Impacts of bottom fishing and long-term sustainable management in the Northwest Atlantic Fisheries Organization (NAFO)

Presentation to the General Assembly Workshop on measures to address the impacts of bottom fishing on vulnerable marine ecosystems and the long-term sustainability of deep-sea fish stocks.

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Outline

About NAFO
Assessing bottom fishing impacts in NAFO
Measures to protect VMEs
The NAFO Ecosystem Approach Roadmap

NAFO is an international regional fisheries management organization (RFMO)

International cooperation in fishery science and fishery management

Manages the fishery in the international waters of the Northwest Atlantic

Four coastal States Canada, USA, France (St. Pierre et Miquelon) and Denmark







Established in 1979 by international treaty

Succeeded the 1949 International Commission for the Northwest Atlantic Fisheries (ICNAF)

NAFO Convention was substantially amended in 2007 and the amendments to the NAFO Convention came into force 18 May 2017.





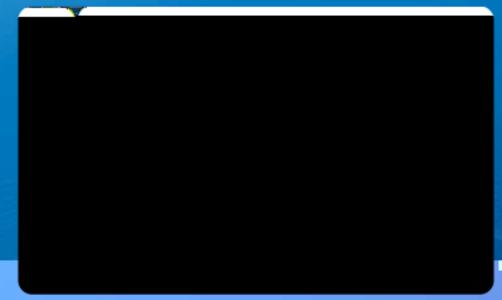
to ensure the long term conservation and sustainable use of the fishery resources in the Convention Area and, in so doing, to safeguard the marine ecosystems in which these resources are found.



NAFO Convention and Regulatory Area



NAFO is the RFMO responsible for managing the fish stocks (except salmon, whales, tuna and sedentary species) in the NW Atlantic outside the EEZs of Coastal States (FAO Statistical Area 21).







The NW Atlantic Fishery in 2019

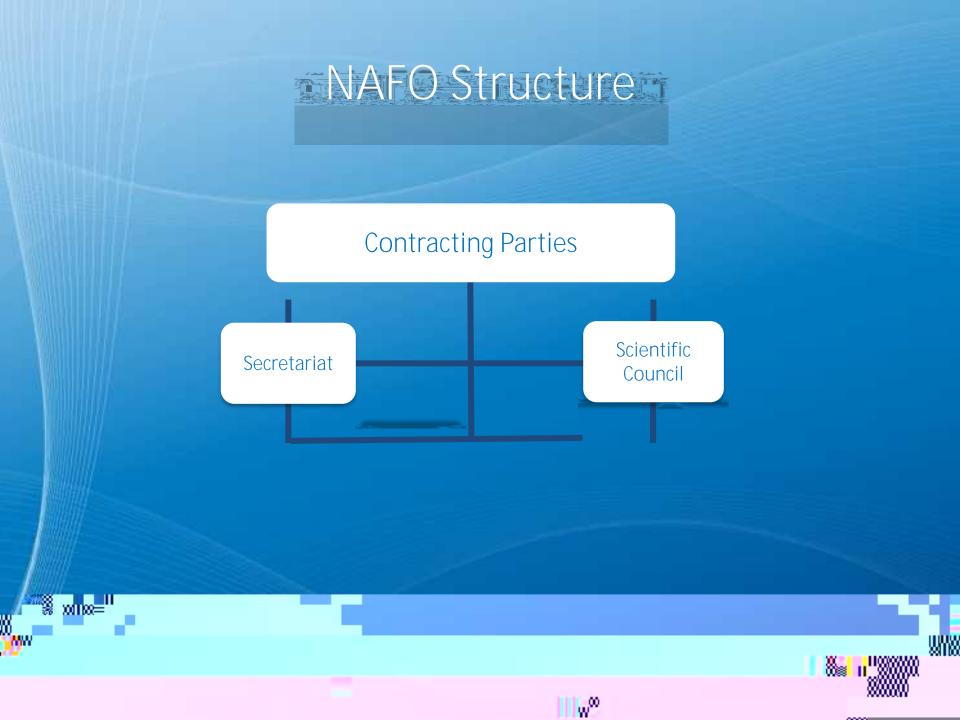
47 vessels

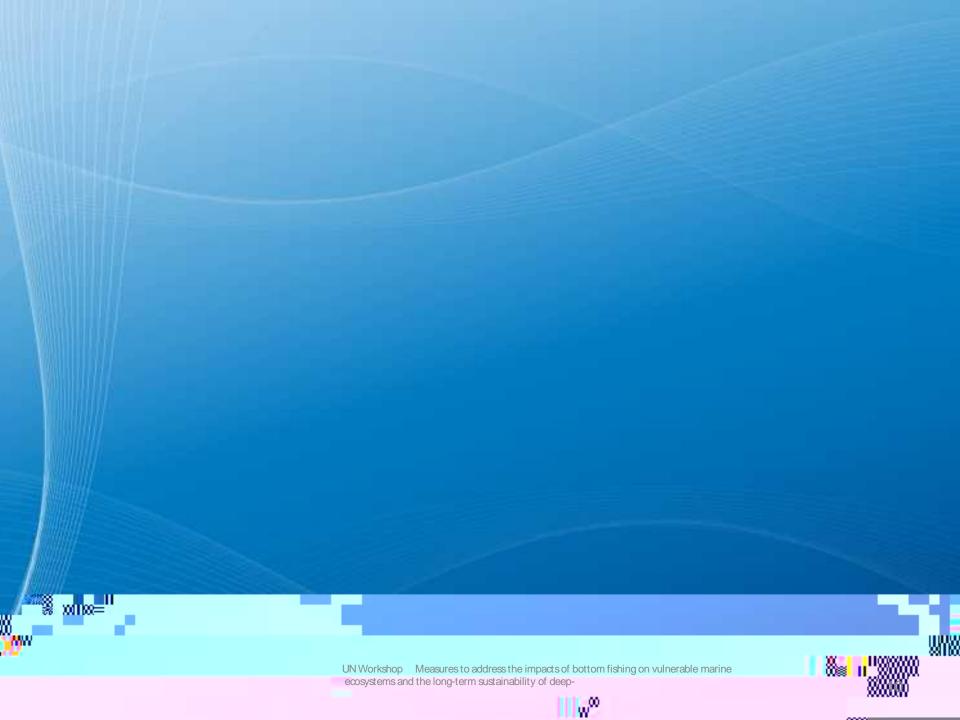
About 74 000 tonnes of catches* of NAFO regulated species, predominantly by bottom trawl

Approximate value is CDN\$452 million (or about 309 million euro)









Identifying VME Species and Bements

Species

Large-sized sponges

Stony Corals

Gorgonian corals

Sea pens

Tube-dwelling anemones

Erect bryozoans

Sea lilies

Sea squirts

Elements

Seamounts

Canyons

Knolls

Shoal

Steep flanks

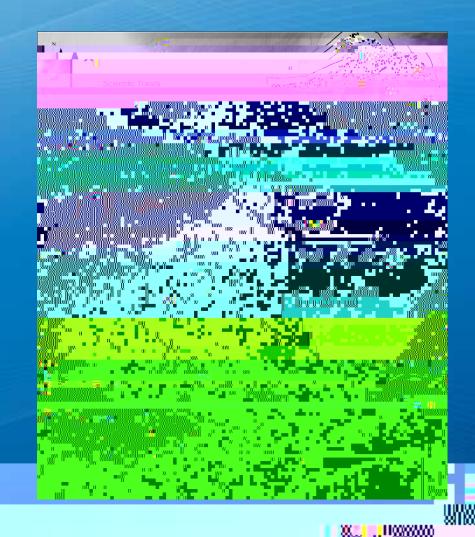


Identifying VME Areas

Objective

from the broader distribution of the indicator taxa using research vessel trawl survey catch data

11111		
Programme	Period	NAFO Division





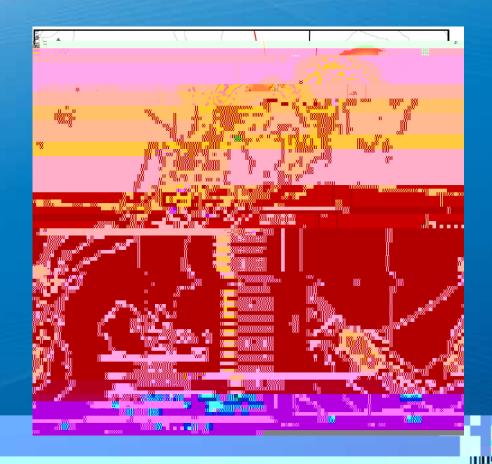
Analysis Creation of Kernel Density Surface





Analysis Generation of density polygons

Define the areas of high concentrations for each VME taxa separately
Delineate areas of high concentration above threshold determined iteratively (black lines)
Not all observations with high concentrations are included in VME areas







Mapping of VME polygons

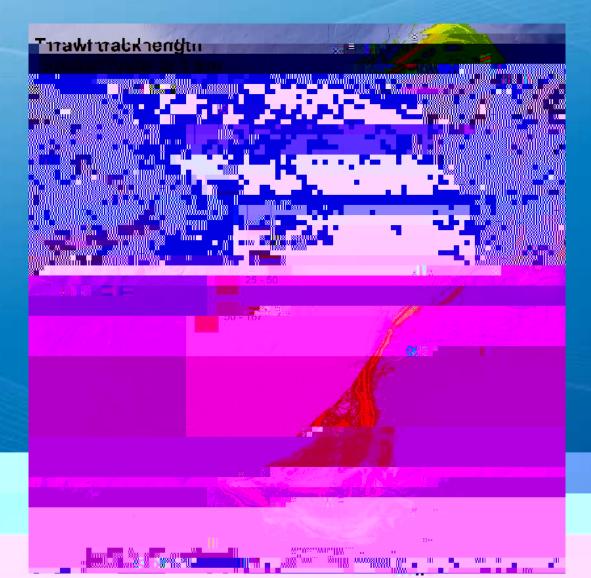


Mapping Fishing Effort: NAFO Vessel Monitoring System (VMS) Vessels send hourly position reports through

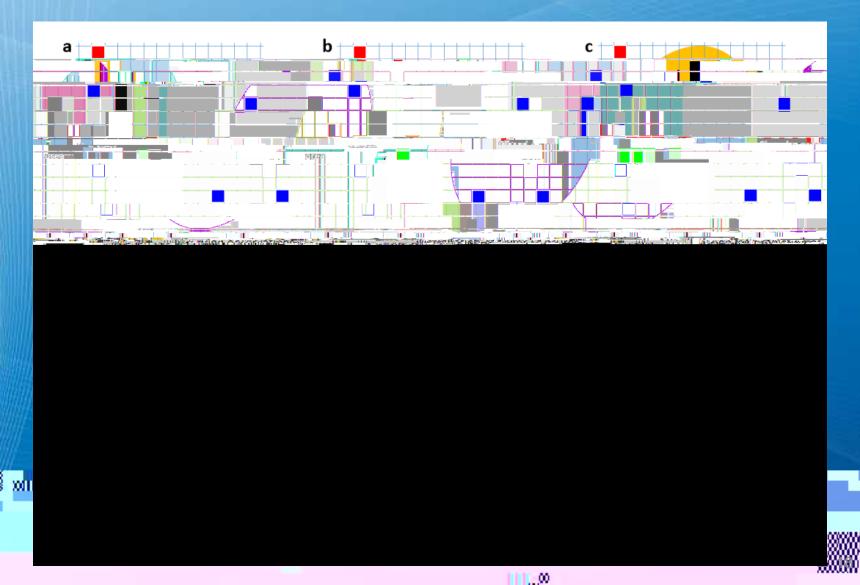
vessels send hourly
position reports through
the VMSto Fisheries
Monitoring Centres
(FMCs)



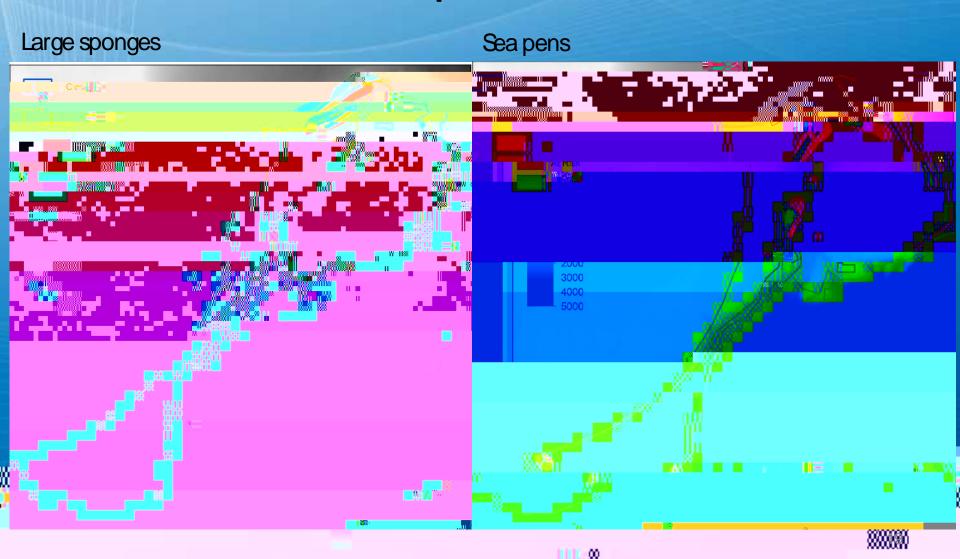
Fishing effort distribution in the NRA 2010 to 2019

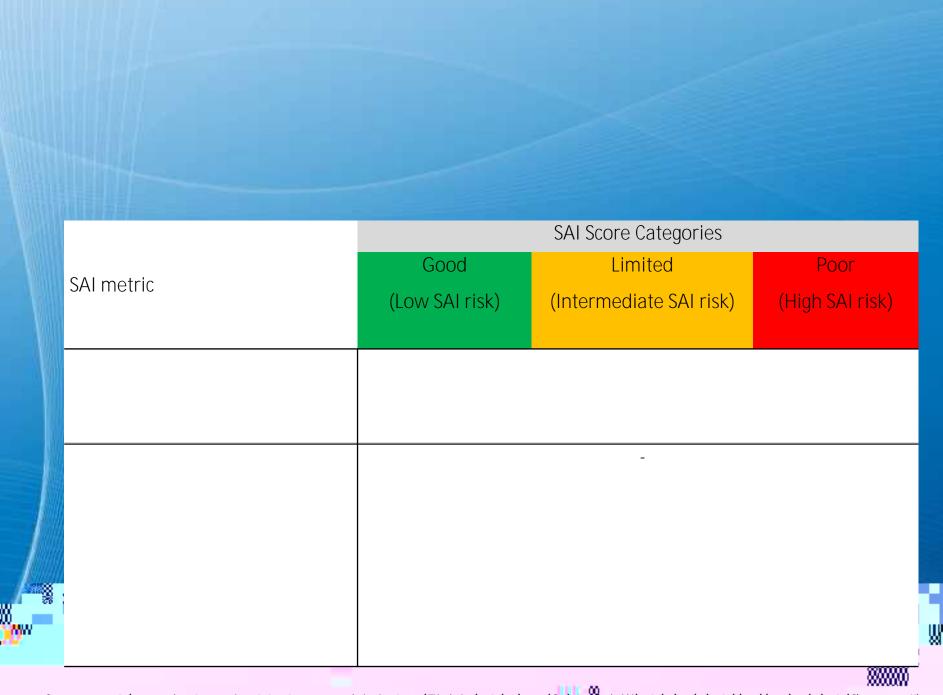


Assessing SAI



Assessment of area and biomass impacted





Overall SAI assessment scores for each VME and SAI

				L	arge	Small		Black Coral		Bryozoan		Sea Squirt		
	Sp	onge	Sea pen		gorgonian gorgonian						·			
SAI metric	Area	Biomass	Area	Biomass	Area	Biomass	Area	Biomass	Area	Biomass	Area	Biomass	Area	Biomass
VMEProtected	64%	93%	16%	34%	60	89%	2%	2%	17%	23%	<1%	<1%	<1%	1%
					%									
VMEAt Risk	19%	6%	74%	64%	23	10%	72%	86%	63%	67%	96%	99%	79%	85%
					%									
VMEImpacted	18%	1%	9%	2%	16	1%	26%	12%	20%	10%	4%	1%	21%	14%
					%									
SAI Risk (biomass)	Ĺ	-OW	Intern	nediate		Low	Н	ligh	ŀ	High	ŀ	ligh	ŀ	ligh
VMEFragmentation/Proximity	1,112		394		255 125		109		717		802			
Fishing Stability (10yrs)	14%		11%			10% 28%		9%		0%		7%		
VMESensitivity		3.3).2		1.7		0.5		1.4		0.1		0.5
Proportion of overlapping VMEs					050/				040/		407			
(km²) in dosures	t	62%	1	9%		65%	•	9%		21%		4%		0%
Number of overlapping	0		4		0		4		2		4			
functions		2		4		2		1		3		4		4
Overall SAI Risk														
Over all JAI Nisk														
Ranking for Management				1		Е		2				2		2
Action		6		4		5		3				2		2
	& ,xxxxxx									WWW				



NAFO Measures to Protect VMEs



Existing bottom fishing areas

Closed areas and the scientific justification for closure Thresholds for encounters with

rule)
Bottom fishing in new fishing areas
(Exploratory Fisheries) with

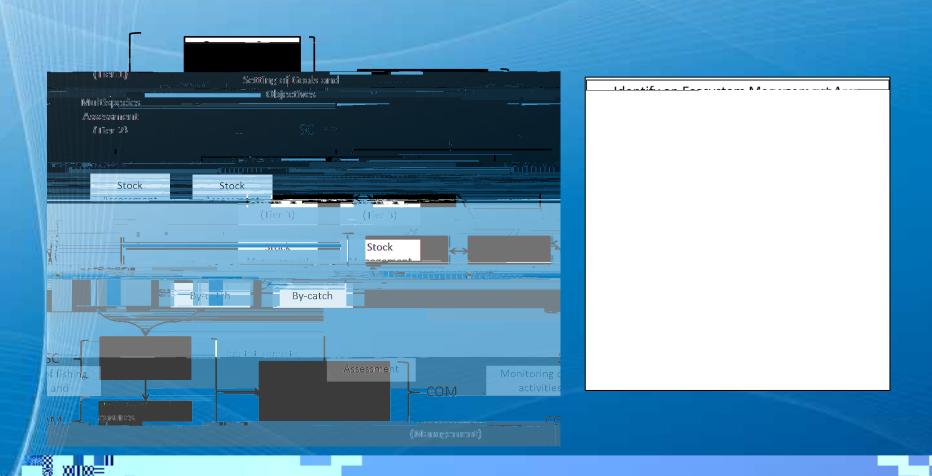
scientific justification as a

precondition

Periodic (5 year) reassessment of bottom fishing activities



The NAFO Roadmap to EAF







Global and Regional Cooperation

NAFO participates in:



