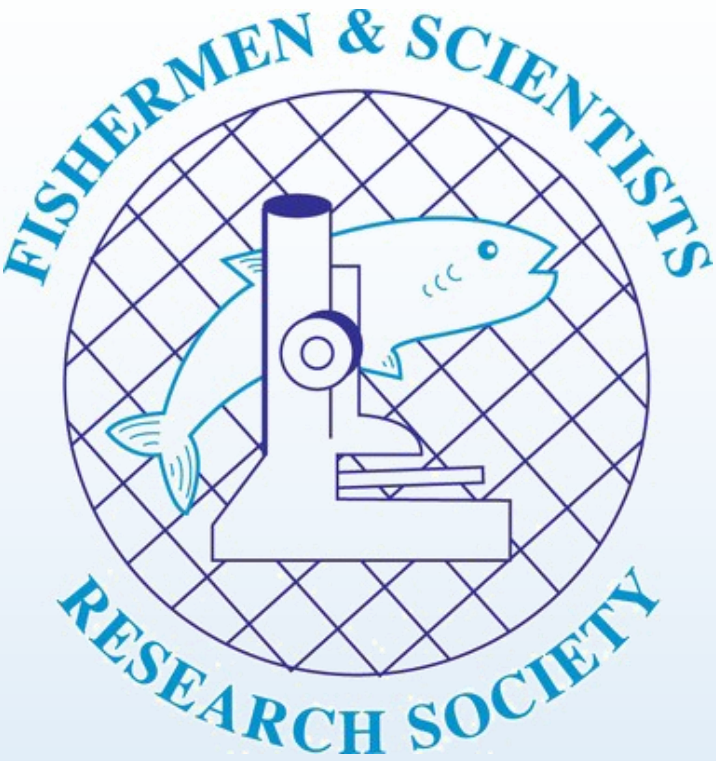
"Celebrating 23 Years of Fisheries Leadership"



2016 Conference and Annual General Meeting

February 25th, 2016
Best Western Dartmouth
15 Spectacle Lake Drive
Dartmouth, Nova Scotia

Welcome from the President

I would like to thank everyone for coming. The FSRS has seen its share of ups and downs again this past year, but with new vision and hope, we continue to persevere. As President, I've tried to listen and to respect the views of fishermen and scientists as well as the FSRS staff who all care deeply about the long term sustainability of our livelihoods, our way of life and of course, the FSRS. I hope our collaboration between scientists and fishermen continues, and serves as a model for others.
In closing, I'd like to thank my fellow Board members for their support and commitment, as well as all the volunteers who help make our work possible.

Respectfully submitted,

Ken Snow

FSRS Board Members

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James Gray
Fraser Clark
Peter Hurley
Jr. Risser
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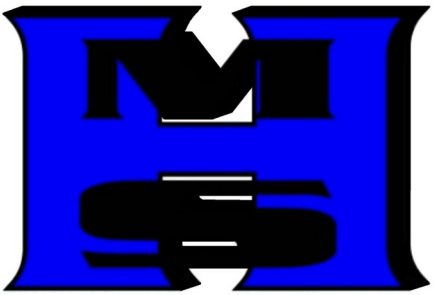

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Agenda

Fishermen and Scientists Research Society

23rd Annual Conference

Celebrating 23 Years of Fisheries Leadership

8:15-9:00AM	Registration
9:00-9:30AM	Opening and Welcome
9:30-9:45AM	Dave Brickman
	Title: Ocean circulation modelling in support of ecosystem science
9:45-10:00AM	Ed Horne
	Title: Lessons learned from three decades of coastal temperature monitoring
10:00-10:15AM	Tanya Koropatnick
	Title: Marine protected area network planning for the Bay of Fundy and Atlantic Coast of Nova Scotia
10:15-11:00 AM	BREAK
11:00-11:15 AM	Mike Sinclair
	Title: Eastern Scotian Shelf fisheries-induced trophic cascade: a review of the evidence and an alternative interpretation
11:15-11:30 AM	Adam Cook
	Title: American lobster settlement in Nova Scotia; current status and future directions
11:30-11:45 AM	Brady Quinn
	Title: Predicting effects of climate change on larval drift and benthic recruitment of American lobster (*Homarus americanus*)
11:45-12:00 PM	Fisheries Safety Association of Nova Scotia
	Title: Fishing safety now
12:00-13:30 PM	Lunch & **AGM (beginning at 12:30, ending at 13:30)**
13:30-14:15 PM	Scientific Program Committee Report and Review of Annual Work Plan

14:15-15:45 PM	Community Groups Forum:	
	Sarah Delorey	Guysborough County Inshore Fisherman's Association
	Michelle Theriault	Université Sainte Anne Marine Research Centre
	Veronika Brzeski	LFA 27 Management Board
	Peter Connors	Eastern Shore Fishermen's Protective Association
15:45-16:45 PM	Student Poster Session	
16:45-17:15 PM	Poster Awards and Closing Remarks	
19:00-21:00 PM	Reception (Dutch Auction hosted by the FSRS Board of Directors)	

Each presentation is 12 minutes with 3 additional minutes for discussion. Timing will be closely monitored.

Conference Venue

Best Western PLUS®

A special thanks to Julie and John at the Best Western Plus Dartmouth.

Abstracts

Presentations

Ocean circulation modelling in support of ecosystem science

Dave Brickman
Fisheries and Oceans Canada

9:30-9:45AM

A number of numerical circulation models of the ocean are run at DFO in support of ecosystem science. This talk will describe models run at BIO designed to address problems in Atlantic Canada. Model domains, types of runs, and results with examples of applications will be presented.

Lessons learned from three decades of coastal temperature monitoring

Ed Horne; Adam Drozdowski
Coastal Ecosystem Science Division, Bedford Institute of Oceanography

9:45-10:00AM

BIO began monitoring temperature in the coastal zone about three decades ago. This work was largely motivated by the lobster fisherman and they have eagerly participated in the program ever since by placing temperature sensors on some of their traps. In addition to these seasonal measurements BIO has maintained permanent gauges on wharves around the province and I will show some data from these. When one looks at a temperature record from the summer fall period the most noticeable features are usually periods where the temperature drops by 5-10 degrees C in a day and can stay low for several days before recovering. We call this phenomena coastal upwelling and it is largely driven by the wind. I will show several examples of this. Our wharf gauges only measure upwelling events that reach the surface. There are other less severe events that do not reach the surface and to measure these we put a mooring with temperature sensors every 2m from the bottom to 4m from the surface in 40m of water in the Sambro Ledges this past summer. Some of this data will be presented as well.

Marine Protected Area network planning for the Bay of Fundy and Atlantic coast of Nova Scotia

Tanya Koropatnick; Marty King
Oceans and Coastal Management Division, Ecosystem Management Branch, Fisheries and Oceans Canada Maritimes Region

10:00-10:15 AM

The Government of Canada has committed to increase the proportion of Canada's marine and coastal protected areas to 5% by 2017 and 10% by 2020. Fisheries and Oceans Canada (DFO) is responsible for leading the development and implementation of a national network of marine protected areas (MPAs) in support of these commitments. Parks Canada, Environment Canada and the provinces and territories are important government part-

ners in this process. DFO's contribution to the network will consist of *Oceans Act* MPAs and certain other conservation measures (e.g., sensitive benthic area closures) in both coastal and offshore areas. The process of identifying coastal contributions to the MPA network will focus on Ecologically and Biologically Significant Areas (EBSAs) that have been identified for the Atlantic coast of Nova Scotia and the Bay of Fundy. Not all of these EBSAs will become part of the MPA network. DFO is beginning consultations with the public, other government agencies, Aboriginal groups, and interested stakeholders to identify EBSAs or portions of EBSAs that would be good candidates for inclusion in the network. Every effort will be made to select areas that offer strong biodiversity protection, while also minimizing any potential economic impacts. As the largest stakeholder group in the Maritimes, it is vitally important that the commercial fishing industry be involved in this MPA network planning process.

10:15-11:00 AM

Break

Eastern Scotian Shelf fisheries-induced trophic cascade: a review of the evidence and an alternative interpretation

Mike Sinclair; Mike Power; Erica Head; Bill Li; Mike McMahon; Bob Mohn; Bob O'Boyle; Doug Swain; John Tremblay
Department of Fisheries and Oceans

11:00-11:15AM

Two hypotheses have been proposed to account for trophic dynamic control of the eastern Scotian Shelf ecosystem off Atlantic Canada: (1) top-down: *fishery induced trophic cascade* and (2) bottom-up: *climate variability.* We evaluate the evidence in support of these hypotheses: including observations on top-down drivers (fishing effort and predation by grey seals), bottom-up drivers (nutrient supply and water column stratification), and the several trophic levels (groundfish, macro-invertebrates, small pelagic fish, and plankton). There is limited support for the *fishery-induced trophic cascade* hypothesis. The predictions of the *climate variability* hypothesis are generally met for the lower and middle trophic levels, but the ongoing high levels of natural mortality of groundfish are not accounted for. We propose an alternative hypothesis encompassing concurrent top-down and bottom-up processes, and conclude that many species of groundfish (including cod) and small pelagic fish stocks (including herring) will not recover with the ongoing high levels of natural mortality generated by grey seal predation. Predictions on future trends in abundance of the commercially important macro-invertebrate species (lobster, snow crab, and shrimp) are not possible based on the available evidence.

American lobster settlement in Nova Scotia; current status and future directions

Adam Cook[1], Shelley Armsworthy[1], Tricia Pearo-Drew[2], Cheryl Denton[1], Manon Cassista Da Ros[1], Brad Hubley[2]

[1]Population Ecology Division, Department of Fisheries and Oceans

[2]Fishermen and Scientists Research Society

11:15-11:30 AM

Population processes of American lobster in the Maritimes Region of Canada have been studied for more than the last 70 years. During that time substantial efforts have been directed toward describing many adult processes including movement, moult probability, size at maturity, growth, and distribution. Although there have been consistent projects examining the larval and newly settled stages throughout that time, there has been an increased focus in their study over the past several decades in numerous sites around the Gulf of Maine and Maritimes Region. In Nova Scotia, lobster settlement has been studied since 2005 at one site and currently is monitored at five sites around the province. In this presentation, the current status and future directions for this project will be discussed.

Predicting effects of climate change on larval drift and benthic recruitment of American lobster (*Homarus americanus*)

Brady K. Quinn; Rémy Rochette[1]; Joël Chassé[2]
[1]*University of New Brunswick, St. John*
[2]*Maurice Lamontagne Institute, Department of Fisheries and Oceans, Sainte-Flavie*

11:30-11:45AM

The persistence of American lobster fisheries depends on a reliable supply of larvae each year, which hinges on local egg production and drift of larvae among areas. Climate change is predicted to make ocean waters warmer and alter currents, making them stronger throughout eastern North America. These changes might impact larval supply to fisheries, and we are attempting to estimate how. We used a computer model to simulate likely changes to temperature and currents by 2061-2065 and how these will alter dispersal of lobster larvae relative to now (2011-2015). Overall changes are predicted to be positive because more larvae survive and settle with future temperatures and currents, increasing fisheries recruitment and likely subsequent catches in most fishing areas. However, predicted changes to connectivity and the proportion of larvae settling in each area that hatched there (self-seeding) differ among regions. In the Gulf of St. Lawrence self-seeding is predicted to increase. However, in the Gulf of Maine and Scotian Shelf it is predicted to be lower in the future, which may make managing the fishery there more difficult as local egg production may have a lessened impact on the number of young lobsters in those areas. Results so far must be taken with caution due to uncertainties involved in modelling future climates, lobster biology, and larval drift. We will continue to work with this model to confirm and test these predictions and their implications to hopefully allow the fishery to prepare for and mitigate the effects of climate change.

Fishing Safety Now

Fisheries Safety Association of Nova Scotia

11:45-12:00AM

What has Nova Scotia initiated to help improve safety in the fishing industry? Fishing Safety Now is a five-year action plan developed BY industry FOR industry, including 33 recommendations from fishermen/

women as to what needs to be done to get everyone on board – including government organisations – towards making fishing safer and to improve the safety culture in the industry. We will briefly look at some of the activities of the industry working groups, e.g.: Awareness; Code of Practice; Real Safety; Weather; Lessons Learned; Agency to Agency Improvements; Safety Organizations; Fatigue, Drug and Alcohol; Fisheries Management; Enforcement.

12:00-13:30 - Lunch & AGM

Agenda

Fishermen and Scientists Research Society

***Annual General Meeting* (12:30-13:30)**

1. Welcome and Introductions - Ken Snow
2. Approval of the Agenda
3. Approval of Minutes of 2015 Annual General Meeting
4. Annual Board of Director's Report - Ken Snow
5. Director of Operations Report - Shannon Scott Tibbetts
6. Finance Report - Shannon Scott Tibbetts
7. Election & Appointment of Officers & Committee Chairs for 16/17
   - Scientific Program Committee Chair
   - Communications Committee Chair
   - Executive Officers
   - Directors at Large
8. Appointment of Auditors for 2016-2017
9. New Business
10. Closing of the meeting

Scientific Program Committee Report and Review of Annual Work Plan - 13:30-14:15

Sarah Delorey
Guysborough County Inshore Fishermen's Association

14:15-14:35 PM

The Guysborough County Inshore Fishermen's Association (GCIFA) is an accredited non-profit association under the Fisheries Organization Support Act, registered with the Registry of Joint Stock. The association is made up of core fishermen and crewmembers that fish in the County of Guysborough, NS. There are 134 members; 109 lobster license holders who are primarily inshore, small boat, fixed gear fishermen. The fishermen hold a variety of species licenses as well as temporary permits to fish new exploratory fisheries.

GCIFA lobster license holders originally began collecting data sets on their lobster fishery to evaluate DFO imposed and adopted conservation measures in the late 1990'S. At that time GCIFA partnered with DFO to begin tagging studies for berried females, windows and v-notching. Later on 2008-09 budget and human resource cuts, DFO science discontinued the valuable data sets from at-sea sampling during the season. GCIFA wanted to contribute and continue the valuable at-sea sampling data sets that were previously collected by DFO

technicians. Interns and a lobster tech were hired by GCIFA to collect this data and all other research. This research has been very valuable to the fishermen in the lobster industry, local buyers, academics, NS Fisheries Department and DFO scientists, with whom we share our data results. We have increased our capacity in lobster knowledge and marine science research methodology as well as research equipment and a fully operational research lab facility. We could not have done this without the continued support of our fishermen, our buyers, the Province of NS and DFO.

Michelle Theriault

Université Sainte-Anne Marine Research Centre

14:35-14:55 PM

Université Sainte-Anne's Marine Research Centre, situated at their satellite campus in Petit de Grat, NS, conducts applied research specifically designed to help the local marine and aquaculture industries face new challenges. Since its inception in 2005, the Marine Centre has conducted a wide range of applied R&D projects related to commercial fisheries, aquaculture and climate change. This presentation will provide an overview of some of these projects including: the use ocean nurseries for the culture of juvenile lobsters (*Homarus americanus*), live storage of snow crab (*Chionoecetes opilio*), long distance live transport of American lobsters and live storage and transport of trap caught Northern Shrimp (*Pandalus borealis*). The Centre also runs a wild sea scallop (*Placopecten magellanicus*) seed operation to support the development of the scallop aquaculture industry by ensuring a consistent, reliable and high quality seed source.

Veronika Brzeski

LFA 27 Management Board

14:55-15:15 PM

The LFA27 Management Board originated in 2010 in response to a call for proposals from DFO. After surveying lobster harvesters in the area, the Board focused on 2 areas of work -- science and governance. Since 2011, the Board has been collecting data on the lobster fishery and conducting research projects identified by local lobster harvesters. This presentation will review the process and the topics of research implemented by the Board.

Peter Connors

Eastern Shore Fishermen's Protective Association

15:15 –15:35 PM

TBD

Abstracts

Student Posters

Using a new and expanded dataset to identify lobster stocks based on changes in landings through time

Sha Bo; Brady K. Quinn; Dr. Rémy Rochette
University of New Brunswick, St. John

Fisheries stocks, as defined by management, are based more upon distribution and types of fishing activities than species biology, and thus can miss important aspects of population structuring and dynamics. Mismatches between biological processes and management regulations could cause the overexploitation and/or the depletion of fished stocks. American lobster (*Homarus americanus*) is a valuable commercial fishery resource in Atlantic Canada, which there is much incentive to conserve. Possible biological lobster stocks have been identified in previous studies using several different methods, including genetics, larval drift modeling, tracking, etc. Lobster landings are a good indicator of lobster abundance, so analyses of how landings change over time, and similarity or difference of these changes among areas, can be used to estimate stock boundaries. In this study, 66 years of landings data from 186 statistical districts (SDs) across the lobster's range will be used to test how well these data support stock structures proposed by previous published studies, and current fisheries management zones. A new statistical method of identifying stocks from landings data will also be developed, which should allow for better estimates than were possible in previous studies using landings data. This study will then compare landings before (1947–1980) and after (1981–2014) recent changes to lobster landings, to determine whether lobster stock structure has changed over recent years. Results will provide important information to the lobster fishery, as identification of stocks on which to base assessment and management is an essential tool for a sustainable fishery.

Impact of salmon aquaculture on gene expression of juvenile American lobster (*Homarus americanus*) in the Bay of Fundy, New Brunswick, Canada

Cody Bourque; Dr. Scott Pavey; Dr. Rémy Rochette
University of New Brunswick, St. John

American lobster (*Homarus americanus*) fisheries and the salmon aquaculture industry contribute to a large portion of local food production and the economy in New Brunswick, Canada. Juvenile lobsters are found in the same areas as salmon aquaculture sites in the Bay of Fundy. Overlap between the two industries is a cause for concern because the potential effects of aquaculture effluent on lobsters are poorly understood. Aquaculture effluent includes excess food, fish urine and feces, vitamins, anti-fouling chemicals, and potentially toxic pesticides. Lobsters are constantly absorbing water from their surroundings when they drink, respire, or molt, and we can assume that any aquaculture effluent near lobster shelters will ultimately reach the body of the lobster, particularly juvenile lobsters, which spend much of their time sheltered. I am examining whether effluent from salmon aquaculture is affecting the stress levels, detoxification, and immune system responses of juvenile lobsters by comparing patterns in gene expression from 110 juvenile lobsters living at aquaculture sites or

at control sites in the Bay of Fundy. The detoxification system activates when foreign drugs/chemicals are introduced to the body of the lobster. An increase or decrease in gene expression (activity of the three above systems) at aquaculture sites compared to control sites would suggest aquaculture effluent is affecting juvenile lobsters. This study will provide significant insight into the nature and extent of interactions between salmon aquaculture and overall juvenile lobster health.

Analysis of metal concentrations and stable isotope ratios in juvenile American lobsters exposed to aquaculture sites in the Bay of Fundy, Canada.

Andrea Castillejos Sepulveda; Rémy Rochette; Karen Kidd
University of New Brunswick, St. John

Salmon aquaculture is an important source of income for communities surrounding the Bay of Fundy, but concerns have been raised over the possible effects that effluent from the aquaculture cages might have on local American lobsters, which make up the region's traditional fishery. These possible effects include the accumulation of metals which in very high concentrations may cause negative effects in lobsters, such as copper and zinc. Studies in the Bay of Fundy, published in 1993 and 2002, found elevated concentrations of copper and zinc in lobster tissue that were traced back to aquaculture feed pellets, which contain small amounts of metals due to the dietary needs of salmon. Undigested feed pellets and feces also act as extraneous sources of carbon and nitrogen to the local ecosystem. Analysis of stable isotope ratios may show if lobsters close to cages consume salmon feed, either directly or indirectly. Juvenile lobsters are considered to have higher exposure to aquaculture effluent than larval and adult lobsters since nursery areas for juveniles often overlap with areas used for aquaculture operations. In this study, stable isotope ratios and the concentrations of copper and zinc found in the tissue of juvenile lobsters found in the vicinity of aquaculture sites will be compared to the tissue of lobsters from unexposed sites. Results will aid in identifying the extent to which the diet of juvenile lobsters is influenced by aquaculture operations, and may aid in decision-making processes that will reduce the bioaccumulation of metals in lobsters.

Effects of salmon aquaculture on the abundance and growth rates of juvenile American lobster (*Homarus americanus*) in the Bay of Fundy

Maggie Folkins,; Kristin Dinning; Rémy Rochette; Raouf Kilada
University of New Brunswick, St. John

Salmon aquaculture operations and American lobster (*Homarus americanus*) fisheries are both valuable industries in southwest New Brunswick. However, effluent from the open pens used in salmon aquaculture, and sea-

floor sediments in their vicinity, contain faeces, uneaten fish feed, pesticides, chemicals used to improve fish health (e.g., antibiotics), and other contaminants. These could pose a risk to the health of nearby marine ecosystems and commercially harvested species, especially benthic species like lobsters living in or on the seafloor. Little is known about the possible impacts of salmon aquaculture on lobsters, particularly on juvenile lobsters during their early years when they spend most of their time sheltered in one area where they may experience long-term exposure to nearby aquaculture operations. Some fishermen believe lobster may be attracted to the pens, while others report increased mortality in traps set close to aquaculture pens. I am quantifying the abundance of newly settled and juvenile lobsters at salmon aquaculture sites and at control sites (away from aquaculture) to see whether aquaculture may attract lobster settlers and juveniles, repel them, or increase mortality of those living nearby. I will also assess the effects of aquaculture on the growth of juvenile lobsters by comparing the size-at-age of individuals found at aquaculture and at control sites. Ultimately, this study will be the first to assess the effects of chronic exposure to aquaculture on juvenile lobsters in the natural environment, and will help determine the nature of the interactions between these important industries.

A science-industry study of the distribution of community benefits in Atlantic Canadian fisheries

Dan Mombourquette; Dr. Anthony Charles; Dr. Robert Stephenson

Saint Mary's University/Canadian Fisheries Research Network

An academic, government, and industry collaboration investigated the distribution of benefits from fisheries to the community of Grand Manan, New Brunswick. The selected set of indicators (employment, income, number of vessels, number of licences, and landed value) effectively tracked changes in community fishery benefits, and indicated that: Grand Manan has lost community benefits from the herring and groundfish fisheries (which shifted to neighbouring regions, i.e. Southwestern New Brunswick and Southwestern Nova Scotia), but maintained many benefits from the lobster fishery. The results revealed that external social-ecological dynamics (e.g. landings, physical capital transferability, processing capacity, adjacency, etc.) influence the distribution of community benefits. This research has the potential to provide guidance to future research aiming to assess the distribution of benefits, at the community scale (and beyond). Furthermore, government agencies might use this research to inform future management strategies so as to mitigate against adverse social-ecological community affects. This work will also inform a larger holistic Evaluation Framework for Sustainable Fisheries, developed by the Canadian Fisheries Research Network (CFRN).

Linking the seasonal distribution of jellyfish and leatherback sea turtles on the Scotian Shelf

Bethany Nordstrom; Boris Worm; Mike James[1]

[1] *Dalhousie University*

The rich temperate waters along the Scotian Shelf attract many endangered leatherback sea turtles annually. They are highly migratory, traveling thousands of kilometers between tropical waters to nest, and northern temperate waters to feed. Leatherbacks are obligate jellyfish feeders, and feed almost exclusively on large scyphozoan species (such as lion's mane and moon jellies) while in Canadian waters. A significant amount of research has been done on leatherbacks in Atlantic Canadian waters over the last decade, however their prey distribution is not well known.

I am investigating the predator-prey relationship of leatherbacks and jellyfish. I am seeking to collaborate with fishermen who would be willing to record jellyfish observations, and citizen scientists to monitor sections of beach for stranded jellyfish through the spring, summer and fall.

Using a citizen-science approach along with in-situ jellyfish sampling techniques, this project will 1) describe the spatial and seasonal variations of jellyfish abundance along the Nova Scotia coast; and 2) relate this distribution information to leatherback sea turtle

distribution, using leatherback satellite telemetry data. The goal is to understand and define critical feeding habitat for leatherback sea turtles based on prey density and abundance.

Potential impacts of high, stressful temperatures on development, drift, survival, and settlement of American lobster larvae in future climates

Brady K. Quinn; Rémy Rochette[1]; Joël Chassé[2]
[1]*University of New Brunswick, St. John*
[2]*Maurice Lamontagne Institute, Department of Fisheries and Oceans, Sainte-Flavie*

Warming is usually beneficial to cold-blooded animals, like American lobsters, and improves moulting, growth, and survival rates. However, too much warming, which could result from future climate change, can be stressful and/or lethal. The range of high temperatures that are stressful (≥ 20°C) and lethal (≥ 25°C) to adult lobsters are fairly well-known, but less attention has been paid to such limiting temperatures for lobster larvae. However, temperatures in the water column, where larvae live, are expected to increase faster than those at the sea bottom, where adults live, so future warming may impact larvae before adults. Very few previous scientific studies (~9) examined effects of very high temperatures on lobster larvae, and most were not very rigorous, so this topic should be revisited. We reviewed these studies and determined from their results that temperatures ≥ 26-30°C, and possibly those 20-26°C, are stressful to larvae. We will next add these estimates of thermal stress effects on larval survival, moulting, and settlement to a model of lobster larval drift coupled to currents and temperatures from a model of future (2061-2065) climate and

oceanography. Including thermal stress in simulations is expected to reduce drift, survival, and settlement of larvae in future climates, and thus reduce some of the previously-predicted beneficial effects of future climates on lobsters. These results will highlight the need for further research into tolerance of lobster larvae to high temperatures, and the need to account for thermal stress effects when predicting effects of future climate change on lobster fisheries.

Abstracts

Non-Student Posters

Fostering stewardship for at risk marine fishes: An assessment of existing measures

Susanna Fuller; Chelsey Karbowski
Ecology Action Centre

Several species of groundfish in Atlantic Canada have been assessed by COSEWIC (Committee on the Status of Endangered Wildlife in Canada). Despite various measures to reduce mortality from directed and indirect fishing activity on non-listed marine species at risk – particularly those that continue to be the subject of commercial fisheries – these species remain at low levels. We have reviewed all existing measures found within the Integrated Fisheries Management Plans (IFMPs), Conservation Harvesting Plans (CHPs) and Recovery Potential Analyses (RPAs), as well as conditions included in relevant Marine Stewardship Council (MSC) certifications to assess the comprehensiveness of available measures. We make specific recommendations for additional measures for species at risk that could be of use in fostering increased stewardship in the fishing industry and identify measures that should be included in a fishery Work Plan, under DFO's Default Listing Policy, in the even that a decision is made to not list commercially harvested species under the Canadian Species At Risk Act (SARA). Measures include the additional logbook data and recording of species at risk, implementation of video monitoring, with the goal of increasing monitoring levels and reducing observer costs, and ensuring that such information is useable in scientific assessments.

Lobster recruitment trap project

Tricia Pearo Drew

Fishemen and Scientists Research Society

The Lobster Recruitment Index from Standard Traps project began in the spring of 1999. The goal of the project is to provide an index of the number of lobsters that will moult into the legal sizes in upcoming seasons. The project was initiated by the Fishermen and Scientists Research Society (FSRS) in cooperation with the Population Ecology Division, Department of Fisheries and Oceans at the Bedford Institute of Oceanography (BIO). The initial phase of the project was planned for five years but after reviewing the pro-

ject's usefulness, it is scheduled to continue for the foreseeable future.

The project involves over 130 volunteer fishermen fishing 2, 3 or 5 standard scientific traps each in fixed locations. The traps are fished in locations from the northern tip of Cape Breton to the southern tip of Nova Scotia and up the Bay of Fundy. The lobster fishing areas (LFAs) represented are 27, 28, 29, 30, 31a, 31b, 32, 33, 34 and 35.

Each standard trap is made of wire with one inch mesh, has five inch entrance rings and no escape mechanisms. Participating fishermen sex and measure all of the lobsters that they catch in the standard traps. They use a specialized measuring gauge that has 15 size groupings. Fishermen also monitor bottom water temperatures with a VEMCO data logger in one of the standard traps. The bottom water temperatures are forwarded to the oceanographers at BIO and are a great addition to their coastal temperature monitoring database.

4VsW Sentinel Program

Shannon Scott-Tibbetts[1]; Tricia Pearo Drew[1]; William MacEachern[2]

[1] Fishermen and Scientists Research Society; [2] Fisheries and Oceans Canada

Initiated in 1995, the 4VsW Sentinel Program utilizes commercial longliners to establish a series of catch rate and abundance indices which could be useful in assessments and management of groundfish resources. The scientific data collected from the program is integrated into existing DFO databases to enhance the accuracy of stock assessments. The 4VsW Sentinel Project continues to improve the relationship and understanding between fishermen and scientists, as well as promoting fish stock conservation and management objectives.

Display Booths

Thank you for attending our conference!

DSS Marine

Ecology Action Centre

DFO - Oceans and Coastal Management Division

Lobster Council of Canada

Maritime Aboriginal Peoples Council

Nova Scotia Institute of Science

TriNav Fisheries Consultants

VEMCO

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