

***Illex* fishery initiative to engage in applied science &  
The Northern shortfin squid population ecology & the fishery  
Summit (November 25-26, 2019 Wakefield, Rhode Island)**



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Hosted by the North East US Northern Shortfin Squid Fishery represented by Seafreeze Ltd., Lund's Fisheries, The Town Dock, F/V Jason and Danielle, F/V Retriever, F/V Dyrsten, F/V Prevail, F/V Darana R.

Sponsored by Seafreeze Ltd., Lund's Fisheries, The Town Dock, F/V Jason and Danielle, F/V Retriever, F/V Dyrsten, F/V Prevail, F/V Darana R., NOAA/Northeast Fisheries Science Center, Cooperative Research Program

Summit and report prepared for North East US Northern Shortfin Squid Fishery by  
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Open Ocean Research

# ***Illex* fishing Industry initiative for constructive engagement in science & management process**

## **Problem (2 part):**

- 1) Industry believes uncertainties in stock status have produced inflexible fisheries management & early US fishing season closures in face of persistent & increasing availability of squid.
- 2) Groups with agency in applied fishery science & policy not engaging industry as full partners in science process despite acknowledging that industry-science collaboration is required

**Solution:** Form industry consortium: (*Seafreeze Ltd., Lund's Fisheries, The Town Dock, F/V Jason and Danielle, F/V Retriever, F/V Dyrsten, F/V Prevail, F/V Darana R*). Hire OpenOcean Research (*J Manderson*) as consultant to help try to replicate collaborative approach used for Atlantic butterfish, Mackerel assessments in 2014 & 2018

## **Strategy:**

1. Develop summit of industry, science and policy experts with agency in fishery system\*
  1. Discuss known knowns, known unknowns and unknown unknowns about *Illex* population ecology and the fishery.
  2. Outline research products that could reduce uncertainty & have near term impact
    1. Obtain clear understanding of process & deadlines required for impact
2. Collaborate (with NEFSC COOP) to complete outline products by deadlines

\* NEFSC Cooperative Research Branch provided support

# Northern shortfin squid (*Illex Illecebrosus*) population ecology & the fishery Summit, November 25-26, 2019 Wakefield, Rhode Island

Last Name	Expertise	Company/Institution
Almeida, K.	Fishery-Government Relations	The Towndock
Anoushian,W	Fishery Policy	NOAA GARFO
Axelson, L	Fisherman Ecologist	FV Dyrsten, Axelson & Sons
Axelson, S	Fisherman Ecologist	FV Flicka Axelson & Sons
Bright, B	Fisherman Ecologist	FV Retriever
Christel, D	Fishery Policy	NOAA GARFO
Clarke, R	Processor/Dealer/Marketing	The Towndock
Didominico, G	Fishery-Government Relations	Garden State Seafood
Fox, D	Fleet management	The Towndock
Frantantoni, P	Physical Oceanography	NOAA/NEFSC
Gaichas, S	Fishery ecosystem scientist	NOAA/NEFSC
Goodwin, G	Fisherman Ecologist, Fisheries Economics & Markets	FV, RELENTLESS, Seafreeze ltd
Goodwin, K	Fisherman Ecologist	FV, PERSISTENCE, Seafreeze ltd
Gwierkewicz, G	Oceanography	Woods Hole Oceanographic
Hughes, P	Policymaker, Fishery Gov't relations	MAFMC-SMB chair/Atlantic Capes Seafood
Hyde,K	Oceanography	NOAA/NEFSC
Kaelin, J	Fishery-Government relations	Lunds fisheries
Lackner, L	Fisherman Ecologist	FV Jason Danielle
Lapp, M	Fishery-Government relations	Seafreeze Ltd
Malik-Mercer, A	Fishery Scientist	NOAA/NEFSC Coop Research
Manderson, J	Fishery ecosystem scientist	OpenOcean Research
McNamee, J	Assessment Scientist/NEFMC SSC Chair	RI division Marine fisheries
O'Connor, J	Fishery Policy	NOAA GARFO
Pessutti, J	Fishery Scientist	NOAA/NEFSC Coop Research
Pitts, A	Policy maker	NOAA GARFO
Rago, P	Assessment Scientist - MAFMC SSC	Independent
Reichle, W	Processor/Dealer/Marketing	Lunds Fisheries
Reid, E	Gov't relations/Marketing/Processing	Seafreeze Ltd
Roderick, M	Processor/Dealer/Marketing	The Towndock
Ruhle, J	Fisherman Ecologist	FV Dyranna R
Ruhle, P	Fisherman Ecologist	FV Prevail, Seafreeze Ltd
Wilberg, M	Assessment Scientist, MAFMC SSC	Chesapeake Biological Laboratory, U Maryland
Wright, B	Fisheries Science	NOAA/NEFSC SMASS
Pavlowich, T	Fisheries Science	NOAA/NEFSC

## *Expert Attendees*

Fishery

Science

Policy

-Industry leaders (*on water & shoreside*)

-Ecologists

-Oceanographers

-Population biologists

-MAFMC SSC members

-Policy leads

# Northern shortfin squid (*Illex Illecebrosus*) population ecology & the fishery Summit, November 25-26, 2019 Wakefield, Rhode Island

Agenda for the Northern Shortfin Squid Population Ecology & the Fishery Summit

Time Day 1: November 25

9:30 Introductions & goal of the summit

9:40 Current scientific basis of *Illex* management & review of past assessments.

10:40 Break

10:50 Review of *Illex* population ecology: Known knowns, known unknowns, & unknown unknowns.

11:50 Review Northwest Atlantic Oceanography possibly impacting *Illex* availability & productivity

12:30 Lunch

13:00 Possible mechanisms underlying stock availability and/or productivity responses to oceanographic change.

13:40 Review available collaborative industry-science assessment infrastructure in the region

14:20 Break

14:30 History of industry observations of shortfin squid: Migration and movements. Targetting, catchability. Observations of Size & Growth.

15:20 Discussion of economics, regulation & impacts on fishing effort & catch. Industry self-monitoring for business that could reduce scientific uncertainty.

16:10 Break

16:20 Outline framework for development of science products to address uncertainties by spring 2020

17:10 Adjourn & Dinner

Time Day 2: November 26

8:30 Review outlined framework for science products to address uncertainties by spring 2020

9:00 Brief summary of existing fishery dependent & independent data & resources

9:20 Continue development of framework & products that could impact 2020 fishing season

11:20 Break

11:30 Process & deadlines required for timely product review

12:30 Adjourn

## Agenda

Current basis of assessment & management

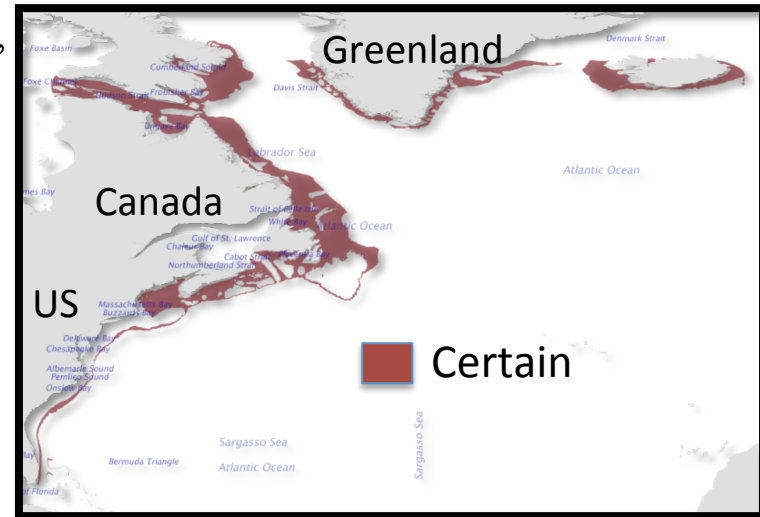
*Illex* Ecology & Fisheries Oceanography

Fishery Information

Outline Research products Review process & deadlines

# Important fishing industry observations

- *Effort/catch related to complex set of socio-ecological factors*
  - effort determined by global squid supplies, demand, price (*Illex* Argentina, flying squid Japan)
  - Shoreside processing capacity & demand modulate fishing effort
  - Fishery located in a few small areas along the mid-Atlantic shelf break. Why?
    - Animal behavior.
    - Gear efficiency of bottom trawls
    - Location of processors + perishability of squid
    - Regulations in *Illex* & other fisheries, gear conflicts
- *US & Canadian (now artisanal) fisheries access small portion of population range. Area of escapement very large.*
- *Availability of squid unpredictable*
  - Can be related to Gulf stream & slope sea features but relationships are inconsistent
  - In good fishing years squid increase rapidly in size & get large as season progresses
    - Fewer large squid account for catch biomass
  - Constant fluxes (immigration/emigration) of animals through fishing areas
  - High volume/low price fishery is self regulating



*Illex* distribution from FAO

# Outline research products reducing scientific uncertainty

Paul Rago (*MAFMC SSC*), Mike Wilberg (*MAFMC SSC*), Sara Gaiches (*MAFMC SSC*), Doug Christel (NOAA GARFO) present at summit advise group about product requirements & deadlines

## *Long term (3-5 years)*

- Relationships between ocean dynamics, squid availability & productivity

## *Medium term (1-3 years)*

- Industry based in-season survey
- Real time fisheries monitoring

## *Near term (3-6 months). (Target May SSC meeting when 2020 ABCs specified)*

- Analysis of Study Fleet data to inform design of medium term objective of fisheries monitoring
- *Develop conservative annual estimates of availability of *Illex* population to the fishery as a proxy for understanding bounds of  $F$  and the area allowing squid to escape the fishery*

**Collaborative research products outlined at Summit & delivered to MAFC SSC for review  
and consideration for developing for 2020 ABCs  
(with NEFSC Cooperative Research Branch)**



**Mid-Atlantic Fishery Management Council**

**Scientific and Statistical Committee Meeting**

May 12 – 13, 2020 via Webinar

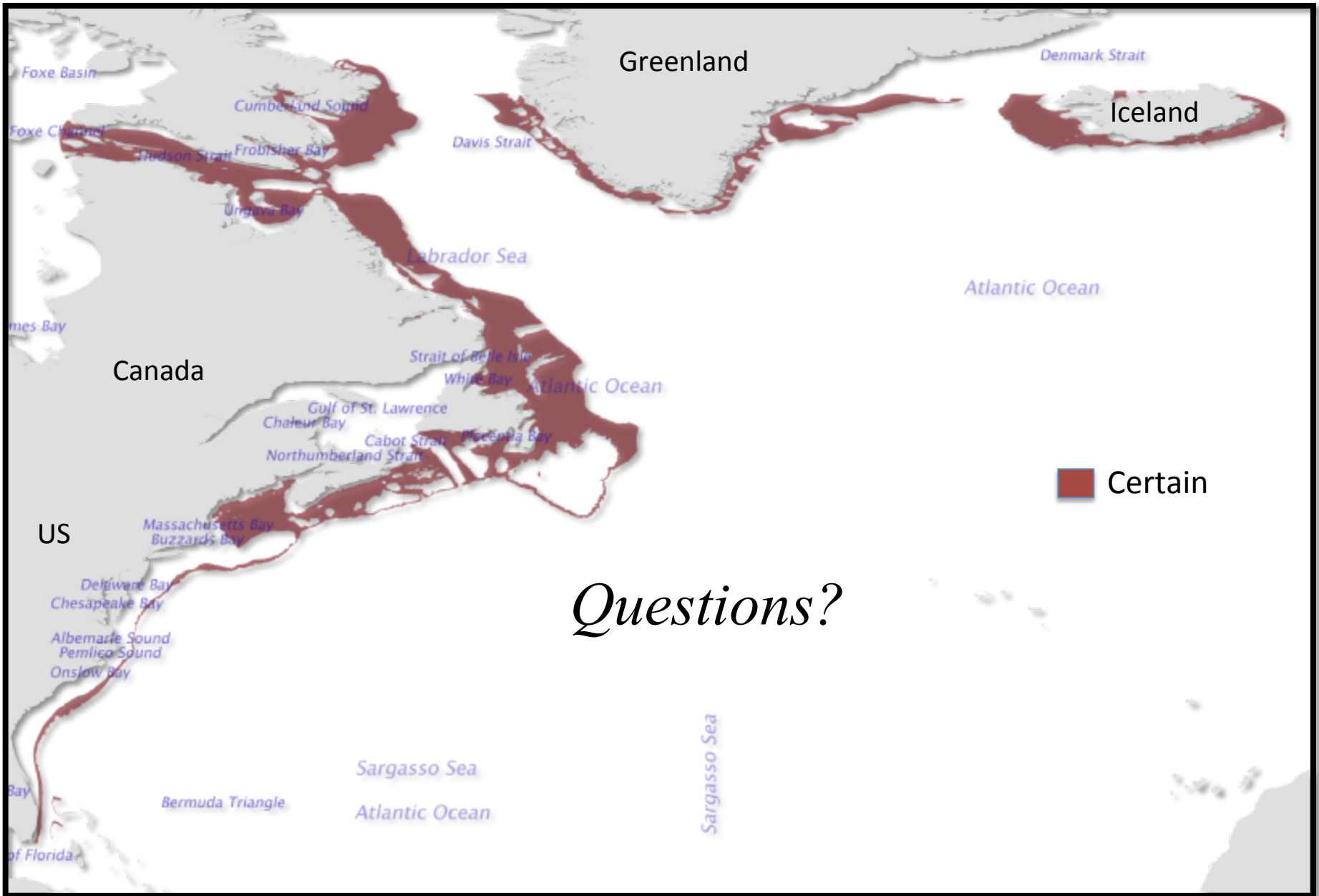
Jones<sup>1</sup>, Wright<sup>1</sup>, Manderson<sup>2</sup>, Mercer<sup>1</sup> (2020) An investigation of fine-scale CPUE for northern shortfin squid using NEFSC Study Fleet Data. (*WP #9*)

Wright<sup>1</sup>, Jones<sup>1</sup>, Mercer<sup>1</sup>, Manderson<sup>2</sup> (2020) Northern shortfin squid fishery footprint on the northeast US continental shelf (*WP #10*)

Manderson<sup>2</sup> (2020) Summary report for the Northern shortfin squid (*Illex illecebrosus*) population ecology & the fishery Summit, November 25-26, 2019 Wakefield, Rhode Island (*WP #S1*)

<sup>1</sup> Northeast Fisheries Science Center, Cooperative Research Branch

<sup>2</sup> OpenOcean Research *representing the Illex fishery consortium*



*Illex* distribution from FAO