooks on board a vessel.

Alternative 1 Limit other groundfish gear on board

The option of limiting other groundfish gear types on board a jig vessel has been raised as a means by which to prevent or discourage Pacific cod fishing by longlines or pots that is then misreported as jig-caught. In addition to jig gear, longline, pots, and to a lesser extent trawl nets, are used to catch groundfish in the Gulf. To ensure that vessels are fishing for Pacific cod with only one gear type, vessels could be required to limit other gear types on board. An operator would need to factor into consideration the economic costs of setting up and breaking down the jig gear, which can be – however – relatively easy and can be fished for very short durations.

“*On board*”: There is no definition of what would construe whether gear is “on board” a vessel in Federal regulations. NMFS also does not have any regulations that limit legal gear on-board a vessel during a

fishing year.⁷ From the perspective of the USCG, “on board” could indicate to enforcement officers that the gear is present, on the vessel. For example, if vessels are not allowed to have longline gear “on board” the vessel while jigging, there could be no skates of longline gear present on the vessel. The prohibition could be expanded to include the line reel, should the Council define “longline” as such. The only gear that would be allowed on the vessel would be the jigging machines, associated line for those machines, and hooks.

For comparison purposes, vessels fishing for Northeast Multispecies have been prohibited from having trawl nets on board smaller than a certain mesh size, and prohibited from having pot gear on board the vessel. This presented problems for occasions when the vessels trawled up derelict lobster pot gear. Regulations were developed so that trawled up derelict gear could be rendered unusable by cutting nets to a specific size and removing the netting from pots, rendering it inoperable, and thus allowing the gear to be returned to port and disposed of rather than dumping it at sea.

“*While on a fishing trip*”: The Federal definition of a “fishing trip” for a CV targeting groundfish is, “from the time the harvesting of groundfish is begun until the offload or transfer of all fish or fish product from that vessel” (§679.2).

NMFS managers have commented that utilizing the analogy of a fishing trip for limiting other gear when crafting the regulation would not seem a likely fit. To require a jig vessel to begin a new fishing trip and deliver fish before deploying new gear would be based on an existing requirement for CPs. The same sort of regulatory framework will not work well for CVs. For observers on CPs, deploying new gear means a new trip for catch accounting purposes but CPs do not have to deliver. So for vessels using jig gear in particular, with little observer coverage, this would not seem to be useful.

From the perspective of the USCG, it would use whatever definition the Council has provided for a “trip.” In some areas, it is defined as from the time the vessel leaves port to begin fishing until the time the vessel offloads catch. In others instances, it is defined as the time from when a vessel first puts gear in the water until they offload catch. The USCG is able to enforce either definition, so long as it is made explicit in the Council’s motion. The USCG would not want vessels to be able to mix state and federal trips without fully offloading all catch and checking out of the state or federal fishery.

Alternative 2 Limit the ability of vessels to concurrently fish two gear types

The alternative of limiting a vessel’s ability to fish two gear types concurrently has been raised as a means by which to prevent or discourage Pacific cod fishing by another gear type that is then misreported as jig-caught. In its March/April 2012 motion, the Council requested that the ability for a vessel to fish two gear types concurrently also be evaluated, i.e., mixed-gear Pacific cod fishing. Mixed gear fishing favors higher capital (i.e., bigger) vessels over small boats with only one gear type, which may be construed as contrary to the Council’s stated intent with the GOA Pacific cod jig fisher. If vessels are only allowed (or able) to use one gear type to fish for Pacific cod, then a fisher would need to choose between jig and pot, longline, or trawl gear for that fishing trip.

Prohibiting concurrent fishing trips, however, could negatively affect vessels that are employing a mixed-gear strategy that is both beneficial and currently allowed in regulation. The Council requested a discussion of possible mixed-gear fishing trip scenarios such as: setting and collecting longlines and/pots while coming into and out of port; jigging for Pacific cod and longlining for halibut; or tendering and

⁷ Though there are gear limits associated with vessels targeting halibut, those gear limits are in place for the entire fishing season. 50 CFR 300.66(d)(2)(iii). Prohibitions on Pacific halibut fishing, line limit: The number of lines used to fish for halibut onboard a vessel must not exceed six or the number of charter vessel anglers, whichever is less.

jigging while waiting on deliveries. Of particular interest is the scenario where fishers subsistence longline for halibut or pot fish or longline for bait.

If further refined into an option to prevent fishing *specifically for Pacific cod* with concurrent gear types, the ability to discern whether the fish was jig-and pot-caught or jigged and longlined could not be determined with certainty at landing and would need to have been directly observed at sea or upon delivery to a processor. This option to limit concurrent gear trips would not address the problem of preventing the misreporting of a catch as jig-caught. Jig fishing is relatively easy to set up and break down, and jig fishing can be done for long to very short durations.

NMFS has several regulations limiting gear for a particular target species. A possibility for further discussion and analysis is a regulation that limits a jig vessel to using only jig gear for the entire year (or fishing season). However, this possibility may be difficult to implement because many types of gear are typically used to target Pacific cod and many of these same vessels also have IFQ: Halibut IFQ must be used only to harvest halibut with fishing gear authorized in § 679.2. Sablefish fixed gear IFQ must not be used to harvest sablefish with trawl gear in any IFQ regulatory area, or with pot gear in any IFQ regulatory area of the GOA (§ 679.42(b)(1)).

Option A Render other groundfish gear types on board inoperable or non-deployable

Limiting other “deployable” gear on board could be equated with rendering other gear types non-deployable or inoperable, which—again—could be achieved by varying degrees of physical deconstruction specific to each other gear type on board. Similar to the difficulties faced with determining what construes a “limit,” “deployable” is also another term of art that would turn on the regulatory definition of “operational” and the operations standards defined by the Council for enforcement by OLE and the USCG. For example, if a vessel had longline gear on board, and it was capable of being deployed, that would likely be viewed as a violation.

The definitions of jig and longlining gear in regulation are as follows (§679.2):

- (8) Jig gear means a single, non-buoyed, nonanchored line with hooks attached, or the taking of fish by means of such a device;
- (9) Longline gear means hook-and-line, jig, troll, and hand line or the taking of fish by means of such a device.

Option B Limit the number of jig hooks on board a vessel

The option of limiting the number of hooks allowed on board has been raised as a means by which to prevent or discourage Pacific cod fishing by longline that is then misreported as jig-caught. This option could be, however, either redundant, problematic, or ineffective and could negatively affect certain jigging vessels. The majority of vessels jigging for Pacific cod in the Gulf are already limited in the number of hooks allowed on board. Under the LLP exemption, jig vessels are limited to five machines, one line per machine, and thirty hooks per line, or 150 hooks in total; thus a limit on hooks is already in place. A typical jig vessel has only two or three machines on board and thus is already self-limiting. Further reducing the number of hooks allowed on board would harm jiggers that are fully utilizing the 5 machine/one line/30 hooks limit under the LLP exemption. In addition, jig vessels with an LLP are not subject to such limits and limiting the number of hooks on board could hurt those vessels. Finally, limiting the number of hooks on board would not necessarily prevent those hooks from being used to longline Pacific cod at sea that is then misreported as jig-caught at delivery.

X. Further Consideration for the Council

If the Council would like to further expand discussion on misreporting issues and the utility of limiting other groundfish gear on board vessels jigging for Pacific cod in the Gulf, the Council could take up another iteration of this discussion paper at the October 2012 Council meeting; it is likely that participants in the GOA jig sector will continue to pursue discussion of limiting other gear on board while jigging, primarily concerned with longline gear.

The Council is also scheduled to take up an expanded discussion paper on VMS use and requirements in the North Pacific and other regions at the October 2012 Council meeting. Participants in the jig sector have inquired into VMS and other enforcement issues regarding gear regulations, such as:

- What are the VMS requirements for fishing inside and outside of 3 miles in the federal jig fishery?
- Are all jig vessels exempt from any VMS requirements?
- What operators need a VMS?
- How do LLP and longline Pacific cod endorsements factor in?
- Do VMS requirements only apply to federally endorsed jig boats?
- Is VMS required when fishing in the federal jig fishery with an expired FFP?
- If fishing for Duskyies under the Rockfish program outside of 3 miles, can a boat move back and forth over the 3 mile line in a single trip?
- Can an operator keep subsistence halibut while jigging during the State and/or Federal jig cod seasons?

Until there is more experience under the sector split management structure, and the potential step-ups for the jig TAC allocations are known, it is difficult to assess whether and to what extent a prohibition on other gear on board a jig vessel would be relevant or beneficial, and for which participants and sectors. Given the various management difficulties and participation unknowns, it may be prudent to gauge the full prosecution of the 2012 and 2013 Pacific cod jig fisheries to better inform a Council and Board decision on whether to implement such gear limitations or prohibitions.

Further, from an enforcement perspective, a key question that could be considered by the Council and the Enforcement Committee is: to the extent the issue at hand is actually misreporting by the longline sector—presumably in an attempt to lengthen the season for their own allocation, and/or to fish off another sector's allocation—to what extent will a limit or prohibition on other gear on board a vessel while jigging alleviate this problem? For example: regardless of whether other gear on board is prohibited while a vessel is jigging, if a vessel longlining goes out with only longline gear onboard and catches 100,000 lb. of cod with that gear, there is nothing to prevent the vessel from misreporting that catch as jig-caught. The only readily apparent solution to the problem just described would be to have an enforcement officer present when that catch is delivered and the fish ticket is filled to ascertain whether the only gear on board is the gear listed on the fish ticket.

If the Council wishes to further pursue limiting other gear types on board jig vessels, staff will need to further explore the questions suggested above. The Council will need to weigh the potentially limited benefits of such a gear prohibition against the operational limitations imposed on those currently utilizing multiple gear types.

XI. Preparers and Persons Consulted

NPFMC	Sarah Melton, Chris Oliver, Mike Fey, Jon McCracken
NMFS	Matt Eagleton, Seanbob Kelly
OLE	Ken Hansen
USCG	LT Anthony Kenne
AMCC	Theresa Peterson

Appendix A – Further discussion on methods by which fishing regulations may be enforced.

Observer Coverage and Restructuring

Currently, jig vessels in the GOA are not required to have observer coverage, or are required to have 30% observer coverage, depending on vessel length. Under GOA FMP Amendment 76, Observer Program restructuring, NMFS has proposed that vessels using jig gear and catcher vessels ≤ 40 ft. LOA using pot and/or hook-and-line gear would not be selected to carry an observer in the initial year(s) of the program. In 2008, a total of 158 vessels used jig gear only and 43 vessels ≤ 40 ft. LOA used jig and fixed gear in the Federal GOA groundfish fisheries. NMFS is holding a series of public hearings on the proposal to restructure the funding and deployment system for observers in North Pacific groundfish (and halibut) fisheries. Proposed regulations to add a funding and deployment system for observer coverage to the existing Observer Program and to amend existing observer coverage requirements for vessels and processing plants were published in the Federal Register on April 18, 2012 (77 FR 23326). As of release of this document, NMFS will receive public comment through June 18, 2012.

Vessel Monitoring Systems (VMS)

Vessel Monitoring Systems (VMS) in Alaska is a relatively simple system involving a tamperproof VMS unit, set to report a vessel identification and location at fixed 30-minute intervals to the Office of Law Enforcement (OLE). Some of these units allow OLE to communicate with the unit and modify the reporting frequency. VMS is an essential requirement to show the vessel was at-sea, how long it was out, where it docked when it came into port, and the present vessel location. VMS is capable of understanding and recording small details of the ship's evolutions. It can document, for instance, specific course changes and engine speed changes by a vessel. Collectively this pattern is termed a signature. At present, there are not enough data to make a signature admissible in court as an indicator of fishing. Regardless, VMS technicians are trained to look at positioning data and other factors indicating potential fishing activity. An investigator can be dispatched to the landing site, intercepting the vessel as it comes into port or even when it anchors in a remote area. If the captain and crew are believed to have illegally harvested, the agent or officer can intercept the vessel. If, during the course of an initial investigation, a violation surfaces, the agent or officer will bring the vessel to port, seize the catch, and cite the errant fisherman.

Current VMS coverage and jig exemption

Vessel Monitoring Systems (VMS) are required to be operated on all vessels permitted for directed fisheries for pollock, Pacific cod, and Atka mackerel during those times when these fisheries are open. The only exemption is for vessels using jig gear (§679.4(b)). The jig exemptions are intended to ensure that there are opportunities for vessels to use jig gear in the GOA Pacific cod fisheries. These exemptions meet the purpose and need for this action by providing a limited opportunity for entry-level vessel operators to participate in the Federal Pacific cod fishery without the obligations and costs that they may incur if a Pacific cod endorsement and VMS were required.

The degree of VMS coverage largely depends on the fleet. As of April 2012, there were 56 jig vessels without a VMS unit and 11 vessels with VMS. Of those 56 vessels without VMS, 18 have an FFP. Of the Jig vessels that do have a VMS unit (11), 7 of those vessels have an FMP.

Jig vessels with and without VMS and an FFP (as of April 2012)

Holds an FFP	Has VMS unit	Number of jig vessels
Yes	YES	7
No		4
Yes	NO	18
No		48

Source: NPFMC, Overview of Vessel Monitoring System, Discussion Paper, April 2012

Catcher Processors (CPs), however, are required to have VMS onboard, whether or not the CP is jigging. Between 2010 and 2012, there have been 4 CPs registered in the jig sector.

Catcher Processors with Pacific cod jig landings in State and Federal fisheries

Area	2006	2007	2008	2009	2010	2011	2012
Western GOA	0	0	0	0	1	2	1
Central GOA	0	0	0	0	0	0	0

Source: NPFMC.

How to make VMS practical for small boats

NOAA does have a current VMS reimbursement program that is jointly managed by NOAA and the Pacific States Marine Fisheries Commission, but that is subject to future appropriations. This program provides for reimbursement of a maximum for \$3,100 per unit and covers the cost of the VMS transmitter unit. To be eligible for reimbursement, vessel owners/operators must purchase an approved VMS unit and have it installed on their vessel and activated. Upon completion of the installation and activation, the vessel owner/operator must contact the VMS Support Center to ensure the vessel is properly registered in the VMS system. Once this completed, OLE will issue the vessel a number that the vessel operator then includes on their reimbursement application with the Pacific States Marine Fisheries Commission (PSMFC). This reimbursement does not cover costs associated with tax, labor, and installation.

Geo-fencing

A geo-fence is a virtual perimeter for a real-world geographic area. When used in conjunction with VMS, geo-fencing allows enforcement to create an area which, when entered by a vessel equipped with VMS, will trigger an increased polling rate. When the vessel exits this area, the polling rate will be reduced to the normal rate. Geo-fencing also allows for alerts (generally email or text message) to be sent to the agency or VMS user if deemed necessary. Increased polling as well as email alerts would result in higher VMS costs that may need be borne by industry using these areas. Geo-fencing is a spatial management application not currently used in Alaska.

Vessels required to use VMS transmitters report vessel characteristics two times every hour. A geo-fence creates an electronic spatial extension of specific area (not a physically structured fence). The fence monitor (receiver) is triggered when the electronic transmitter crosses the ‘fence’ or boundary line. For use in fishery management, the geo-fence would be triggered when a vessel required to transmit via VMS crosses a spatially explicit management boundary. Importantly, more than one parameter can be linked to an individual VMS transmitter, including position, vessel characteristics, type, and speed. Not all vessel behaviors warrant a closer look within an area. A closer look is triggered when a vessel of a certain type enters a geo-fence and exhibits certain behavior, such as reduced speeds for fishing. In this instance, the vessel’s speed is at slower than normal transit speed (approximately 4 knots). Vessel type and behavior would alert the OLE VMS observers for further investigation, if warranted. Lastly, the geo-fence would

be activated when a vessel carrying VMS first crosses the boundary line and then at specific intervals, depending on the size and the confidence to adequately monitor vessel activities in each area, until the vessel departs the geo-fenced area.

Increased polling rates associated with geo-fencing

Current regulations require vessels to transmit data two times per hour via VMS (i.e., the polling rate). In order to establish a vessel track line, two back-to-back positions are necessary. By calculating time, speed, and distance, a vessel traveling at a speed of four knots would travel four nautical miles (nm) in one hour (60 minutes) or 2nm in one-half hour (30 minutes).⁸ Thus, a vessel traveling at four knots transmits a VMS position twice every hour or once every 2nm. This creates a polling rate of two times per hour. The result is the polling rate sets a minimum distance to establish a two position track line.

An increased polling rate would be needed to adequately monitor smaller and medium fishing areas, should VMS be used for monitoring. An increase in the polling rate creates greater confidence to establish vessels activities in the area. Costs of increased polling rates can be calculated as follows, given: 1) Trawl speeds of 4 knots; 2) general horizontal accuracy of Global Positioning Systems (GPS) is 100 m for land based mobile objects; 3) accuracy of GPS units at sea is decreased by the movement of the vessel in 3 dimensions (i.e., pitch and roll); and 4) costs are based upon the average change \$ cost between 1 and 2 polls/hr, and are extrapolated out at \$25.88 per additional poll per month. Once you get to the point where the GPS error is equal to or greater than the change in distance travelled between polls, you begin to lose any additional benefit of increasing the poll rate further.

Table 16. Increased VMS poll rates – distances and costs

Poll Rate/hr	Distance Travelled (NM)	Distance (yds)	Change in Distance (NM)	Change (yds)	AVG Monthly Cost to Industry	AVG Annual Cost	Minutes between polls
1	4.000	8000			\$42.00	\$504.00	60.00
2	2.000	4000	2.000	4000	\$67.88	\$814.56	30.00
3	1.333	2667	0.667	1333	\$93.76	\$1,125.12	20.00
4	1.000	2000	0.333	667	\$119.64	\$1,435.68	15.00
5	0.800	1600	0.200	400	\$145.52	\$1,746.24	12.00
6	0.667	1333	0.133	267	\$171.40	\$2,056.80	10.00
7	0.571	1143	0.095	190	\$197.28	\$2,367.36	8.57
8	0.500	1000	0.071	143	\$223.16	\$2,677.92	7.50
9	0.444	889	0.056	111	\$249.04	\$2,988.48	6.67
10	0.400	800	0.044	89	\$274.92	\$3,299.04	6.00
11	0.364	727	0.036	73	\$300.80	\$3,609.60	5.45
12	0.333	667	0.030	61	\$326.68	\$3,920.16	5.00
13	0.308	615	0.026	51	\$352.56	\$4,230.72	4.62
14	0.286	571	0.022	44	\$378.44	\$4,541.28	4.29
15	0.267	533	0.019	38	\$404.32	\$4,851.84	4.00

Source: USCG.

⁸ For this analysis, the speed of 4 knots is used to represent the speed of a vessel towing trawl gear.

Automated Information System (AIS)

An alternative tool to VMS is the site-based Automated Information System (AIS). This alternative could provide some of the location information that is provided by VMS. AIS is a shipboard broadcast system that functions similar to a transponder, operating in the VHF maritime band, and has a capacity 4,500 or more reports per minute. Each AIS system consists of one VHF transmitter, two VHF TDMA receivers, one VHF DSC receiver, and standard marine electronic communications links to shipboard display and sensor. Position and timing information is normally derived from an integral or external global navigation satellite system (e.g. GPS) receiver. Other information broadcast is electronically obtained from shipboard equipment through standard marine data connections. Heading information and course and speed over ground would normally be provided by all AIS-equipped ships. Other information, such as rate of turn, angle of heel, pitch and roll, and destination and ETA could also be provided. AIS can update as often as every two seconds, utilizing Self-Organizing Time Division Multiple Access (SOTDMA) technology to meet this high broadcast rate.

The AIS transponder normally works in an autonomous and continuous mode, regardless of whether it is operating in the open seas or coastal or inland areas, to avoid overlap of transmissions. Although only one radio channel is necessary, each station transmits and receives over two separate radio channels to avoid interference problems, and to allow channels to be shifted without communications loss from other ships. The system provides for automatic contention resolution between itself and other stations, and communications integrity is maintained even in overload situations. AIS coverage range is similar to other VHF applications, essentially depending on the height of the antenna. Its propagation is slightly better than that of radar, due to the longer wavelength, so it is possible to “see” around bends and behind islands if the land masses are not too high. A typical value to be expected at sea is nominally 20 nautical miles.

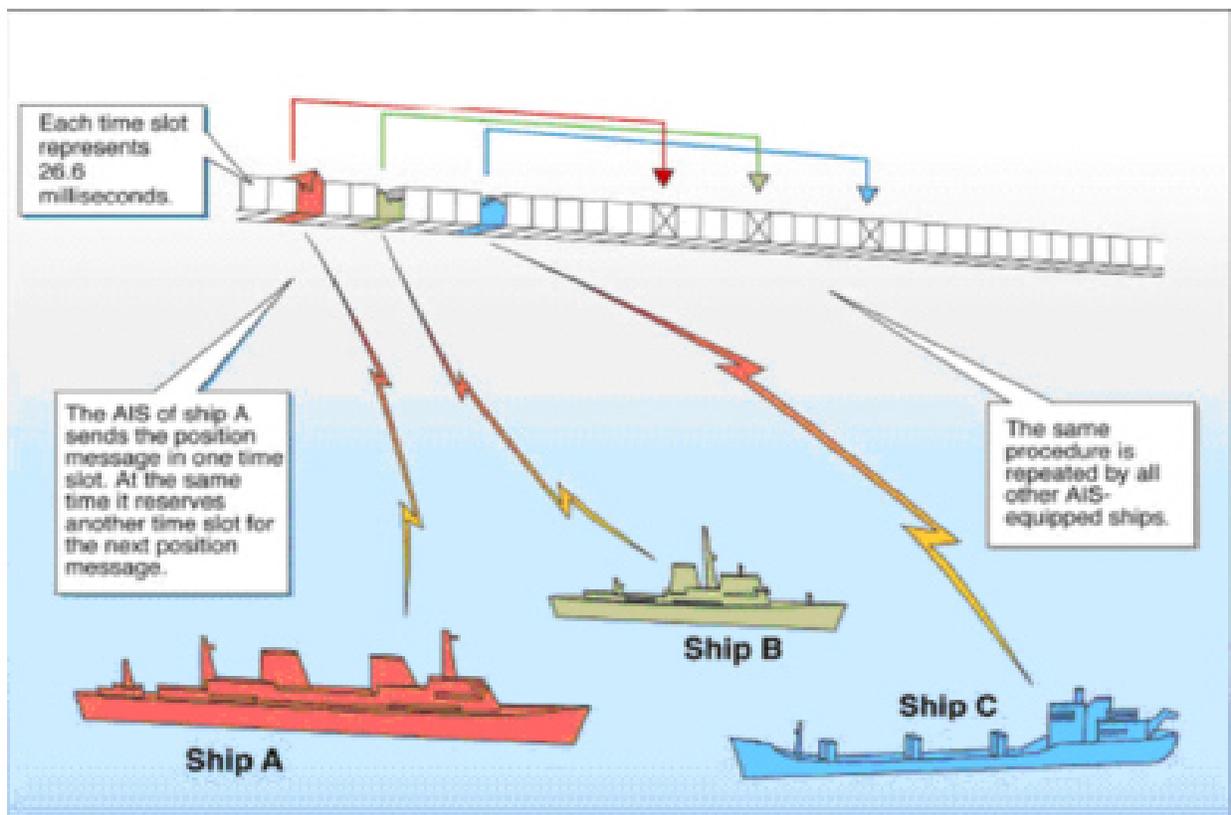


Figure 1. Schematic of time slots and vessel communication under AIS.
Source: The Marine Exchange, <http://www.mxak.org>.

There are significant issues with this system as the information is not protected. Because anyone can get access to AIS information, many fishermen turn their AIS unit off while they are fishing to protect their fishing locations from their competitors. In addition, AIS is not a satellite based system, so it is contingent upon line of sight for communications and to receive locations. The Marine Exchange has installed AIS receivers at many locations throughout Southeast Alaska. State of Alaska grant funds are being used to extend the Alaska Maritime Safety Net, which is currently comprised of at least 75 sites from Prudhoe Bay, west to Adak, and south to Ketchikan. However, there are currently not enough AIS receivers around the state to provide accurate fishing locations. USCG- type approved AIS units range in price from \$500 for an AIS Class B transponder to \$4,000 for an AIS Class A transponder, not including installation. Costs vary greatly for installation due to the differences in vessel configuration and level of integration necessary for other shipboard systems.