

SUBMISSION TO THE
NUNAVUT WILDLIFE MANAGEMENT BOARD
FOR

Information:

Decision: X

Issue: Proposed Changes for Shrimp Fishery Management in the North for Northern (*Pandalus borealis*) and Striped (*Pandalus montagui*) Shrimp

Background

Currently, there is a complex management regime for the northern shrimp fishery. Existing Shrimp Fishing Area boundaries overlap the settlement boundaries set out in the Nunavut, Nunavik Inuit and Labrador Inuit Land Claims Agreements (Figures 2 and 3). For example, the *P. montagui* fishery takes place in Shrimp Fishing Areas 2, 3 and 4 west of 63°W which includes parts of the Nunavut Settlement Area (NSA), the Nunavik Marine Region (NMR) and the Labrador Inuit Settlement Area (LISA).

In addition, current management units and quotas established for shrimp species *P.borealis* and *P.montagui* overlap shrimp fishing areas and science assessment zones (see Figures 2 and 3).

In 2008 and subsequent assessments, DFO Science identified a conservation issue resulting from the additional and increased quotas in the Resolution Island area. Under the current management regime, all existing quotas for the *P. montagui* species can be taken in the Resolution Island area resulting in a mean potential exploitation (i.e. harvest) rate of 62% (the potential exploitation rate for 2011/12 was 84%). These rates are significantly higher than the exploitation rate generally recommended for healthy shrimp stocks in the rest of eastern Canada, which is around 15%. DFO Science has recommended that the total allowable catch (TAC) for *P. montagui* be reduced since such a potential exploitation rate poses a high risk for stock decline. Additionally, Marine Stewardship Council (MSC) assessment of the *P. montagui* fishery reiterated the sustainability concerns for *P. montagui* and the need to address the management complexities noted above. MSC certification is a market access tool which is increasing being demanded by buyers of wild-caught seafood.

A proposal was brought forward from industry in 2010 to address these management and conservation concerns. This proposal was refined by DFO to incorporate associated management issues and then further developed in consultation with stakeholders including Nunavut industry representatives, staff from the Nunavut Wildlife Management Board (NWMB), the Government of Nunavut (GN), and Nunavut Tunngavik Incorporated (NTI) as well as Nunavik and Labrador Inuit interests.

Under the proposal, Shrimp Fishing Area boundaries would align with the Nunavut Settlement Area, the Nunavik Marine Region and the science survey assessment zone boundaries. New management units within these Shrimp Fishing Areas address conservation concerns for *P. montagui* in the Resolution Island area and eliminate overlapping management units and quotas. In addition, new/increased quotas would be introduced in Hudson Strait.

Consultations with all stakeholders have indicated that management changes to the shrimp fishery in the north are supported and necessary. Both Nunavut and Nunavik interests have indicated that sharing arrangements of the recommended Total Allowable Catch levels for both *P. montagui* and *P. borealis* for Nunavut and Nunavik should be negotiated between Nunavut Tunngavik Incorporated (NTI) and Makivik Corporation. Consultation with stakeholders on the management regime for these mixed fisheries continues. However stakeholders have indicated that discussions on the operational management of the fishery do not need to be finalized before the management boundaries and harvest levels are set.

1. Boundary Changes

The scientific data required to assess the status of both shrimp species come from two research survey time series that have been conducted in the area. The data from the two surveys cannot be combined so two science assessment zones (Figure 1) have been established to assess the status of *P. montagui* and *P. borealis* in each of these two zones. Under the proposal, to simplify management of the fishery, three new Shrimp Fishing Areas would be created and aligned with settlement area boundaries and the science survey assessment zones (Figure 4). New management units would be created within these Shrimp Fishing Areas to distribute fishing effort. Each management unit would have only one quota each for *P. montagui* and *P. borealis* (Figure 5). This eliminates overlapping management units for both species, and simplifies the management of the fisheries by aligning Shrimp Fishing Area (SFA) boundaries with settlement area boundaries.

Fisheries and Oceans is seeking:

A) NWMB decisions and recommendations (as applicable under the NLCA) regarding the proposed Shrimp Fishing Area and management unit boundary changes (Please refer to Figures 4 and 5):

i. SFA DS (Figure 4 blue area) = that portion of NAFO Division 0B north of 61°N outside the Nunavut Settlement Area and Nunavik Marine Region and including that portion of NAFO Division 2G west of 63°W and north of 60°30'N. The only changes would be to align the western edge with the Nunavik Marine Region and align the southern edge in 2G with the Eastern Assessment Zone at 60°30'N.

ii. SFA NU (Figure 4 yellow area) = that portion of Hudson Strait east of 70°W and NAFO Division 0B that is inside the Nunavut Settlement Area. SFA NU would be further divided into management units to distribute fishing effort for both species. Management Unit NU E = that portion east of 66°W inside the NSA. Management Unit NU W = that portion west of 66°W inside the NSA to 70°W.

iii. SFA NK (Figure 4 green area) = that portion of Hudson Strait east of 70°W and within the Nunavik Marine Region. SFA NK would be further divided into management units to distribute fishing effort for both species. Management Unit NK E = that portion east of 66°W inside the NMR and north of 60°30'N. Management Unit NK W = that portion west of 66°W inside the NMR to 70°W.

2. Harvest levels

The harvest levels proposed herein are to be considered in conjunction with the proposed management boundaries and would need to be re-examined should the management boundaries proposed not be adopted.

Under this proposal, existing quotas will be replaced by TACs for each species *P. borealis* and *P. montagui*, within each of the two science assessment zones (Eastern and Western Assessment Zones). Based on sharing arrangements of the recommended TACs yet to be determined, each TAC will then be divided into quotas for each relevant management unit. There will be reduction of some quotas in the eastern zone but these are offset by new/increased quotas introduced in the western zone (Hudson Strait) for *P. montagui* and *P. borealis*.

The proposed harvest levels for both species *P. montagui* and *P. borealis* are based on science survey assessments conducted prior to the current 2012 Science Response Report update and have not been changed to maintain consistency with previous presentations and avoid confusion.

It should be noted that TACs may have to be adjusted in the future as a result of the 2012 update and any future assessments. The 2011 Science Advisory Reports and the 2012 Science Response Report are attached for reference.

2.1 Harvest Level for *P. montagui* in Resolution Island Area.

Currently, the combined quotas for *P. montagui* prosecuted in the Eastern Assessment Zone produce a Total Allowable Catch (TAC) of 6,300t (as shown in Figure 3). This TAC results in a potential exploitation rate of 84% for 2011 and a mean potential exploitation rate of 62% for the period 2008-2011. To address conservation concerns of potential over harvest, it is proposed that the TAC be reduced to 2,250t based on an exploitation rate of 15%.

Note that to reach the sustainable exploitation rate of 15%, the offshore fleet has proposed to reduce its *P. montagui* harvest outside the NSA (DS –W) from a directed 3,300t quota to 1,100t under a by catch quota regime with the remaining 1150t designated for the directed fishery within the NU/NK E management units.

The offshore fleet considers a by-catch amount of 1100t a level required to prosecute their directed *P. borealis* quota of 5250t in DS W.

2.2 Harvest Level for *P. borealis* in Resolution Island Area

The *P. borealis* by-catch quota associated with the *P. montagui* fishery will be reduced from the current 400t for SFA 3 and 2 inside the NSA to 250t for management units NU/NK E. The *P. borealis* has been prorated to the reduction of *P. montagui* quota in these same management units.

Note that there would be no change in the *P. borealis* quota of 5250t in DS-W which is currently accessible to the offshore fleet.

2.3 Harvest Level for *P. montagui* in Hudson Strait

A TAC of 5,000t for *P. montagui* in management units NU/NK W is proposed and is based on a lower, more precautionary, target exploitation rate of 10% given the limited number of science surveys (2) in the Western Assessment Zone.

2.4 Harvest Level for *P. borealis* in Hudson Strait

A TAC of 1,5,00t for *P. borealis* in management units NU/NK W is proposed and is based on a lower, more precautionary, target exploitation rate of 10% given the limited number of science surveys (2) in the Western Assessment Zone.

Fisheries and Oceans is seeking:

- A) NWMB decision and recommendations (as applicable under the NLCA) on the proposed TAC level and exploitation rate for *P. montagui* in the Eastern Assessment Zone (ie NU/NK E plus DS W).
- B) NWMB decision and recommendations (as applicable under the NLCA) on the proposed 250t *P. borealis* by-catch quota for management units NU/NK E.
- C) NWMB decision and recommendation (as applicable under the NLCA) on the proposed TAC level and exploitation rate for *P. montagui* in the Western Assessment Zone (i.e. NU/NK W).
- D) NWMB decision and recommendation (as applicable under the NLCA) on the proposed TAC level and exploitation rates for *P. borealis* in the Western Assessment Zone (i.e. NU/NK W).
- E) A decision on harvest levels in the NSA for each shrimp species in each management unit (ie: NU/NK E and W). It is recognized that both Nunavut and Nunavik interests have indicated that sharing arrangements should be negotiated between NTI and Makivik for this purpose, and that the NWMB is seeking for submissions from NTI and Makivik on this matter.
- F) NWMB decision and recommendation (as applicable under the NLCA) on the management regime (directed vs. by-catch) for the *P. borealis* species in the Western Assessment Zone (i.e. NU/NK W).
- G) NWMB recommendation (as applicable under the NLCA) regarding the offshore fleet's proposal to reduce its *P. montagui* quota outside the NSA (DS -W) to from 3,300t quota to 1,100t under a potential by-catch regime.

The following tables summarize the proposed changes:

Table 1. Current and proposed quotas for *Pandalus borealis* within the Nunavut and Nunavik settlement areas by sector and management unit.

Sector	Current Regime			Proposed Regime				
	Quota(t) by Management Unit			TAC(t) by Management Unit		Quota(t) by Management Unit		Total
	SFA3	SFA2 W of 63°W	Total	Nunavut- West (NU-W)	Nunavik- West (NK-W)	Nunavut- East (NU- E)	Nunavik- East (NK-E)	
Nunavut	400 ¹		400	1500 ²		250 ²		1750
Nunavik								
¹ 400t bycatch allowed in SFA3 and SFA2 inside the NSA when fishing for <i>P. montagui</i>				² Split and management regime to prosecute the quota to be determined.				

Table 2. Current and proposed quotas for *P. montagui* within the Nunavut and Nunavik settlement areas by sector and management unit.

Sector	Current Regime				Proposed Regime				
	Quota(t) by Management Unit				TAC(t) by Management Unit				
	2,3,4 W of 63°W	SFA3	SFA2 inside the NSA	Total	NU-W	NK-W	NU-E	NK-E	Total
Nunavut	0	1000 ¹		3000	5000 ²		1150 ²		6150 ²
			2000						
Nunavik	0	0	0	0					
¹ 1000t allowed in SFA3 and SFA2 inside the NSA of which a maximum of 500t can be fished in SFA2					² Split to be determined.				

Table 3. Current and proposed quotas for *P. montagui* and *P. borealis* outside the Nunavut and Nunavik settlement areas.

Sector	Species	Current Regime Quota (t)	Proposed Regime
Offshore	<i>P. borealis</i> *	5250	5250
Offshore	<i>P. montagui</i> **	3300	1100

*No change to *P. borealis* quota in Davis Strait West.

** Management regime for the *P. montagui* quota in management unit DS W to be determined.

Note that Davis Strait-East (SFA 2EX) *P. borealis* quotas would remain unchanged. The 3,500t TAC is currently divided between Nunavut (1750t) and the offshore fleet (1750t).

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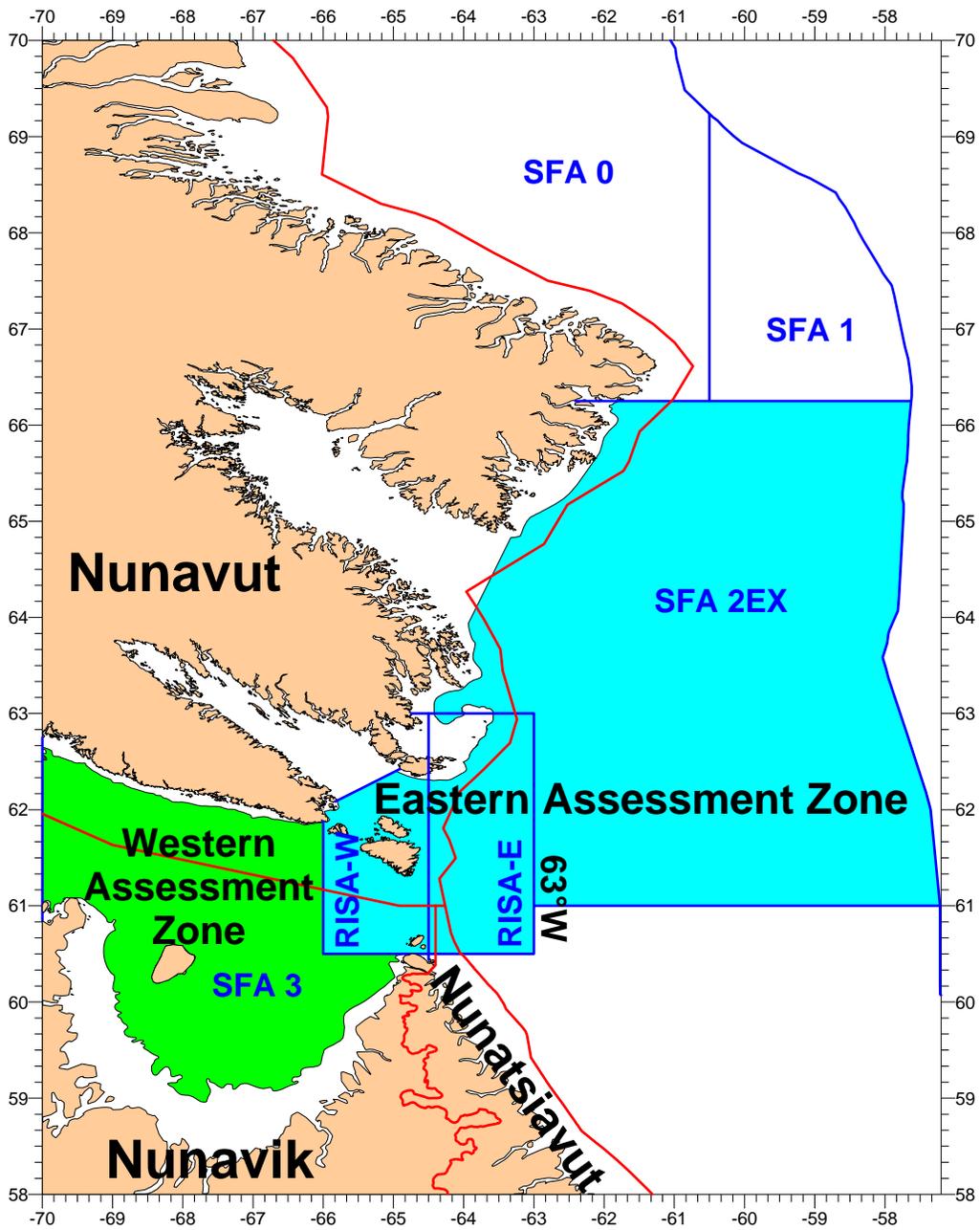


Figure 1: Two science surveys are conducted in the north using different ships and trawl gear. These surveys provide biomass, distribution and other data required to assess both shrimp populations.

**Current Quota Areas
*Pandalus borealis***

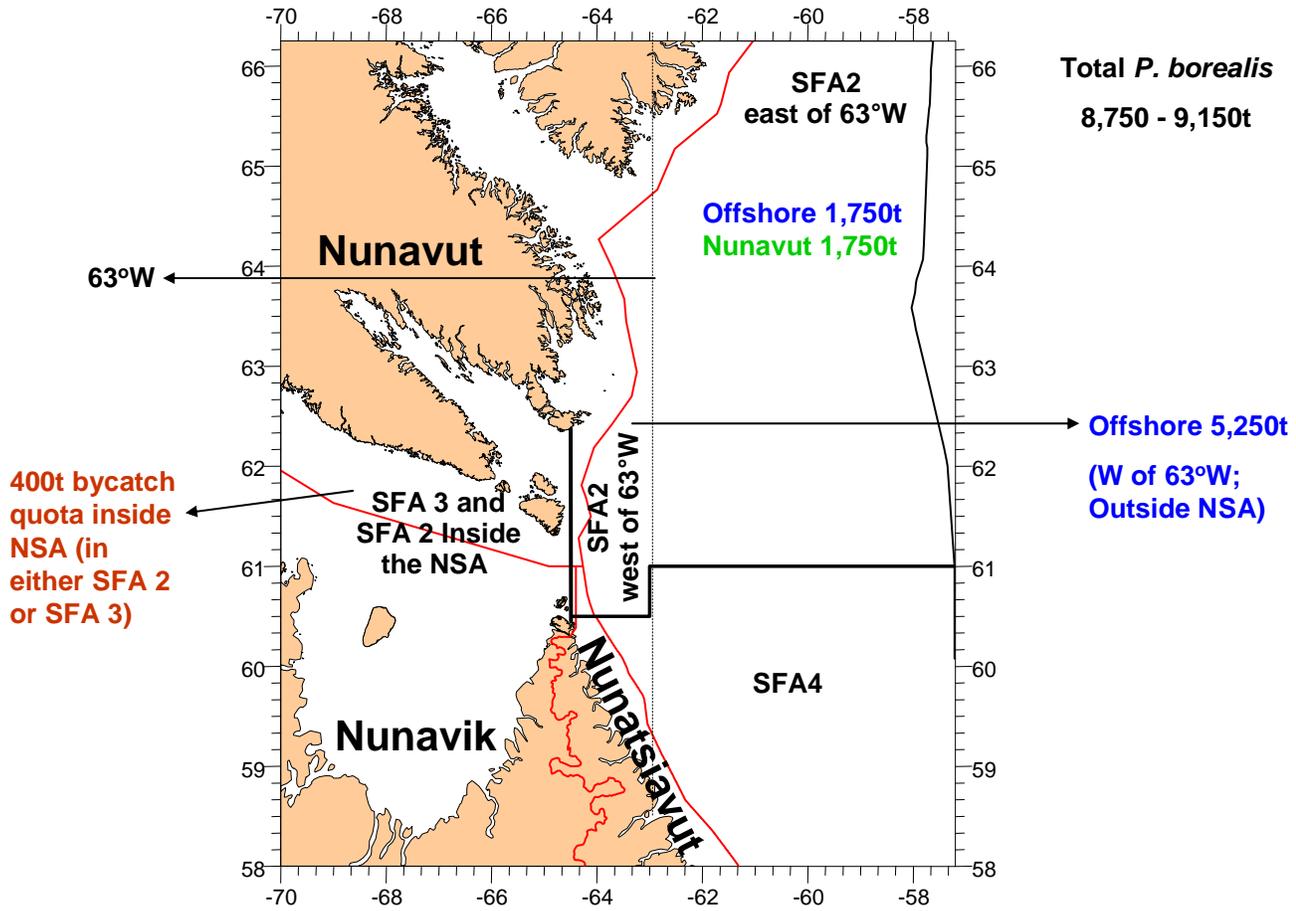


Figure 2. Current Quota Areas for *Pandalus borealis*.

Current Quota Areas *Pandalus montagui*

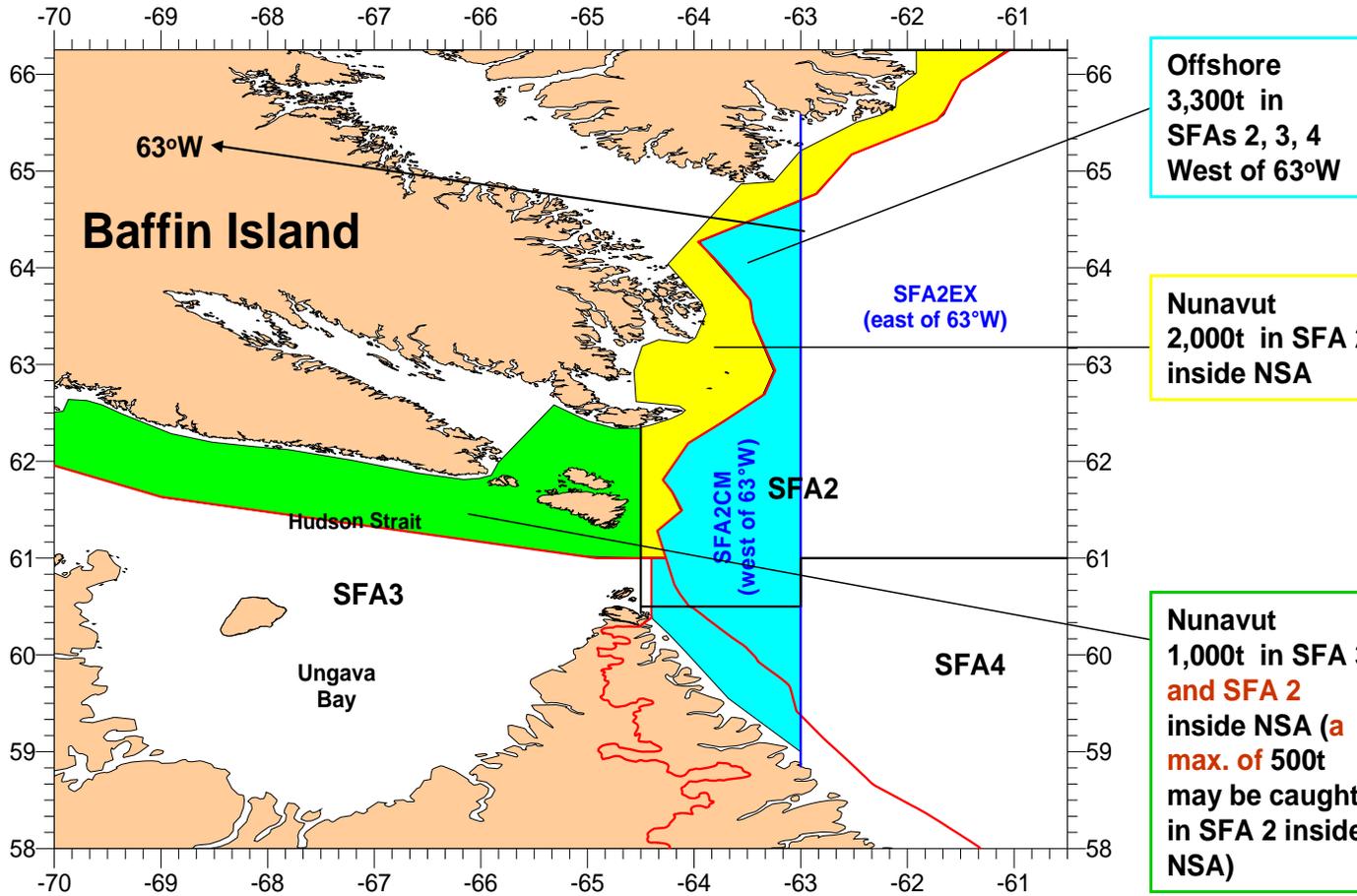


Figure 3. Current Quota Areas for *Pandalus montagui*.

Proposed Shrimp Fishing Areas

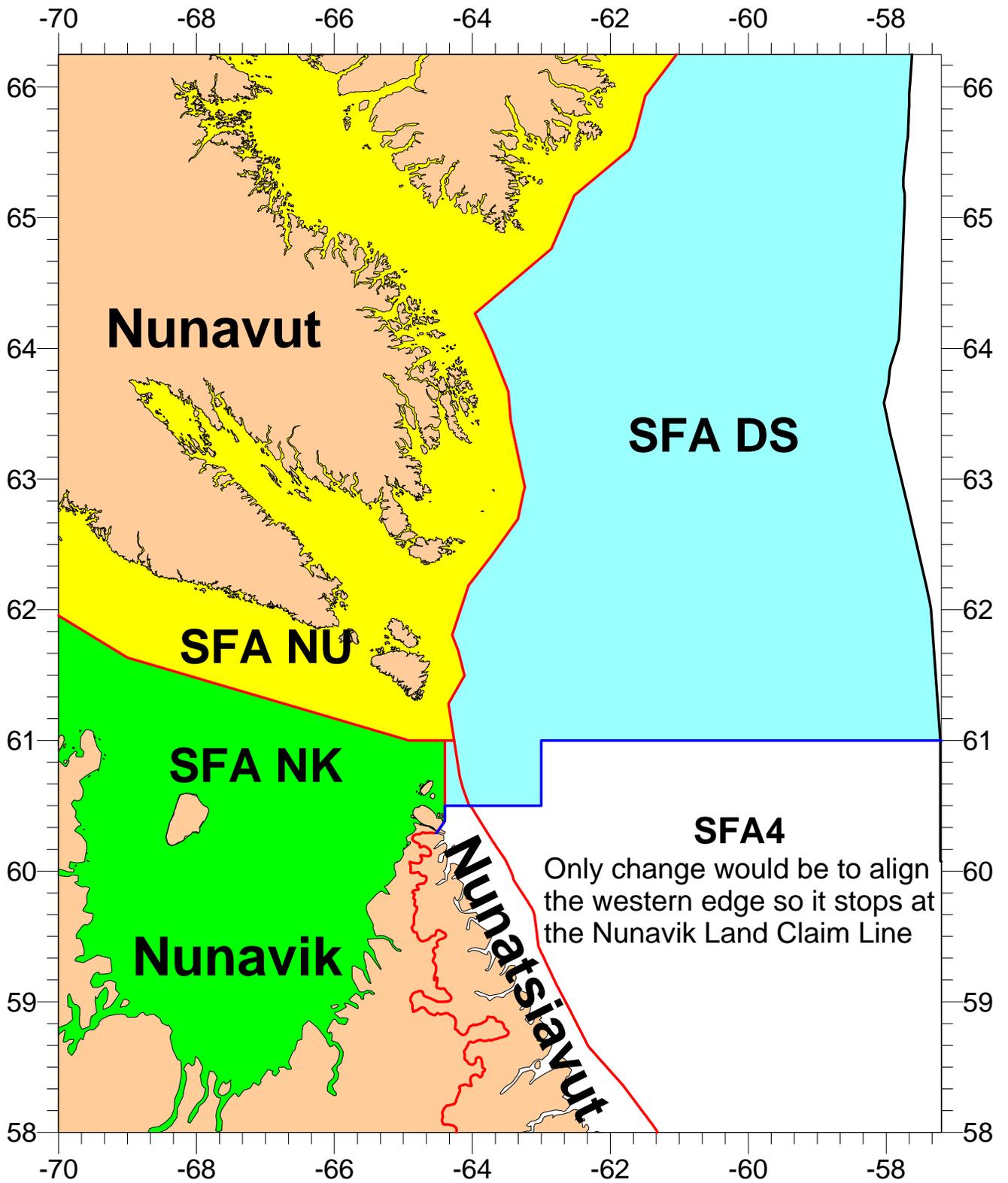


Figure 4. Proposed Shrimp Fishing Areas.

Proposed Management Units within the New SFAs

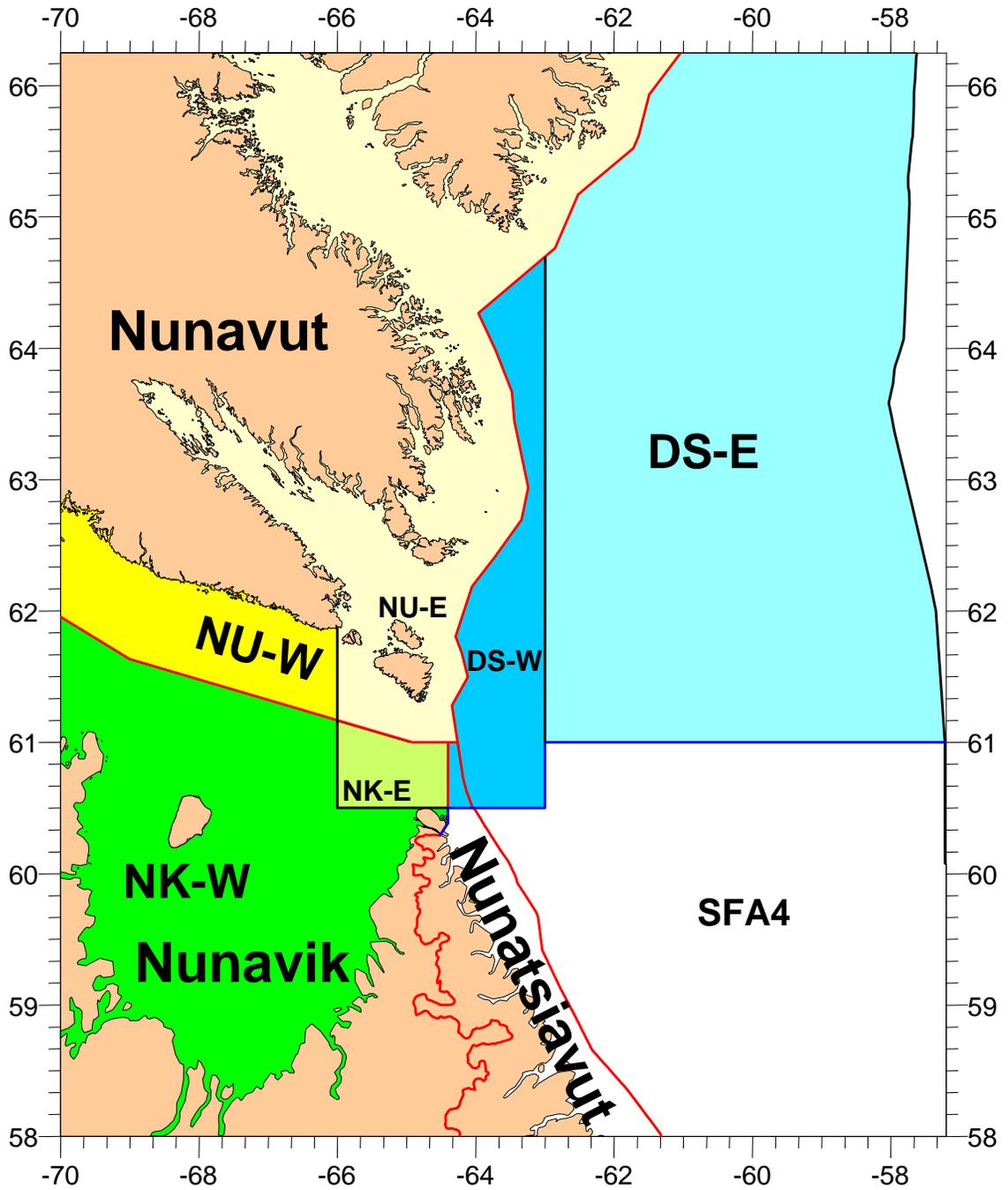


Figure 5. Proposed Management Units within the New SFAs.