
C4 BERING SEA GREENLAND TURBOT LONGLINE POTS

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PURPOSE & NEED – ALTERNATIVES

P&N:

Mitigate killer whale depredation that has impacted the Greenland turbot hook-and-line CP fishery

Provide opportunity for non-trawl vessels to revive participation in turbot

Potential for better accounting for stock assessment by reducing unobserved mortality from depredation

Alternative 1: No Action (longline pot gear not authorized for Greenland turbot directed fishing)

Alternative 2: Authorize longline pot gear for directed fishing in Bering Sea

Option: Remove 9-inch maximum tunnel opening restriction when directed fishing for Greenland turbot in the BS



NOTES ON ALTERNATIVES (2.1 & 2.2)

Directed fishing (*def.*): Retention above the maximum retainable amount

Regulatory amendment: Add exception under 'Gear Limitations'.

Additional language required to allow retention of any non-turbot (and non-IFQ) species in longline pot gear

Retention and ICAs: Regulatory discards of non-turbot species (or retention up to MRA, if allowed) accrue to incidental catch allowances. Level at which ICA needs to be set can affect future TACs for PCod HAL/Pot sector. ICA for other flatfish targeted by trawl sector can affect timing of directed fishery closures for A80 targets like arrowtooth and Kamchatka flounders.

Ability to participate: Any vessel (CP or CV) with a Federal Fisheries Permit and an LLP license endorsed for Bering Sea and non-trawl gear



FISHERY DESCRIPTION – MGMT (3.1)

- Season: May 1 – Dec. 31 (non-CDQ); typically fished June-August
- No limit on number of (single) pots allowed
- FLC and Am80 cooperatives have a voluntary, non-regulatory TAC sharing agreement for BS turbot
 - Agreement – plus higher BS turbot TAC since 2015 – has allowed NMFS to open directed fishing on May 1
 - Agreement covers all historical participants, but not all potential participants
 - Turbot caught in trawl sector while targeting arrowtooth/Kamchatka accrue to directed fishing allowance; turbot caught in other trawl targets accrues to ICA... so Am80 sector relies on turbot to be open for directed fishing for some of their spring activities
- 9-inch pot tunnel restriction does not apply to vessels with unfished halibut IFQ onboard



FISHERY DESCRIPTION – LICENSES (3.2)

- 77 LLPs with BS non-trawl CP endorsements
 - 36 LLPs = Freezer Longline Coalition cooperative
 - Of the other 41...
 - 37 have been active since 2013
 - 13 operated as BSAI CPs
 - 6 of 13 are Am80 trawl CPs that have no non-trawl history
 - Of the 7 remaining, 4 have PCod endorsements (operated as pot-cod CPs)
- Peak # vessels targeting turbot since 2013: HAL CP – 5; Trawl – 7
- **Table 3-1** (p.33) – HAL CPs targeting/retaining BS turbot

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022*
<i>BS Non-CDQ ITAC</i>	3,587	2,975	5,296	1,369	1,410	2,081	2,272	3,719	4,356	4,356	4,356	4,356	4,709
Total Catch Retained	1,281	1,631	1,369	555	610	1,042	943	922	249	519	272	0.3	C
Retained in Target	1,177	1,503	1,293	548	600	1,032	889	815	166	474	221	0	0
% in Target	92%	92%	94%	99%	98%	99%	94%	88%	67%	91%	81%	0%	0%
#Vessels Retaining	23	17	16	11	12	9	11	16	17	12	13	4	1
#Vessels Targeting	9	8	7	3	3	3	5	4	3	3	4	0	0



FISHERY DESCRIPTION (3.3)

Participation/Harvest/Revenue

Non-CDQ TAC utilization (all gear): 90%+ until 2016; 40-70% in 2017-19; <40% in 2020-21

HAL CPs (FLC)

- Cod-focused cooperative; active vessels down from 36 in 2010 to mid-teens in 2021/22
- Five CDQ groups hold ownership interest in FLC licenses; four hold interest in FLC vessels
- Vessels that targeted turbot derived ~12% of total gross revenue from the species (on avg.)

Trawl CPs (A80)

- Turbot is a supplementary species for a subset of the 18-20 vessel fleet that remain in the BS area in the late-spring/summer
- Having directed fishing for turbot open allows vessels to retain catch in the western BS while between yellowfin sole fisheries and fishing deeper to limit use of Pacific cod quota
- Turbot accounts for < 10% of gross revenues for A80 vessels that target/retain it

CDQ reserve

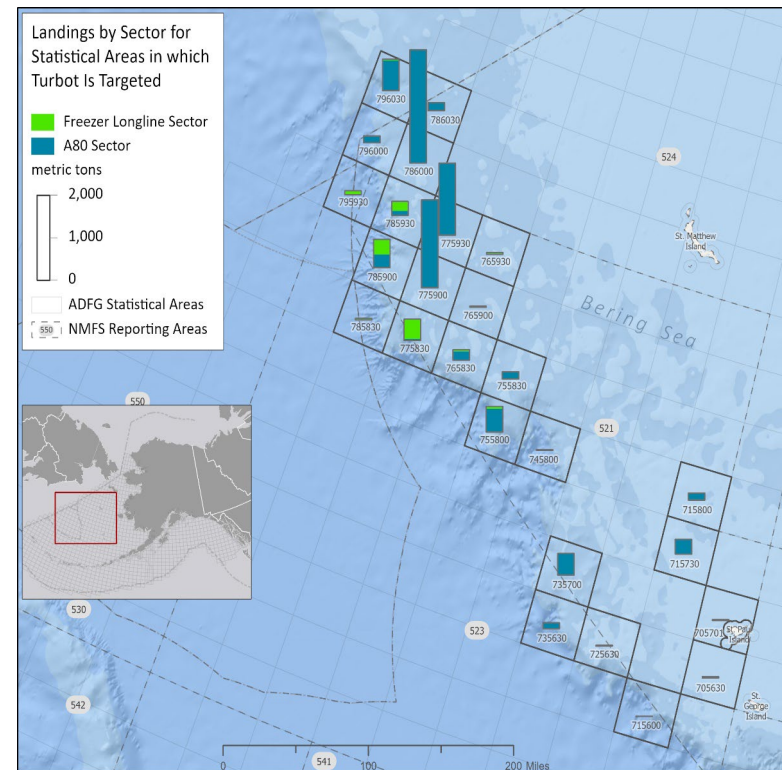
- Turbot is allocated to CDQ groups but reserve is lightly utilized aside from covering incidental catch in AFA (pollock) CP fishing



SPATIAL/TEMPORAL FISHING PATTERNS (3.3.4)

Trawl/Non-Trawl (HAL) Overlap

- Council interest in gear conflict, grounds preemption
- **Figure 3-1** shows location of catch by sector
- **Appendix** adds time/area element; low frequency of both sectors in same area*week
 - Both sectors promote communication as a core cooperative value
 - Does not account for “new entry” non-trawl participants
 - Future iteration could incorporate PIGKC gear footprint
- New gear authorization likely → experimentation in time/area/depth of fishing, but existence of inter-sector TAC agreement suggests that decisions will be based on target species distribution, markets, and – potentially – safety (re: deckloads of pot gear)
- Previous analyses of longline pot gear footprint/rotation were focused on CVs (mostly sablefish); trawl footprint is more nimble, responsive to CPUE, bycatch, presence of other gear



Cumulative catch by gear 2017-2021. Figure 3-1, p. 37



EVIDENCE OF WHALE DEPREDATION (3.4)

SURVEY EVIDENCE

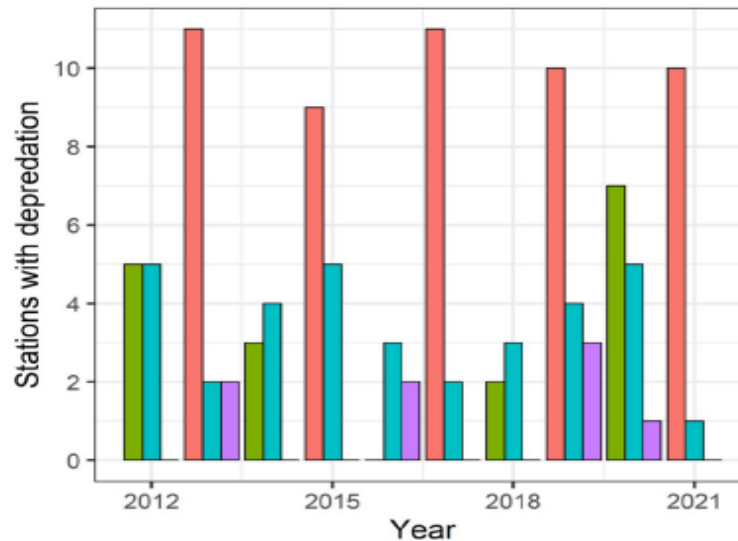


Fig. 3-8, p.54

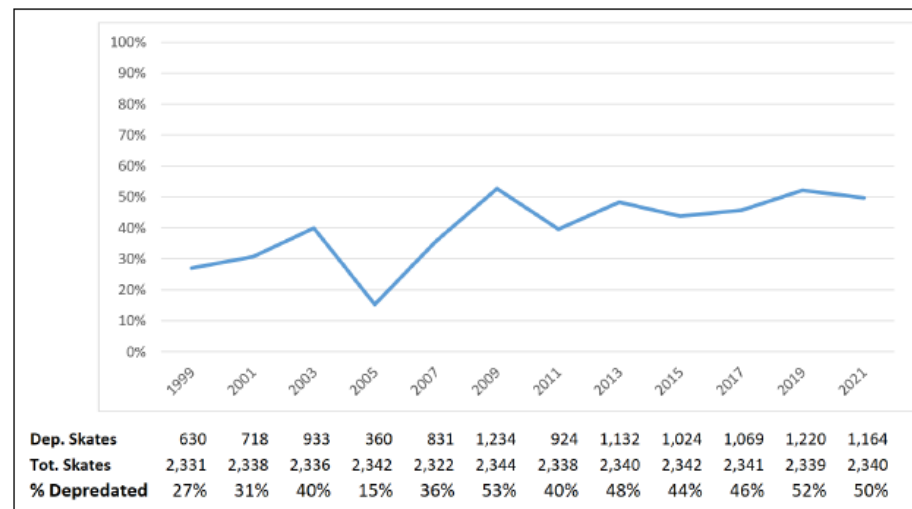


Fig. 3-9, p.54



EVIDENCE OF WHALE DEPREDATION (3.4)

FISHERY EVIDENCE

Table 3-11 Estimated frequency of killer whale depredation on Bering Sea hook-and-line CP hauls based on observer data, 2011 through 2021 (Source: NMFS FMA Division)

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total hauls	13,264	14,219	14,144	16,192	15,029	13,636	12,203	9,008	7,083	5,548	4,461
% Total haul *gear* monitored for marine mammals	25.3	23.9	23.5	24.2	24.4	21.5	22.0	20.4	17.2	18.2	17.1
#hauls feeding on catch, on discards, and/or deterred	92	100	107	92	102	209	144	102	103	79	45
<i>#hauls deterred</i>	17	29	10	2	13	37	25	24	5	13	1
<i>#hauls feeding on discards</i>	8	16	5	2	6	7	1	1	3	0	0
<i>#hauls feeding on catch</i>	83	87	98	89	84	179	137	92	99	78	44
Estimated % hauls with ≥ 1 mammal interactions	2.7	2.9	3.2	2.3	2.8	7.1	5.4	5.5	8.5	7.8	5.9

Table 3-12 Number of instances that an observer noted a species as “depredated” by killer whales during Bering Sea hook-and-line CP hauls, 2011 through 2021 (Source: NMFS FMA Division)

Species	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	%
Greenland turbot	22	39	24	12	20	68	59	49	37	26		356	32%
Kamchatka/ATF/Gturbot (unident.)	42	24	15	18	19	65	39	21	27	13	3	286	25%
Halibut	12	14	50	44	44	23	36	3	2	21	11	260	23%
Sablefish	15	10	6	6	3	8	1	12		4	30	95	8%
Flatfish (unidentified)	5	8	6	3	6	2		1	20	3		54	5%
Pacific cod	3	1	3	10	3	9	1	4	8	11		53	5%
Unidentified	1				1	7		2	5			16	1%
Other	1			1			1					3	0%
Grand Total	101	96	104	94	96	182	137	92	99	78	44	1,123	

Note: “Other” includes flathead sole, Alaska plaice, and grenadier.



COMMUNITIES & REVENUE DEPENDENCY (3.5)

- Focused on BSAI non-trawl CPs
- Community associations viewed through “homeport” → state affiliations and indications of CDQ ownership
- General downward trend in # non-trawl CPs in the BSAI, incl. pre-COVID and trade disruptions
- Most – but not all – FLC vessels report homeport and ownership address in Washington; WA vessels account for majority of non-trawl turbot revenues
- Only 2 CPs (FLC cooperative) consistently generated more than 10% of annual revenue from turbot
- Across all vessels that retained turbot, average % of annual revenue ~3%
- Spending from port calls and locally-shared State tax revenue would be largely centered around Unalaska
 - Turbot wholesale value compared to community total < 1%
 - Tax revenues compared to State total similarly low prior to end of targeting in 2021



COMPARISON OF ALTERNATIVES (4.2)

Alternative 1 (No Action)

- Baseline is either “zero value generated in non-trawl target fishery” or a loss from the *previous* status quo where 3-5 cooperatively affiliated non-trawl CPs were generating ~5% to 15% of annual gross revenues from BS Greenland turbot
- Survey and Observer data indicate that killer whale depredation is a real driving force behind lack of effort, and that a directed hook-and-line fishery is unlikely to revive (and would likely face high operating costs and low CPUE due to avoidance/depredation)
- Economic impacts localized to direct participants. Impacts more “marginal” than eliminating vessels from the fleet. Assessed in the setting of general contraction of non-trawl CP fleet.
- Potential for ongoing “stranded” turbot TAC within the non-trawl component of the FLC/A80 agreement



COMPARISON OF ALTERNATIVES (4.3)

Alternative 2

- Participation
 - Likely return to pre-2021 level; efficacy of pot gear of BS slope is relatively untested
 - Holding TAC equal – and absent major changes in PCod fishery – diminishing returns to many “new entrants” coming into the non-trawl turbot fishery (might not surpass opportunity costs)
 - EA/RIR uses proxy range of 4-9 vessels, though proposed regulations would allow for more
 - 3 drivers: opportunity cost, operational cost, market for at-sea turbot
 - Opportunity cost and operational cost would vary by participant
- Retention of non-turbot species
 - Regulations *could* create regulatory discards that still accrue to catch limits and ICAs, and could affect timing of directed fishing closures in the trawl sector
 - Likely participants would have individual incentives to minimize PCod catch
 - Large amount of PCod incidental catch is not expected
 - If retainable, hauls falling into PCod “target” and accruing to BS PCod Pot CP sector allocation is possible but unlikely (would require obvious “topping off” on a trip)



COMPARISON OF ALTERNATIVES (4.3)

Alternative 2

- Time/Location of fishing
 - Participants' options would not be constrained by regulation
 - Operationally, vessels would have more flexibility as they are not planning around whale avoidance, and might also choose to fish prior to fall weather
 - Optimal timing for Gturbot longline pot fishing is not known, thus no analysis of potential for grounds preemption. Note that both sectors are cooperatively managed and have an existing relationship via TAC-agreement
- Other effects on trawl sector
 - Risk to A80/FLC agreement is assessed as low
 - Directed fishing closure for turbot would affect retention in Kamchatka/arrowtooth targets
 - Kamchatka is the most likely A80 species to have an earlier directed fishing closure if that species occurs in GTurbot longline pots at higher rates than seen in the existing BS pot fisheries
 - Turbot ICA is set prior to annual FLC/A80 TAC agreement; uncertainty about the amount of non-trawl effort in a given year might → higher ICA, which affects the amount of TAC to be shared
 - Catch in Turbot/arrowtooth/Kamchatka targets → DFA; Catch in YFS/sole targets → ICA
 - Trawl sector would not be affected by non-target catch of Pacific cod in non-trawl sector (Am 85)



COMPARISON OF ALTERNATIVES (4.3)

Alternative 2

- OPTION: Tunnel opening restriction
 - Assumed to be a straight-forward benefit to turbot participants; data insufficient to compare turbot size between turbot HAL samples and samples from cod/sablefish pots in western BS
 - Likely provides the greatest benefit to vessels fishing deeper off the shelf
 - Few historical or likely non-trawl turbot participants have history of IFQ fishing, so incentives to co-target halibut are not a primary consideration
- Stock assessment
 - Improved precision in the assessment and less need to account for unobserved depredation mortality could benefit direct participants in the fishery by reducing management buffers, potentially allowing for more available harvest
 - Stock assessment experts cannot fully analyze the benefit without gaining a better understanding of the selectivity of longline pot gear compared to HAL gear



5.0 ENVIRONMENTAL IMPACTS

Assumptions in preparing the Environmental Assessment

- Presumed intent of action is to restore fishery participation to recent historical levels (4-9 CP Vessels)
 - No new entrants (i.e. CVs)
 - Most likely scenario is closer to four vessels
- Fishery would remain constrained by existing regulations concerning location, timing, PSC, bycatch limits, and all other accountability measures
- Fishing footprint of the fishery not expected to change
- Whale depredation will decrease



5.2 TARGET SPECIES CONSIDERATIONS

- This action could restore fishery participation and allow for a more fully utilized TAC
- Timing of the fishery could be spread more evenly across season
- Decreased threat of depredation with shift to longline pots
 - Equals less unobserved mortality
- Bottom line: Could result in more fully utilized TAC, however as unobserved mortality of Greenland turbot would be reduced, it is unclear at this stage how many additional fish would be harvested by this regulatory change vs saved from depredation
- The Greenland turbot stock is evaluated biennially



5.3 NON-TARGET SPECIES CONSIDERATIONS

- Predominant species incidentally caught in the Greenland turbot HAL fishery were Grenadier, skates, sablefish and Pacific cod
- Using sablefish pot fishery as a proxy, potential species that could be incidentally caught in a pot Greenland turbot fishery are halibut, Grenadier, arrowtooth flounder and Pacific cod
- Unclear how may affect incidental catch of sablefish and halibut, although not likely to be a significant increase from current HAL fishery
 - Sablefish at similar depths, but escape rings could mitigate catch
 - Halibut catch in BS PCod pot fisheries is generally lower than in BS PCod HAL fisheries, however is higher in sablefish pot fishery than sablefish HAL fishery
- Overall bycatch of crab species is not expected to be high



5.4 MARINE MAMMAL CONSIDERATIONS

- Species that could be impacted based on likelihood of gear interaction and temporal and spatial overlap:
 - Killer whale, humpback whale, sperm whale
- Main area of concern would be an increase in number of vertical lines due to switch to longline pots. Substantial increase in vertical lines is not likely
 - Based on historic participation, market constraints, increased efficiency in catch, possible greater temporal distribution of effort as vessels do not have to avoid peak killer whale times (i.e. less gear in the water at any one time)
- Vertical lines that remain in water would be less attractive as do not provided the opportunity to depredate. Equals reduced entanglement risk
- If vessels choose to deploy slinky pots, unknown how marine mammals will interact.



5.5 SEABIRD CONSIDERATIONS

- The main threat for seabirds from HAL gear is from baited hooks that float near the surface
 - A partial or complete fleet shift to longline pot gear (which does not pose the same threat to seabirds) would be expected to reduce seabird interactions with the directed fishery for Greenland turbot.
- The main prey for seabirds is forage fish which are not impacted/targeted by either Alternative 1 or Alternative 2.
 - Relevant for forage fish, the most recent EFH review for stocks available for analyses found that none were experiencing habitat reduction within cord EFH that was more than minimal or not temporary



6.1 MONITORING

- CP vessels in the BSAI are typically in the “full coverage category”
 - NMFS will consider if existing monitoring requirements are sufficient depending on the scope of the action
- Observer access to unsorted catch
 - Currently, 5 FLCC vessels are set up to fish both pots and HAL
 - Additional vessels that wish to fish both gear types may incur costs
- Catch accounting
 - CPs must report catch, Daily Production Reports and landing reports by gear type
 - If CVs fished, would need to create two landing reports at the end of each trip
 - No vessel may fish pots and HAL on same set, may fish both on same trip



6.2 MANAGEMENT

- Not expected to alter many aspects of management including:
 - Location, timing, PSC, bycatch and accountability measures
- Will require a change to regulations at §679.24 to allow an exemption for longline pot gear while directed fishing for Greenland turbot in the BS
- Under Option 1, under Alternative 2 would require a change to regulations at §679.2 to allow for an exemption to the maximum tunnel opening



6.3 ENFORCEMENT

- Gear Preferences
 - No specific preference, prefer regulatory language that is less restrictive/prescriptive and consistent between fisheries.
- Option 1
 - No concerns with removing the 9-inch tunnel opening requirement. Prefer, consistency between fisheries.
 - However, if a vessel does not possess halibut IFQ onboard then the 9-inch maximum tunnel restriction would apply.
- Halibut and Sablefish
 - A vessel targeting Greenland turbot that possesses halibut or sablefish IFQ would be required to retain, up to amount of quota, during IFQ season.
 - Retention of groundfish, other than turbot under the proposed action, would be prohibited for longline pots in BS



AP MOTION

- Modified Alt. 2 to restrict gear authorization to “vessels in the HAL CP sector”
- Modified P&N to:
 - Identify potential disruption to “historic and current participants in the HAL CP and the Am. 80 sectors”
 - Define intent of the action as “allow[ing] harvest by active participants”

