

# CFA 23 Pre-Rap

## Snow Crab Unit

Department of Fisheries and Oceans

2018

# Overview

## 1 Commercial Fishery

- Landings
- Catch Rates
- Size of Catch
- Fishing Positions

## 2 At-Sea Observer

- Observer Coverage
- Catch Composition
- Soft Crab

# Overview

## 3 Survey

- Survey Chart
- Female Crab
- Male Crab
- Ecosystem
- Temperature

## 4 DFO Business

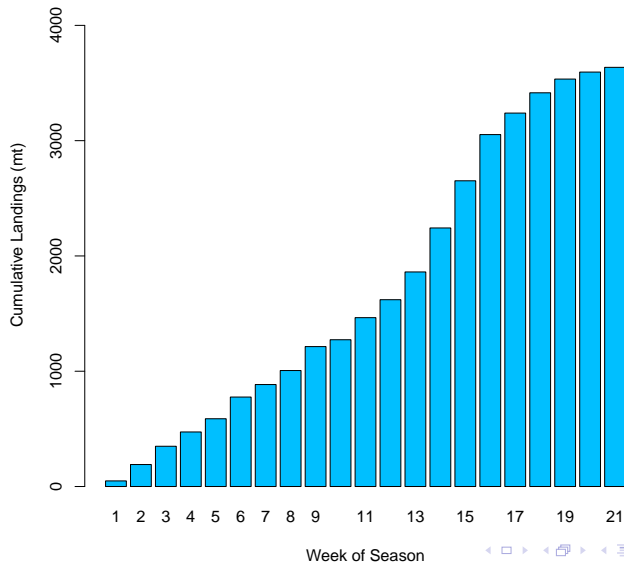
- Staffing
- Collaborative Agreement

## 5 Marine Mammal Interactions

# Landings

Area	Year	TAC	Landings	Catch Rate (lbs/trap)
N-ENS				
	2015	620	619	227
	2016	286	290	242
	2017	825	813	198
CFA 23				
	2015	6120	6097	257
	2016	5202	5202	254
	2017	3640	3636	217
CFA 24				
	2015	5191	5195	212
	2016	4412	4404	213
	2017	3090	3083	198

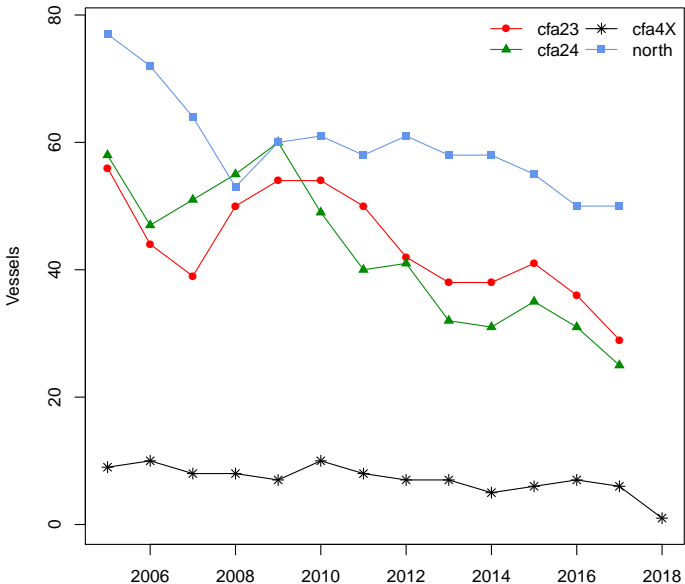
## 2017 CFA23 Landings



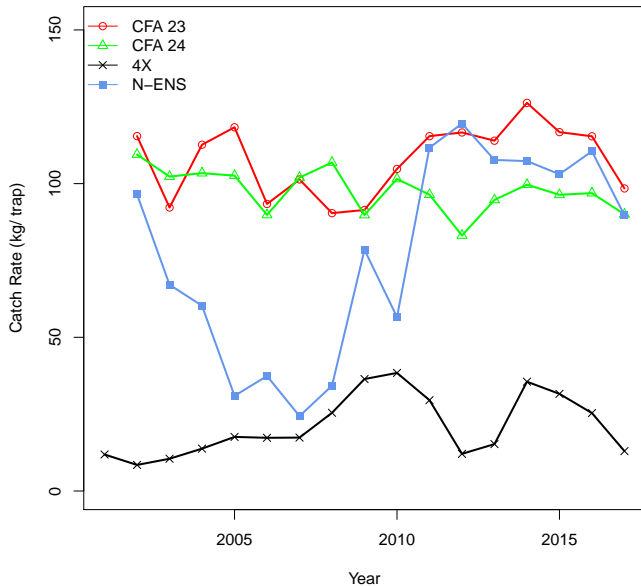
# Spring Landings



## Vessels Active by Year

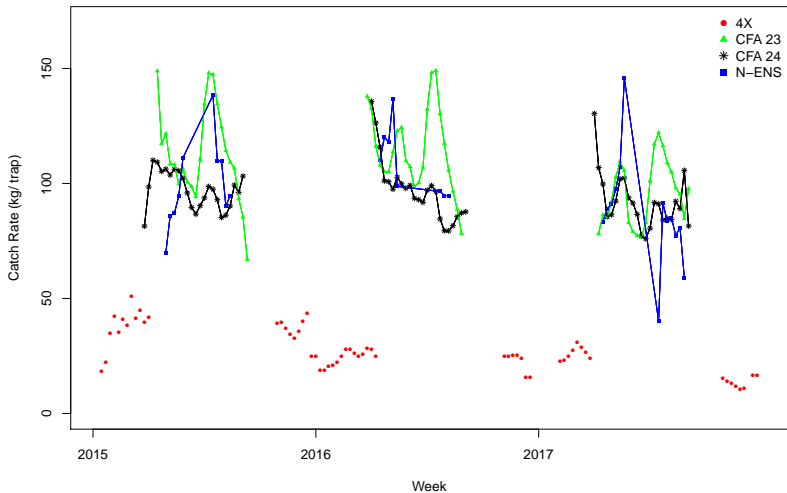


# Annual Catch Rates



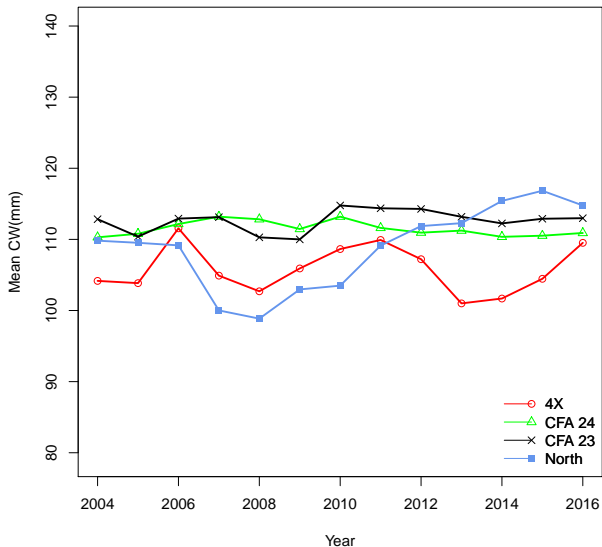


# Weekly CPUE

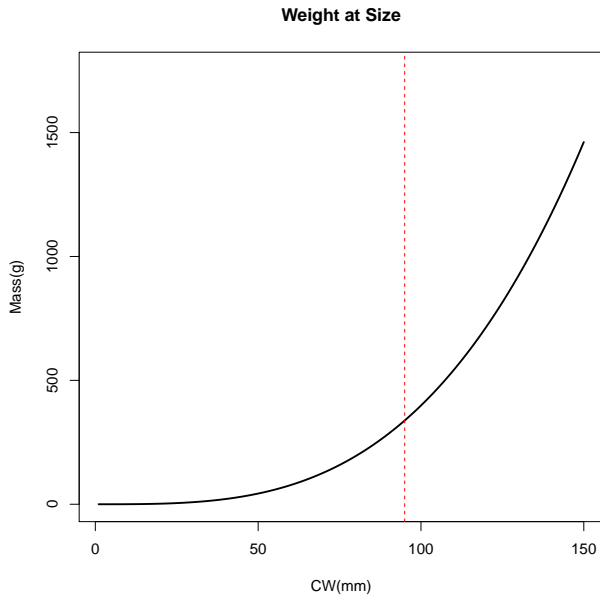


# Crab Size

## Mean CW Observed

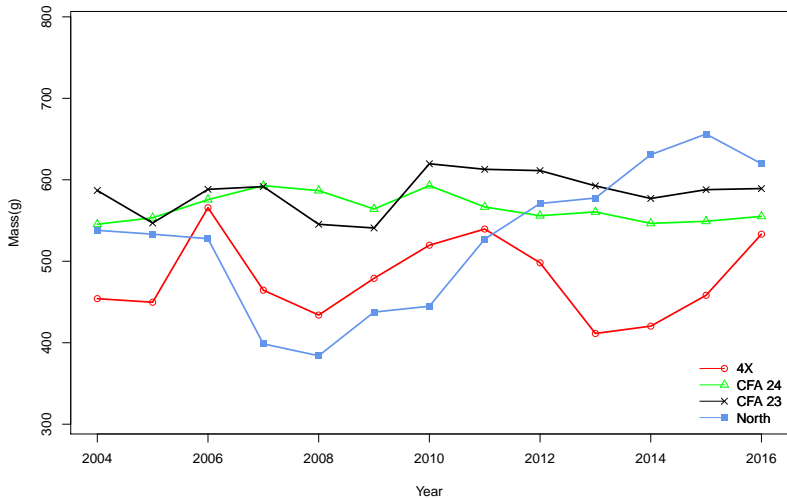


# Crab Size

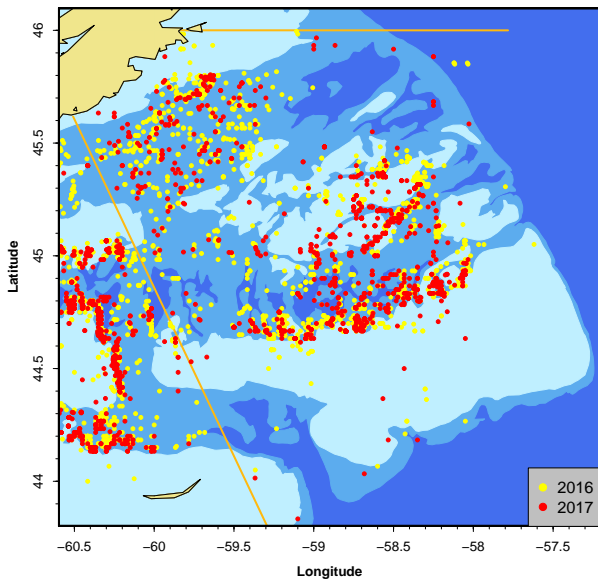


# Crab Size

Calculated Mean Weight

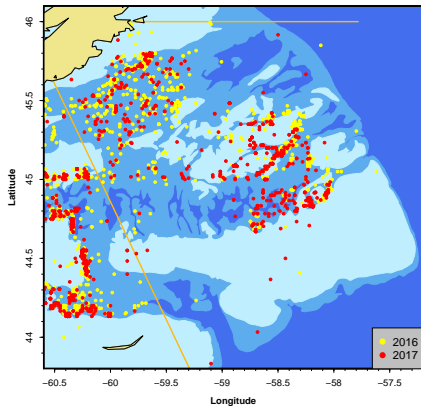


## Reported Fishing Positions

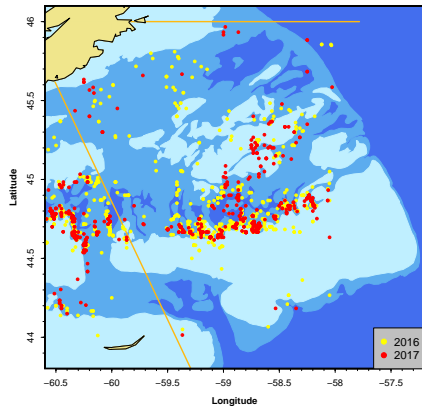


# Seasonal Fishing Patterns

Spring Fishing Positions



Summer Fishing Positions



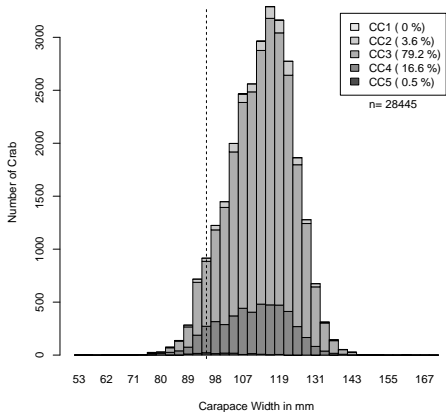
# At-sea Observer Coverage

Area	Observed (mt)	Traps Sampled	Traps Observed	Landings (mt)	Percent Observed
N-ENS	46	89	443	813	5.7(7.2)
CFA 23	203	409	2067	3636	5.6(5.6)
CFA 24	177	349	1614	3083	5.7(6.3)

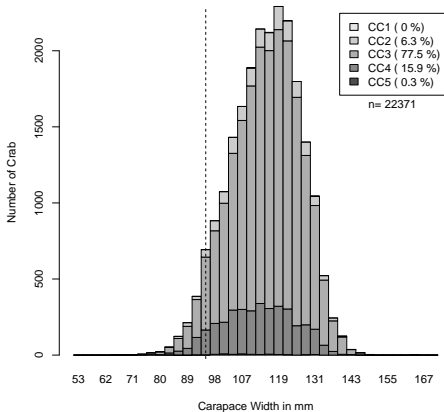
CFA 23 had 55 observer sea days, CFA 24 had 46 observer sea days

# Catch Composition

## 2016 Size Frequency Distribution in S-ENS



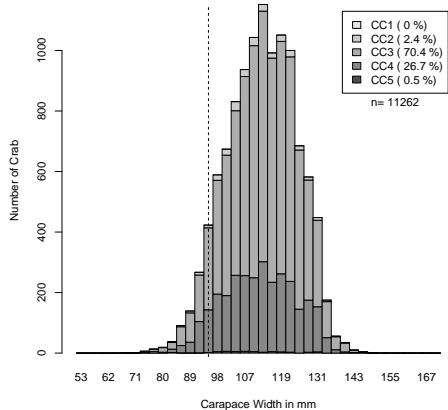
## 2017 Size Frequency Distribution in S-ENS



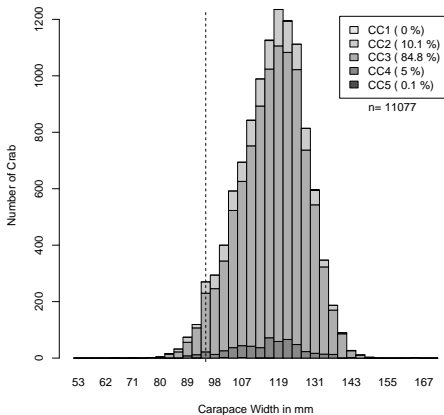


# Catch Composition

2017 Spring S-ENS



2017 Summer S-ENS

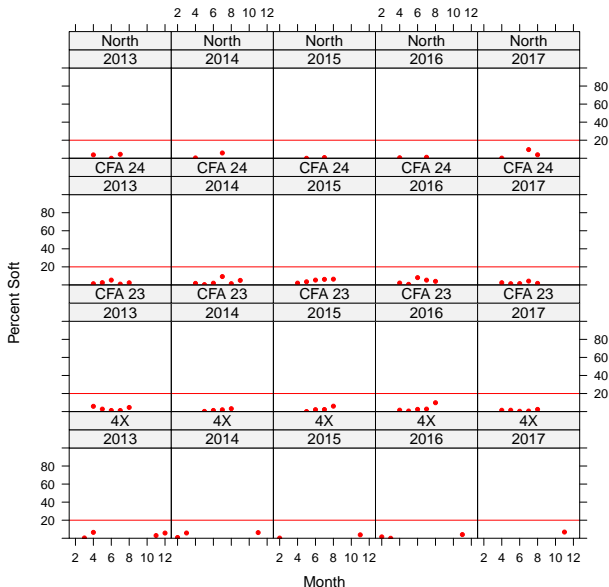


# Softshell Catches

Year	Area	Landings	% Observed	Observed Soft	Total Soft
2015	N-ENS	619	4.7	0.20	4.30
2016	N-ENS	290	7.2	0.14	1.98
2017	N-ENS	813	5.7	2.24	39.36
2015	CFA 23	6098	5.3	6.15	116.12
2016	CFA 23	5201	5.6	5.11	91.31
2017	CFA 23	3636	5.6	2.17	38.68
2015	CFA 24	5197	5.5	10.39	188.90
2016	CFA 24	4405	6.3	6.91	109.64
2017	CFA 24	3083	5.7	3.57	62.70

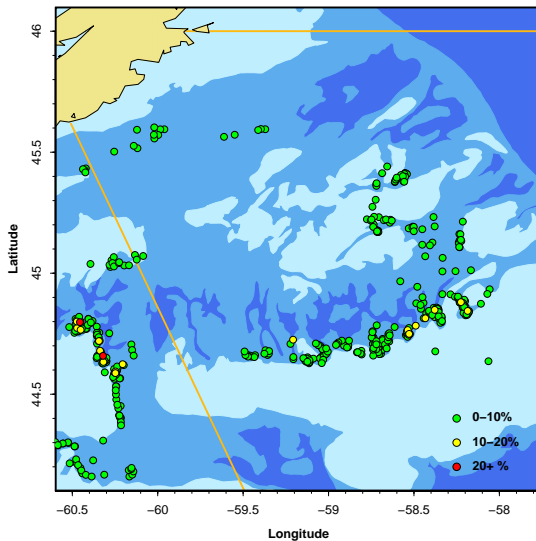
# Softshell Catches

## Percent Soft Shell by Month

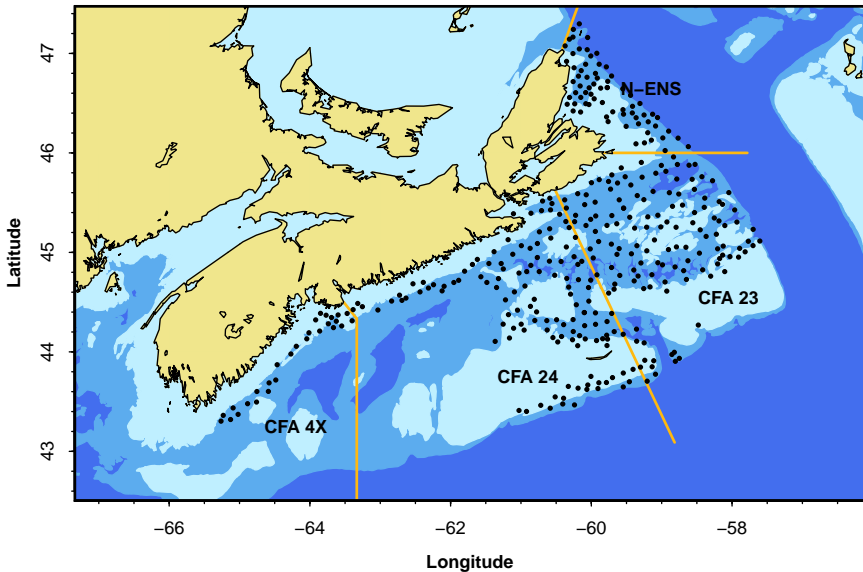


# Softshell Catches

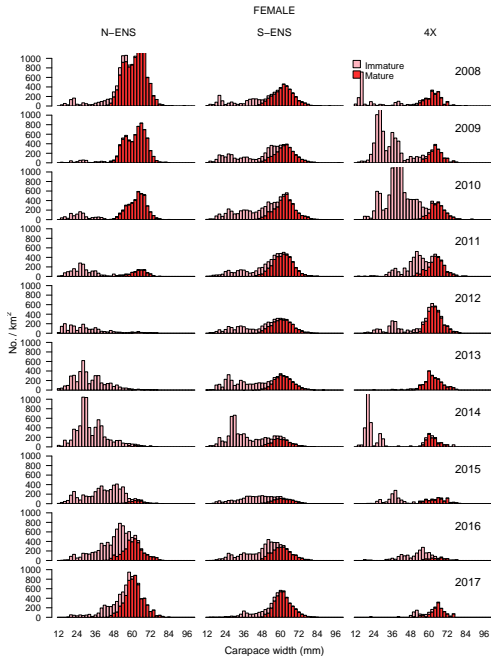
## 2017 Soft Crab



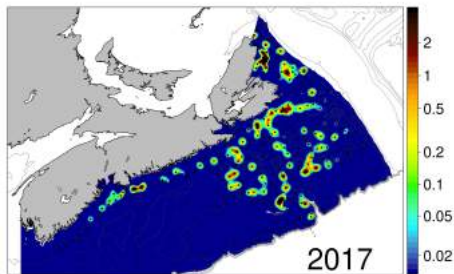
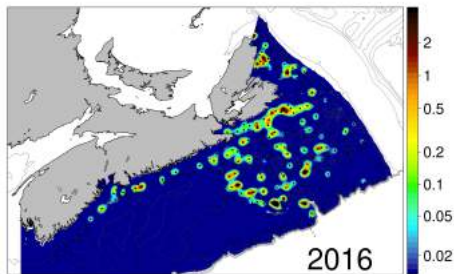
# 2017 Snow Crab Survey



# Female Crab



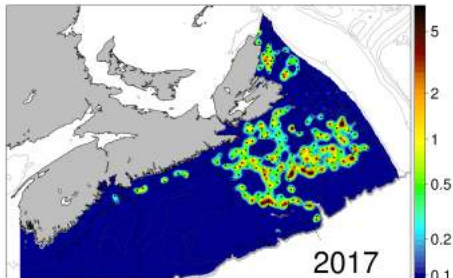
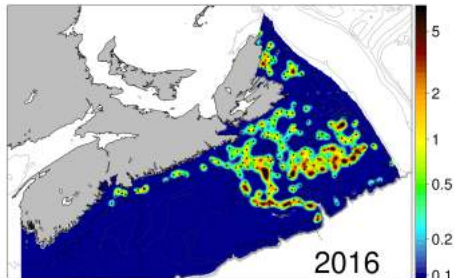
# Mature Female Distribution





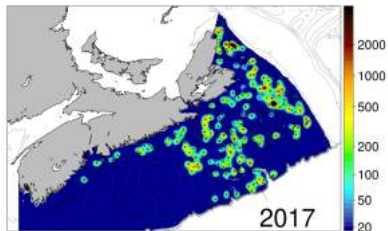
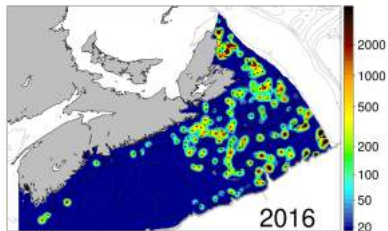
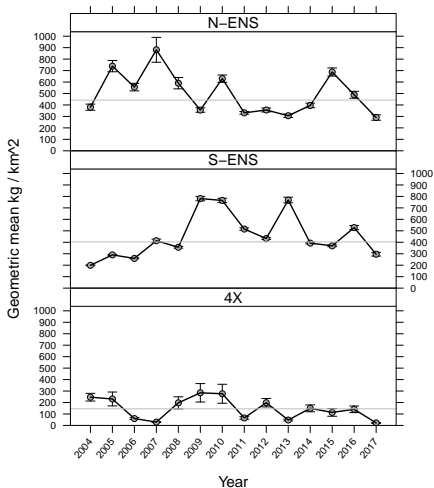


# Commercial Male Distribution



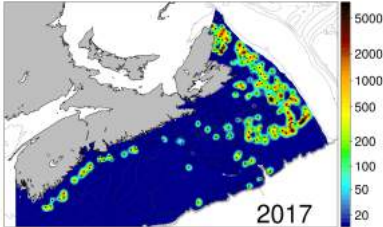
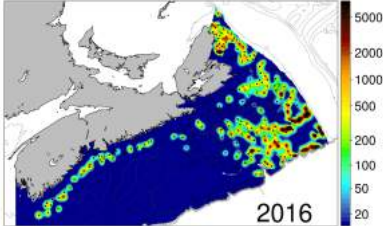
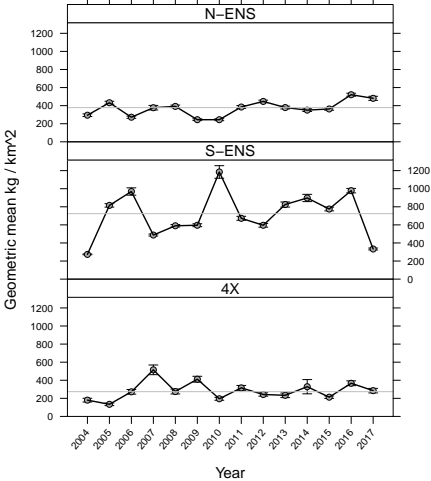
# Predation

## Cod(atlantic) Biomass



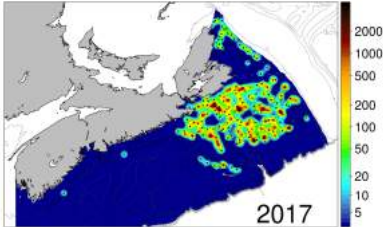
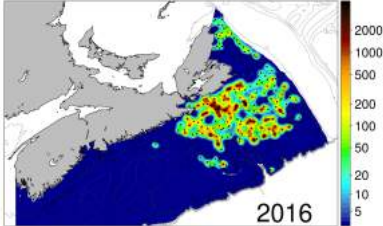
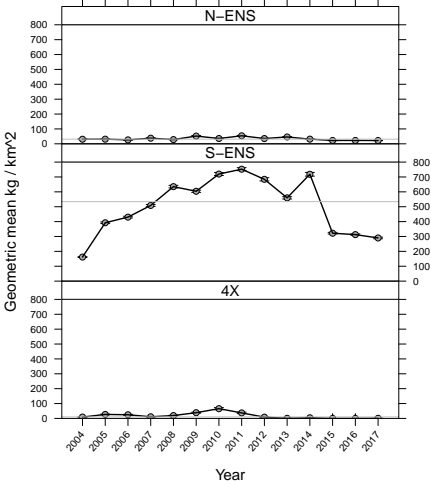
# Predation

**Thorny Skate Biomass**

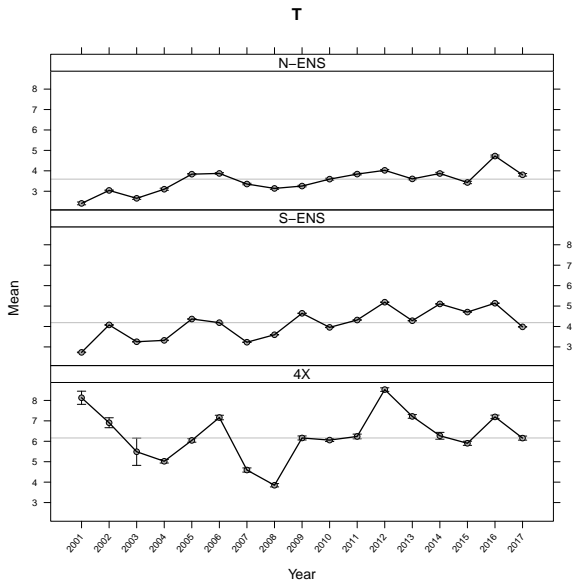


# Coexistent Species

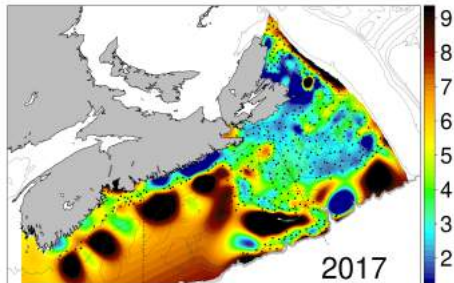
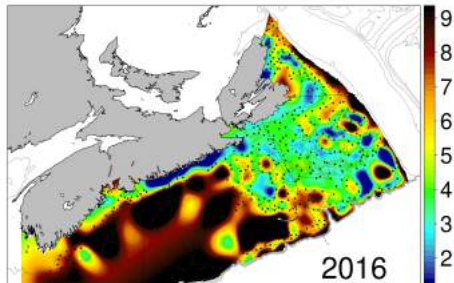
## Pandalus Borealis Biomass



# Temperatures



# Temperatures



# Snow Crab Unit Staffing

- Jae Choi remains as Research Scientist. Focused on snow crab and large-scale ecosystem analyses.
- Ben Z moves to assessment biologist role.
- Amy Glass joins snow crab unit after 15+ years with the scallop unit.
- Brent Cameron remains with our group working out of the Sydney Area.
- Expect less staff turnover in coming years than in the past five years

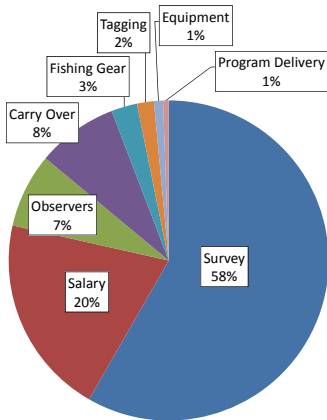
# Collaborative Agreement (CA)

- 2018/19 is year 4 of a five year CA
- Funds roll-over to next year
- Any remaining funds after year 4 adjusts amount in year 5
- % of each license recalculates annually based on previous season's quota
- Amendments sent for signature in December 2017. Not yet all signed.
- Plan on issuing invoices by April 1, Email invoices seemed to work well last year



# Collaborative Agreement (CA)

## 2016 / 2017 Snow Crab Science Spending



### Incoming Funds (1000's)

Collaborative Agreement: 730  
DFO Oceans / MPA: 73

### Unspent

Carry Over Year 1: 42  
Carry Over Year 2: 30

# Marine Mammal Interactions

- Snow crab fisheries are busy offshore fisheries with past records of marine mammal interactions
- Marine mammal interactions (of some sort) are inevitable in this fishery
- Highly publicized Right Whale entanglements in the Gulf last season
- This unfortunately puts all snow crab fisheries under a microscope both nationally and internationally

# Marine Mammal Interactions

- An action plan will be developed- Ottawa? Local? NGO's?
- Could include- increased observer coverage, gear limitations, closed areas (fixed or floating), etc
- Suggest a proactive industry-driven implementation of a protocol to help safe guard whales
- Consider potential repercussions of actions in other areas or other years within your area
- Protocol in case of entanglement
- Optics are important: the snow crab industry is **CONCERNED** and **PROACTIVE**
- Consultation meetings ongoing -Marilyn.Sweet@dfo-mpo.gc.ca

The End