

**SUBMISSION TO THE**  
**NUNAVUT WILDLIFE MANAGEMENT BOARD AND NUNAVIK MARINE**  
**REGION WILDLIFE BOARD**  
**FOR**

**Information:**

**Decision: X**

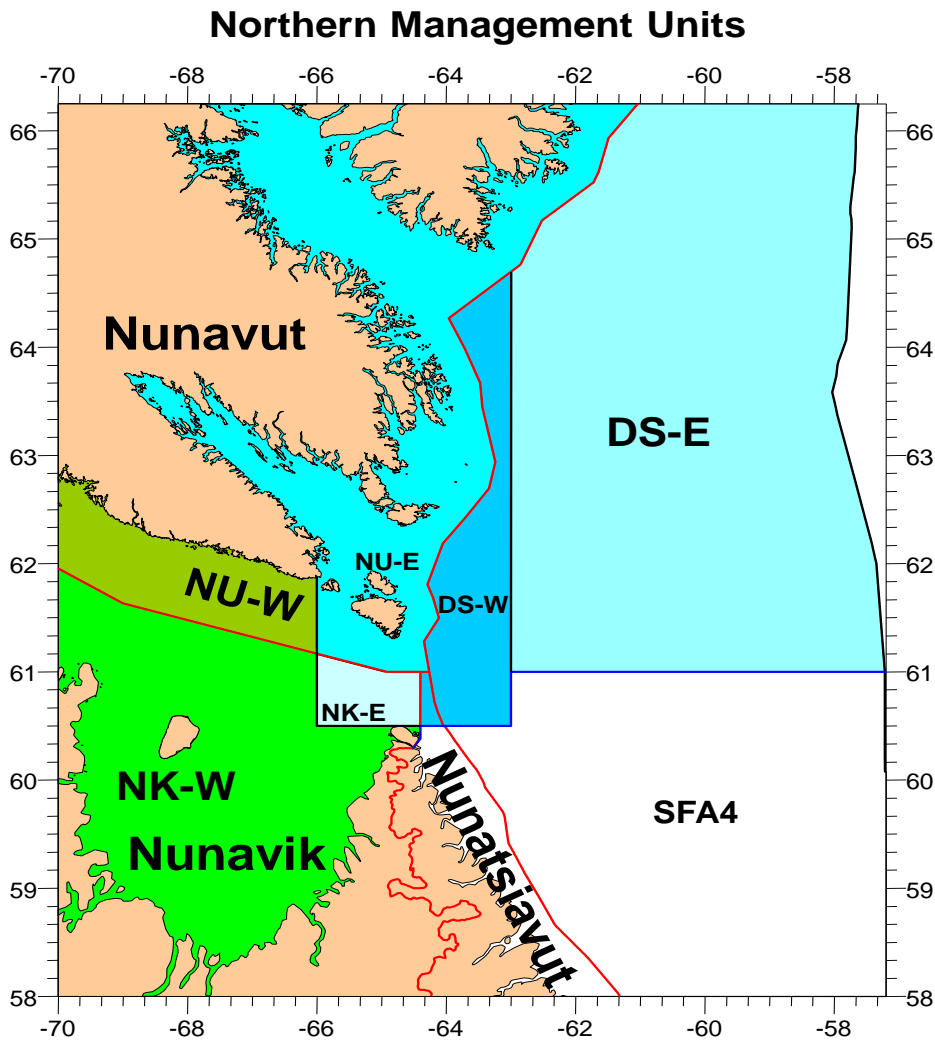
**Recommendation: X**

**Issue: Revisiting Total Allowable Catch levels for Northern (*Pandalus borealis*) and Striped (*Pandalus montagui*) Shrimp for the 2018/19 season**

**Map:**

Blue areas – Eastern Assessment Zone.

Green areas – Western Assessment Zone.



## Background

The Department submitted a Briefing Note to the Nunavut Wildlife Management Board and the Nunavik Marine Region Wildlife Board in early February 2018 for their joint decisions and recommendations on two species of shrimp in the Western and Eastern Assessment Zones. The Science results from the 2017 multi species survey that will inform the 2018/19 Total Allowable Catches were not available at the time of submission.

The Department indicated it would return to the Boards to should the Science results indicate a precipitous change in fishable biomass for either species in either zone. The Boards agreed that any change greater than 25% would be considered precipitous.

The results of the 2017 Science survey have been received and indicate precipitous changes in fishable biomass for montagui (increase of 42%) in the WAZ. Of note, fishable biomass for borealis in the WAZ decreased by 20% which is not considered precipitous, however the resulting exploitation rate (ER) could be significant. The fishable biomass for montagui in the EAZ increased precipitously by 44%, and EAZ borealis declined by 40.2%.

The results of the Science update (a full assessment will be undertaken next year) submitted through this Addendum will provide the Boards with additional information relevant to recommendations and decisions for the Minister for the 2018/19 fishery.

At the time this Addendum was submitted, the Science Advisory Report has not yet been approved in its entirety. However, the conclusion “bullets” for each species have been approved and can be found at ANNEX A. The Department will send a copy of the full Science Report once it is available.

## **Western Assessment Zone – For Decision**

### Key Background Points

A new science survey in the WAZ was undertaken beginning in 2014. Consequently, the time series for this assessment zone is reset with the 2017 survey representing year four. Science advises that at least 3 – 5 reliable points on the time series are required to responsibly make any decisions to modify the TAC. As per the 2017 survey, borealis in the WAZ has decreased by 20% and montagui has increased by 42% in the past year.

As agreed by the Boards and supported by affected stakeholders, an ER of around 10% was applied to both stocks in the WAZ from 2013 – 2016. In 2017, TACs for borealis (2,080t) and montagui (6,138t) were rolled over resulting in ERs of 15.9% and 19.3% respectively.

Despite the absence of a precipitous change in fishable biomass for borealis in the WAZ, the Department is providing the Boards with recent Science results and potential implications for the TAC, in that a rollover would result in an ER of 19.8%, should the Boards wish to reconsider the original submission. By way of reminder, the Department recommended that the ERs for both species in the WAZ be established at 15%. However, the Department indicated to the Boards that maintaining the current TACs is a reasonable option, considering the current data point represents year four of the time series. Upon

receiving the fifth data point next year, the Boards could take the decision to modify the TAC(s) at that time.

### **WAZ Borealis**

- The 2017/18 TAC was 2,080t and the ER was 15.9%.
- The stock decreased for the second consecutive year, (54% in 2016; 20% in 2017).
- A rollover of the current borealis TAC of 2,080t would result in an ER of 19.8%, up from the 15.9% ER established for the 2017/18 fishery.
- Maintaining last year's ER of 15.9% would result in a TAC of 1,667t.
- Applying a 15% ER would result in a TAC of 1,573t.

### **WAZ Montagu**

- The 2017/18 TAC was 6,138t and the ER was 19.3%.
- The stock increased by 42%, following a decrease of 42.5% in 2016.
- A rollover of the current montagu TAC of 6,138t would result in an ER of 13.7%, down from the 19.3% ER established for the 2017/18 fishery.
- Maintaining last year's ER of 19.3% would result in a TAC of 8,669t.
- Applying a 15% ER would result in a TAC of 6,737t.

Considering the minimum number of data points have been established, the Boards' could consider changing the TACs, or maintain them and gather one more year of additional information before considering any modifications.

### **TAC Options (unchanged from original Briefing Note):**

Option 1: Maintain both TACs at current levels, resulting in an ER of 19.8% for borealis and 13.7% for montagu. Changes to TACs could be considered next year.

Option 2: Rollover both TACs provided that last year's ERs are not exceeded (15.9% for borealis and 19.3% for montagu), which would result in TACs of 1,667t (15.9% ER) and 6,138t (13.7% ER) respectively)

Option 3: (**Recommended**): Establish ERs for both species at 15%, which would result in a decreased TAC for borealis (1,573t) and an increased TAC for montagu (6,737t).

### **Recommendation for the WAZ:**

A rollover of the TACs will result in a high ER for borealis in an area typically managed at 10%. Despite the four years of collected data points, a trend of the fishable biomass index cannot be identified for these stocks. However, it is reasonable to consider precautionary responses to observed precipitous declines, given that the fishable biomass for borealis is down 52% from the first point in the survey. The Department is of the view that the most reasonable way forward to ensure that shrimp harvesting inside the settlement areas remain within sustainable catch levels is to establish both ERs in the WAZ at 15%, which will result in a slight net increase (92t) of shrimp. This action is a precautionary response as an additional data point will be collected, and is unlikely to raise any conservation concerns despite the resulting ERs being above 10%. The Department reiterates that rolling over the TACs is also a reasonable option for one more

year. Modifications to fishing pressure for both species may be a necessary outcome following the collection of an additional survey point next year.

### **Eastern Assessment Zone Montagui – For Recommendation**

The EAZ falls both within and outside the NSA/NMR. This stock has been managed at an ER in the order of 15%. The 2017 science survey results indicate precipitous changes in fishable biomass for both species in the EAZ.

#### **EAZ Montagui**

Since 2012, the montagui resource has alternated between the Healthy and Cautious Zone of the PA framework, while the fishable biomass has fluctuated precipitously (up and down) every year since 2012. The status of the resource within the IFMP PA framework continues to be uncertain because of the wide fluctuations in the female SSB index, despite two consecutive years of increases and it's positioning in the Healthy Zone. The TAC for this stock has been 840t since 2014. Since this time, the fishable biomass has ranged between a low of 3,534t and 16,600t, with the current fishable biomass at 24,957t.

- The 2017/18 TAC was 840t and the ER was 6.1%.
- The fishable biomass increased precipitously for the second consecutive year (44% in 2017, 124.7% in 2016)
- A rollover of the current TAC (840t) would result in an ER of 3.37%, a decrease from the 6.1% ER last year.
- Applying a 15% increase would equal a TAC of 966t, resulting in an ER of 3.9%.

#### **EAZ Montagui TAC 2018/19:**

Option 1 (**Recommended**): The Boards could consider a precautionary 15% increase to the montagui TAC, resulting in a TAC of 966t and an ER of 3.9%

Option 2: The Boards could consider maintaining the 840t TAC (3.4% ER)

### **Eastern Assessment Zone – Borealis**

The Science update results indicate a precipitous decline (40.2%) in borealis fishable biomass (the lowest level in the time series) following a 17% decline last year. It remains in the Healthy Zone of the PA framework. This stock has been certified as sustainable by the Marine Stewardship Council (MSC). Establishing an ER greater than 20% for a declining stock could potentially jeopardize continued MSC certification, despite its positioning in the Healthy Zone.

- The 2017/18 TAC was 9,488t and the ER was 14.5%
- The TAC for this stock has been 9,488t since 2016/17. A rollover of TAC would result in an ER of 24.2%.
- A 15% reduction in TAC would result in a TAC of 8,065t (20.6% ER).
- A 20% ER would result in a TAC of 7,840t (17.36% decrease in TAC).
- A 15% ER would result in a TAC of 5,880t (38% decrease).

## **TAC Options for EAZ Borealis**

Option 1: Reduce the TAC by 15% to 8,065t, resulting in an ER of 20.6%.

Option 2 (**Recommended**): Establish the ER at 20%, resulting in a TAC of 7,840t.

### **Northern Shrimp Advisory Committee**

The Northern Shrimp Advisory Committee (NSAC) will meet on March 7, 2018. At this meeting, the Department will consult with the offshore fleet on TACs in the EAZ, which has allocations for both species in Davis Strait in the EAZ, and with relevant Nunavut and Nunavik industry on TACs in the WAZ. NSAC will be informed of the options and recommendations presented to the Boards for both species in both areas.

### **Interim Allocations**

Should a final decision on TACs not be taken by the time fishing in the WAZ or EAZ is possible after the April 1<sup>st</sup> opening of the fishery, the Department requests that the Boards authorize the release of interim NU / NK allocations at 50% of 2017/18 levels. This will allow fishing activity to begin in a timely manner to ensure a successful shrimp fishing season while the decision making process is underway.

### **Summary of Request**

Considering this, the Department is seeking from the Board for the 2018/19 fishery:

- 1) Concurrence to establish the overall TACs based on a 15% ER for both species in the WAZ (Option 3), considering fluctuations in fishable biomass in recent years and that one more survey point in the time series will better inform the TACs (annex b).
- 2) A recommendation on TACs for both species in the EAZ considering information provided in the original Briefing Note and this Addendum (annex b); and
- 3) By way of reminder and for ease of reference, as per the original Briefing Note to the Boards, the Department requests a decision on sharing arrangements:
  - a) Decision on sharing arrangements for Nunavut and Nunavik in the WAZ
  - b) Decision on sharing arrangements for NU/NK East management units
  - c) Recommendations on distribution of EAZ TAC between the NU/NK East and offshore Davis Strait management units

**Prepared by: Ecosystems and Fisheries Management, Fisheries and Oceans Canada**

**Date:** February 21, 2018

## **ANNEX A - Assessment of Northern Shrimp and Striped Shrimp in the Eastern and Western Assessment Zones (2017 Survey) - CONCLUSIONS February 2018**

### **Eastern Assessment Zone (EAZ)**

#### ***Pandalus borealis***

- Currently, the *Pandalus borealis* resource is in the Healthy Zone of the Precautionary Approach Framework.
- In 2017, the fishable biomass and female spawning stock biomass indices recorded large declines and both are at the lowest level since the time series began.
- The potential Exploitation Rate (ER) index for 2017/18 is 24.2%. That is well above both the long term mean of the potential ER (14.3%) and the 15% harvest rate goal for the EAZ.

#### ***Pandalus montagui***

- *Pandalus montagui* biomass indices have fluctuated widely in the past, adding to the uncertainty about the status of the stock in the EAZ.
- Following this year's increase in the biomass, the *Pandalus montagui* resource is currently in the Healthy Zone of the Precautionary Approach Framework.
- The potential exploitation rate index if the TAC is taken in 2017/18 would be 3.4%.

### **Western Assessment Zone (WAZ)**

#### ***Pandalus borealis***

- The status of the stock is currently uncertain, as there is no Precautionary Approach Framework for *Pandalus borealis* in the WAZ.
- Both the fishable biomass and female spawning stock biomass indices recorded declines and are at the lowest levels of the time series.
- The reported exploitation rate index for 2017/18 is about 4%. The current TAC equates to a potential exploitation rate index of about 20%. Historical records show that the entire TAC for this stock has rarely been taken.

#### ***Pandalus montagui***

- The status of the stock is currently uncertain, as there is no Precautionary Approach Framework for *Pandalus montagui* in the WAZ.
- Both the fishable biomass and female spawning stock biomass indices increased from 2016 to 2017.
- The reported exploitation rate index for 2017/18 is 11.5%; the potential exploitation rate index for 2017/18 is 13.7%.

## ANNEX B – Table of 2018 TAC Recommendations

	Montagui			Borealis		
	TAC	% change in TAC	ER	TAC	% change in TAC	ER
EAZ	966t	+15% (+126t)	3.9%	7,840t	-17.4% (-1,648t)	20%
WAZ	6,737t	+ 9.8% (+599t)	15%	1,573t	-24.4% (-507t)	15%