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# HOOK, LINE AND THINKER

The Newsletter of the Fishermen and Scientists Research Society

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Fall 2004

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## A RECORD NUMBER OF FISHERMEN COLLECTING LOBSTER SCIENCE IN FALL 2004 SEASON



By Carl MacDonald, FSRS Research Biologist

The opening of the fall lobster season got off to a windy start. Dumping day was delayed from Monday the 29<sup>th</sup> of November to Tuesday the 30<sup>th</sup>. With the season finally underway, we now have a record number of lobster fishermen voluntarily collecting scientific data from lobster traps in lobster fishing areas (LFAs) 33 and 34. In LFA 34, there are 48 fishermen recording the number, size and sex of lobsters they catch from two science lobster traps each. In LFA 33, there are 54 fishermen collecting lobster data from three science lobster traps each. In addition, there are 54 fishermen recording the number, size, and sex of lobsters they catch from three of their own commercial traps. This Fall the volunteer fishermen will collectively record data on over 20,000 lobsters.

The data the fishermen are collecting from three of their commercial lobster traps will be used to gain insight on the sizes and sex of legal size lobsters being captured. The information the fishermen are collecting from the science lobster traps is being used to determine the number and size of juvenile lobsters that will be recruited into the lobster fishery in the upcoming seasons. Some fishermen have been collecting this data over six lobster seasons. The longer this lobster data is collected, the better we are able to determine trends in lobster recruitment over time. In addition, each participant monitors bottom temperatures by placing a temperature gauge in one of their science traps for the whole lobster season. The data the fishermen are collecting is very important. The fishermen are contributing to the overall knowledge of the lobster stocks in their area and providing insight into the future of a very important lobster industry.

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## 4VSW SENTINEL SURVEY CAPTAIN FINDS PARASITES IN HADDOCK



By Carl MacDonald, FSRS Research Biologist

Richard Jewers, captain of the longline vessel *Scotty 'N' Sisters* from Ecum Secum, Nova Scotia decided to purchase some of the haddock he had caught from Western Bank during a 4VsW Sentinel Survey trip on September 25<sup>th</sup> 2004. When filleting the haddock Richard made an interesting find; he noticed white spots in the flesh of two different haddock. Richard called the Fishermen and Scientists Research Society to request their help with his find. The two haddock with the white spots were placed in a bag and frozen until they could be examined by scientists. The haddock were examined at the FSRS and it was determined that the white spots could be a type of parasite. The FSRS then sent the haddock to a parasite specialist, Dr. Gary McClelland, DFO in Moncton, New Brunswick. Dr. McClelland examined both fish and explained the cause of the white spots. The following is Dr. McClelland's explanation:

The white spots in the musculature of Western Bank haddock were granulomata enclosing spores and hyphae of the fungus *Ichthyophonus hoferi*. I suspected this was the case all along, but, given that *I. hoferi* has rarely been reported in the flesh of gadids in eastern Canada, I was reluctant to comment until I saw the specimens.

The fungus commonly infects marine and fresh water fish throughout the world, and has been found in a wide variety of fish species in the North Atlantic. Although the infection is systemic, it's usually confined to the viscera, and primarily the kidneys in gadids. Macroscopic lesions in the musculature occur only in heavily infected fish (McVicar & McLay 1985). In clupeids (herring) and salmonids, the infection frequently attacks the heart and is believed to be a significant cause of mortality. In flatfishes, the fungal lesions are often apparent in the liver.

Going back through my records I found that I previously identified *I. hoferi* lesions in fillets of Western Bank cod for the quality control department at National Sea Products Lunenburg plant, in December 1991. In the same memo, I noted that a colleague, Carol Morrison, had identified the fungus in haddock fillets from the same area a year earlier. During an ICES survey in June 1998, we found fungal lesions in the livers of 66 (12%) of 566 yellowtail flounder from Western Bank. Although *Ichthyophonus* is generally considered to consist of a single cosmopolitan species, Rand *et al.* (2000) have recently described what they believe to be a second species, *I. irregularis*, in yellowtail flounder from Browns Bank.

The fungus is acquired through direct consumption of infected fish or their remains, and by preying on sarcophagous fish or crustaceans which have consumed the remains of infected fish. While long recognized as a serious pathogen and cosmetic problem in aquarium, farmed and free-living marine and freshwater fish, *I. hoferi* does not appear to be a threat to human health.

Richard Jewers' find was significant. This fungal parasite is not usually found in the flesh of haddock. Only in very heavily infected haddock are these parasites found in the flesh. Richard Jewers asked some important questions: "How many other haddock have this parasite?", "Is any one checking?" and "Is this parasite causing mortality to haddock on the Scotian Shelf?" I am unaware of anyone looking into this problem and therefore am unable to know how many haddock may be infected. Based on

research done in Scottish waters, this fungal parasite in haddock is not normally lethal to the fish (McVicar, 1979). Haddock develop a good tissue defence response which contains the infection and destroys many of the spores (McVicar, 1979). Haddock infected with this parasite showed no indication of significant loss of condition or showed no significant population mortalities even in locations where most fish were infected (McVicar, 1979). On the other hand plaice and herring infected with this parasite have high mortality rates.

I would like to take this opportunity to thank Richard for bringing this to our attention. If you encounter something unusual when fishing, document your find, keep a sample for scientific identification, and give us a call. The FSRS will gladly help you find answers to your questions. You never know, your find could be an important discovery.

### **References**

McVicar, A.H. & H.A. McLay. 1985. *in* 'Fish and Shellfish Pathology'. Academic Press.

McVicar, A.H. 1979. *Ichthyophonus* in Haddock and Plaice in Scottish Waters. ICES Demersal Fish Committee. ICES CM; 1979/G:48

Rand, T.G. *et al.* 2000. *Dis. Aquat. Org.* 41: 31-36.

McClelland, Gary. 2004. Personal Communication via e-mail. Department of Fisheries and Oceans. Gulf Fisheries Centre. P.O. Box 5030 Moncton, New Brunswick.

## **LOBSTER BLOOD PROTEINS 101**

By Jennifer LeBlanc, FSRS Fisheries Technician

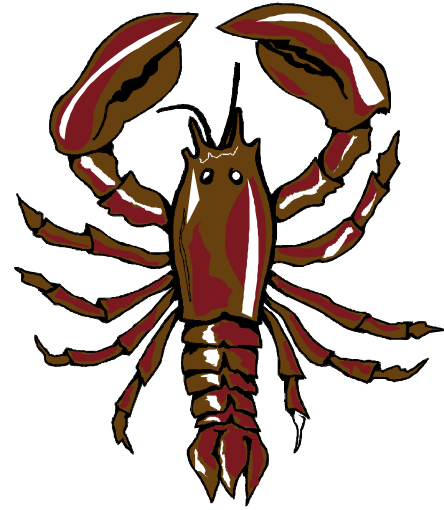
On October 19<sup>th</sup>, 2004, I attended a hands-on seminar on lobster blood proteins along with my fellow FSRS employees Carl MacDonald, Jeff Graves, and Amanda Facey. Jean Lavallée and Andrea Battison, from the Atlantic Veterinary College's Lobster Science Centre in PEI, hosted the seminar. (For more information visit: [www.lobsterscience.ca](http://www.lobsterscience.ca)). The goal was to better understand what impacts the blood protein levels of lobsters, and the techniques used to measure them.

A lobster with a high blood protein level is usually considered to have high meat content and to be an overall strong lobster. However, there are a number of factors that can affect blood protein levels. A lobster with high concentrations of blood proteins may be dehydrated, producing eggs, near molting, or suffering from an infection. Since blood protein levels are an indicator of health, buyers and scientists often measure them. Buyers use the information to decide whether an animal should be shipped immediately or kept in the pound. Scientists are starting to use the information to determine molt stages in lobsters in LFAs 33 and 34, where there have been quality issues.

The refractometer is the easiest, fastest, and least expensive piece of equipment for measuring blood protein levels. A value called the refractive index (RI) is measured as light passes through the blood. Refractive index is proportional to the number or particles (solids) in the blood. Proteins are the most abundant solids in blood. The concentration of proteins in the blood impacts how the light passes through. So, refractometers only offer an estimate of blood protein levels by providing a reading of total blood solids. It is important that anyone using a refractometer understands that it is necessary to control for temperature (either with a temperature compensated refractometer or by calibrating the instrument every hour or so). Also, there is a lot of variation in RI values between brands of refractometers. It is strongly advised that individuals do not compare readings unless they are using the exact same brand of refractometer and both are calibrated regularly.

## JORDAN BAY LOBSTER – PIPELINE STUDY ON HOLD

The lobster acoustic tagging study proposed for Jordan Bay has been put on hold. The Blue Atlantic group has put a hold on providing funds for additional research until natural gas deposits of commercial value have been located. The FSRS, the DFO, and Blue Atlantic look forward to pursuing this project in the future and wish to thank all those involved for their cooperation and input into this proposal. Studying lobster movement remains an important topic of research with respect to lobster – pipeline interactions.



### NEW TO THE FSRS LIBRARY

DFO, 2004. South Shore Nova Scotia Lobster (LFA 33). DFO Science Stock Status Report 2004/038. (*Note of Interest: FSRS Data was used extensively in this report.*)

DFO, 2004. Review of Scientific Information on Impacts of Seismic Sound on Fish, Invertebrates, Marine Turtles and Marine Mammals. DFO Can. Sci. Advis. Sec. Habitat Status Report 2004/002.

DFO, 2004. Potential Impacts of Seismic Energy on Snow Crab. DFO Can. Sci. Advis. Sec. Habitat Status Report 2004/003.

M. Wiber, F. Berkes, A. Charles, J. Kearney. Participatory research supporting community-based fishery management. *Marine Policy* 28 (2004) 459-468.

G.G. Pesch and P.G. Wells (eds.). 2004. *Tides of Change Across the Gulf. An Environmental Report on the Gulf of Maine and Bay of Fundy.* Prepared for the Gulf of Maine Summit: Committing to Change, Fairmont Algonquin Hotel, St. Andrews, New Brunswick, Canada, October 26-29th, 2004. Gulf of Maine Council on the Marine Environment and the Global Programme of Action Coalition for the Gulf of Maine, 81p. [www.gulfofmaine.org](http://www.gulfofmaine.org).

Maine Lobstermen's Association and the Gulf of Maine Lobster Foundation. June 2004. Proceedings: Lobster Summit March 5, 2004, Follow-up Discussion March 6, 2004. 58p.

DFO, 2004. Presentations from the National Workshop on collaboration in fisheries Science. Montreal, Quebec, February 17-19, 2004.

Nova Scotia Fisheries Sector Council. 2000. Quality Groundfish from Ship to Shore. (Video)

**To borrow material from the FSRS Library, contact Patty King  
at (902) 876-1160 or [pmdservices@eastlink.ca](mailto:pmdservices@eastlink.ca).**

## **EASTERN SCOTIAN SHELF INTEGRATED MANAGEMENT (ESSIM) COMMUNITY WORKSHOP**

By Shannon Scott-Tibbetts, FSRS Research Assistant

I attended a workshop in Ship Harbour, NS hosted by the Oceans and Coastal Management Division (OCMD) of Fisheries and Oceans on November 24, 2004. This workshop was initiated to increase awareness of ESSIM in coastal communities and to expand opportunities for participation for their residents. Attendance was small but there were some useful and interesting discussions. Along with people from the OCMD, there was a member of the Eastern Shore Fisherman's Protective Association (ESFPA), Danny Truen, and Jen Smith from the World Wildlife Fund. Scott Coffen-Smout and Tim Hall from the OCMD made presentations, giving a brief description of the ESSIM process and the Collaborative Planning model which will be discussed at the next ESSIM Forum in February, 2005.

Currently the ESSIM planning area includes portions of the Scotian Shelf from the LaHave Basin to the Laurentian Channel, though there is consideration for expansion to the Northeast Channel. The initial boundaries were based on ecological, ocean use, political and administrative uses. The focus is on the offshore at the present time but coastal areas are in the plans for the future. The ESSIM plan is a multi-year, strategic level plan to provide long term direction and common basis for integrated, ecosystem-based and adaptive management of all marine activities.

The Collaborative Planning model is made up of three components: ESSIM Forum, ESSIM Stakeholder Roundtable and the ESSIM Planning Office. The ESSIM Forum is the collective of all organizations, groups and individuals who are stakeholders. There is no limit on the size of the Forum. Leadership for the process and the actual work of developing the plan is provided jointly by the ESSIM Stakeholders Roundtable and the ESSIM Planning Office. The Roundtable will possibly include about 26 individuals representing different affected sectors. The number of representatives for each sector was developed with primary consideration given to the relative size of the sector, its complexity, and the economic, social, environmental and legislative links to the ESSIM area. The Roundtable will ultimately recommend a draft plan document for stakeholder acceptance, endorsement, and approval under the Oceans Act. The ESSIM Planning Office has a role to provide leadership and expertise in planning, coordination and support for the process and liason with stakeholders and external agencies and processes. The Planning Office has the responsibility to ensure that all sectors and stakeholders have input into discussions at the appropriate level, and that a range of engagement mechanisms is available to those who are unable to participate in group processes.

This Collaborative Planning model will be discussed at the next ESSIM Forum which will be held Feb 22-23 in Halifax.

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and select the "I would like to change how I receive the newsletter" option.

## FSRS MEMBERSHIP SURVEY RESULTS

By Lesley MacDougall

In May and June 2004, while a student of the Marine Affairs Program at Dalhousie University, I surveyed members of the FSRS as background information for my graduate project. This survey provided an opportunity to discuss the level of satisfaction with members, evaluate the progress being made toward meaningful cooperation between fishermen and scientists, and suggest areas for further discussion. I would like to extend my heartfelt thanks to FSRS staff and all members who took the time to answer the questionnaire, and those who also helped me track down colleagues at the wharves.

A total of 86 members of the FSRS from across the province were surveyed by phone, mail and email for this study. Of these, 65 were fishermen (76%); 17 were scientists (20%) and 4 were not identified as either scientists or fishermen. While the majority of fishermen members are inshore fixed-gear fishermen, the FSRS membership is varied in terms of occupation, area of residence, views and opinions, level of education, and participation within the society. The participants of this survey helped me gain an appreciation for the work of the FSRS, compare the results to previous surveys, and identify general patterns.

Table 1. Numbers of fishermen, scientists, and other members interviewed from each region.

	South Shore	Mahone Bay	Halifax / Eastern Shore	North Shore	Cape Breton
Fishermen	31	6	19	2	7
Scientists	1	1	13	1	1
Other	0	0	3	0	1
<b>Total</b>	<b>32</b>	<b>7</b>	<b>35</b>	<b>3</b>	<b>9</b>

A number of common themes emerged from the surveys. Overall, respondents believed the FSRS was a useful organization: 9 respondents remained neutral (10%), 49 respondents felt the FSRS was useful (58%), 14 respondents felt the FSRS was very useful (16%), and one respondent felt the FSRS was not useful. Reasons given included the role of the FSRS as an effective communication tool between fishermen and scientists, its contribution to credible, accurate data on fisheries in Nova Scotia, its ability to provide timely and appropriate feedback (for example, temperature data readouts) to fishermen members, and its role in providing a means for fishermen and scientists to find common ground. In particular, members made special note of the timely feedback they receive from projects in which they have participated. These characteristics were identified by interviewees without prompting indicating they are prominent in the minds of the members as being significant and necessary within a decision making framework.

When asked “what was the overall reason for joining the FSRS?”, a majority of fishermen members responded that their reasons for joining were mainly issues related; including issues such as the crisis in the groundfish fishery, the desire to monitor the data collection process, or the desire to have their views taken seriously. When surveyed, many fishermen noted that prior to the establishment of the FSRS they felt DFO scientists gave little credence to their observations or opinions, and since becoming involved with the FSRS they felt that some scientists were more willing to work together on projects and accept

the contributions of fishermen. In contrast, the majority of scientists suggested their reasons for joining were data related; they view the FSRS as an effective connection to fishermen for data collection and distribution. To date, the FSRS has been vigilant about ensuring that its fishermen members are not considered merely as a source of cheap data. The results of this survey reinforce the wisdom of outlining the responsibilities associated with partnerships forged within the society.

The FSRS newsletter received a favourable evaluation: 75% of respondents felt the newsletter was useful or very useful. Respondents also noted the value of word of mouth, and meetings, to learn about FSRS initiatives and membership. Many respondents noted that they first heard about the FSRS through friends or colleagues, at fish plants, or on wharves. Others mentioned the importance of recruitment meetings held by FSRS employees. Many said they would recommend FSRS membership to friends or colleagues (if they had not already done so), but there was a perception that the FSRS was not looking to expand. These comments outline the importance of individual to individual contact, for communication and legitimacy: members often noted that their reason for joining was because a friend, co-worker or family-member – someone they trusted – had become involved.

Most members felt satisfied with the accessibility of meetings without feeling pushed to attend, however some members noted that it was difficult to attend Halifax meetings. Some members also expressed concern about the limited membership of the FSRS, by asking what would occur if the data collected and used by the FSRS cast an uncomplimentary light on the practices of other fishermen in other sectors.

Most respondents appreciated FSRS member surveys, seeing them as evidence that the society was keeping in touch with its members, and were in favour of further follow-up. In some cases, however, fishermen members noted a large degree of individualism in their occupation, and suggested that those who wish to be involved in the society will do so with or without greater contact with FSRS representatives.

The results of the questionnaire indicate that, while there is a greater degree of fishermen participation, and more opportunity for collaboration between DFO scientists and fishermen, the decisions made by DFO are rarely met with increased confidence. Decision-makers have not included themselves in the cooperation process and therefore their actions are not transparent or well-received. While respondents agreed that in the time they have been involved with the FSRS they have noticed improved communication, understanding and trust, they suggest that these changes have occurred on a person-to-person level, and that trust between individual scientists and fishermen does not necessarily translate to increased trust for science in general, or DFO in particular. Fishermen who responded remain concerned that DFO management will hold sway over collected data, such that allocation decisions made within DFO would only include FSRS data if it supported the favoured position pre-determined by DFO management.

Many respondents expressed concern about funding: many wondered whether or not the current funding framework would be secure, a few respondents were concerned about the current decision to end the 4VSW sentinel survey, and the problems associated with an interruption in the data collection for that survey. Some respondents suggested the need to secure industry funding to provide a greater degree of independence from DFO. Some of these concerns are part of a larger disquiet about the close relationship between DFO and the FSRS, and possibly a misconception about the roles each organization plays in the fishery – perhaps an opportunity for further communication.

## FISHERIES RESEARCH IN NEW ZEALAND

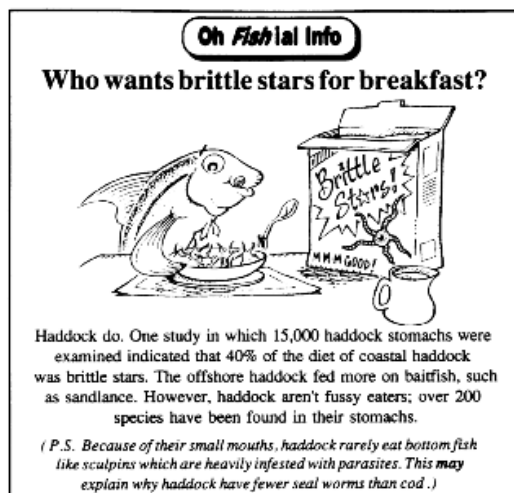
By Carl MacDonald, FSRS Research Biologist

On November 23<sup>rd</sup> 2004, the Fishermen and Scientists Research Society was fortunate enough to have a scientist from New Zealand pay us a visit. Dr. Ron Blackwell is a fishery scientist from New Zealand. He works for the National Institute of Water and Atmospheric Research (NIWA). Ron had contacted Kees Zwanenburg (DFO) and me a number of months ago to discuss hook and line surveys and their usefulness in determining the relative abundance of a fish species.

Subsequently, Dr. Blackwell indicated he was planning to come to Halifax and offered to do a presentation at the Bedford Institute of Oceanography. Arrangements were made and a notice was sent out about the presentation. The presentation was attended by a number of BIO scientists and university students. Dr. Blackwell gave a brief description of the New Zealand fisheries zone, which stretches from the subtropical Kermadec Islands to the Antarctic Ross Sea, and the major fisheries within the zone. He described the major research programmes that operate in these fisheries, focusing on the inshore fisheries. He talked about the recreational fisheries in New Zealand, and described his recently completed pot fishing survey for blue cod (*Parapercis colias*: Pinguipedidae). Dr. Blackwell explained he was conducting a tagging study on blue cod. He tagged 1000 blue cod with bright yellow spaghetti tags. The tagging study will hopefully provide some insight on the range and movement of the blue cod in New Zealand waters. For us North Americans, the blue cod is not a cod as we know it, it basically is a perch. The maximum size of a blue cod is 45cm (about 18 inches). The blue cod does taste good and is fished by both recreational and commercial fishermen.

Another interesting topic discussed by Dr. Blackwell was the fact fishery science in New Zealand is not conducted by one body. Companies send in tenders to the federal minister of fisheries and they are chosen based on their ability to provide accurate science. If they do not deliver the science or the science is deemed unreliable, then some other company will be chosen next time. Currently, in New Zealand there are about 12 different companies conducting fisheries research. They are all very accountable for their science. It is a difficult system for the scientists to work under, however, if the science is sound then a company will be rewarded with more contracts.

In conclusion, Dr. Blackwell delivered a good presentation. There were numerous questions and everyone came away from the meeting with a better knowledge of New Zealand fisheries.



Oh Fishial Info has been provided by the Communications Branch of the Department of Fisheries and Oceans.

### Fast Fact

The only fish in our region whose young move to fresh water to feed and grow after being spawned at sea, is the **American Eel** (*Anguilla rostrata*).

*Scott, W.B., and M.G. Scott.*  
**1988. Atlantic Fishers of Canada.**  
*Can. Bull. Fish. Aquat. Sci. 219:*  
**731p. (p. 76).**

## THE GULF OF MAINE SUMMIT: COMMITTING TO CHANGE

By Amanda Facey, FSRS Fisheries Technician and Patty King, PMD Services

Over 250 people gathered at the beautiful Fairmont Algonquin Hotel in St. Andrews, New Brunswick from October 26-29, 2004 to attend the *Gulf of Maine Summit: Committing to Change*. Those who took part in the Summit included coastal, fisheries and aquaculture experts from all levels of government, NGOs, and universities, businesses and leaders from the Gulf of Maine area, and concerned citizens. Participants from both Canada and the United States gathered to assess present environmental conditions, share knowledge, and work together to develop plans for action to continue improving the environmental condition of the Gulf of Maine. It was also an opportunity to celebrate 15 years of accomplishments and cooperation among these groups.

As part of the pre-Gulf of Maine Summit activities, two days of pre-summit workshops were held on October 25-26, 2004 to discuss such topics as:

- Gulf of Maine Coastal Wetland Restoration;
- Interpretation for Tourism: Quality interpretation was identified as a key component to successful Geotourism;
- Exploring the concept of Regional Certification of Gulf of Maine Geotourism;
- Stewardship: Building community capacity for resource conservation and restoration; and
- Bringing the Great Lakes Indicators Experience to the Gulf of Maine.

Participants also enjoyed taking part in ocean exploration outings and tours of the Huntsman Marine Aquarium.

The Summit included a variety of presentations and panel discussions. Topics included the GPAC Watershed forums, review and discussion of the State of the Gulf report prepared for the Summit, and using indicators to communicate about the health of the Gulf of Maine. There were also a number of announcements, including a Governors' and Premiers' proclamation reaffirming their commitment to the Gulf of Maine.

A significant amount of time was also spent in breakout groups, which were made up of diverse groups of people. The sessions dealt with *Working the Issues - Contaminants, Fisheries, and Land Use: An Open Discussion of the State of the Gulf Report and Its Implications, Developing Issue Specific Indicators, and Moving Forward*. Summit participants worked together to develop a clear vision of the future of the Gulf of Maine/Bay of Fundy region and began designing specific actions and strategies to get there.

The success of the Summit is a result of the dedication and cooperation of many organizations and individuals. The diverse background of Summit participants is what creates ideas and encourages action. A proceedings document will be available in the near future. For more information on the Gulf of Maine Summit and the Gulf of Maine Council go to [www.gulfofmainsummit.org](http://www.gulfofmainsummit.org).



## BEACHCOMBING - What's New in The News

### "THE SECRET LIFE OF LOBSTERS"

A Book Review By Carl MacDonald, FSRS Research Biologist

I recently read a book called "*The Secret Life of Lobsters How Fishermen and Scientists are Unravelling the Mysteries of Our Favourite Crustacean*" by author Trevor Corson. I for one really enjoyed this book. It was very readable, informative, and explained the way fishermen and scientists in Maine were working together for the betterment of the lobster fishing industry. Sound familiar? Some of the scientists mentioned in this book attended the FSRS lobster meetings and annual conferences.

I'd say this book is for anyone with an interest in lobsters. The book explains a great deal about lobster molting, mating, fighting, the importance of the lobster's antennules, lobster larvae, predators of lobsters, and so much more. The fishermen and fishing communities in Maine are also described at great length. I certainly learned a great deal about lobsters.

Not only is the author well read in lobster science but, Trevor Corson is speaking from experience. Trevor spent two years aboard commercial lobster boats. His account of what is happening in the industry is up to date. The scientific lobster research that he presents comes from both sides of the border.

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## UPCOMING EVENTS

**THE SOUNDINGS INSTITUTE: Advancing  
Community-Based Practices in Marine  
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**Rescheduled to April 10 to 13, 2005 in  
Tatamagouche, NS, Canada.**

For information visit: [http://www.qlf.org/Soundings\\_Institute/about.html](http://www.qlf.org/Soundings_Institute/about.html)  
or email: Michele Walsh at [mwalsh@qlf.org](mailto:mwalsh@qlf.org).

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