



April 2002

SRSF
Fact Sheet 9

Social Research for Sustainable Fisheries

Oil Rigs or Fishing Boats: What are the Potential Effects of Oil and Gas Development on Southern Gulf Fisheries?



GNSBFA

Gulf Nova Scotia Bonafide Fishermen's Association

By: Christopher Peters, Student Research Assistant and Kay
Wallace, Community Research Coordinator

What's Inside ...

The Proposition	1
Environmental Implications of Oil and Gas	2
Economic Contribution of the Fisheries	3
The Snow Crab Fishery	5
Conclusions	6
About SRSF and GNSBFA	8

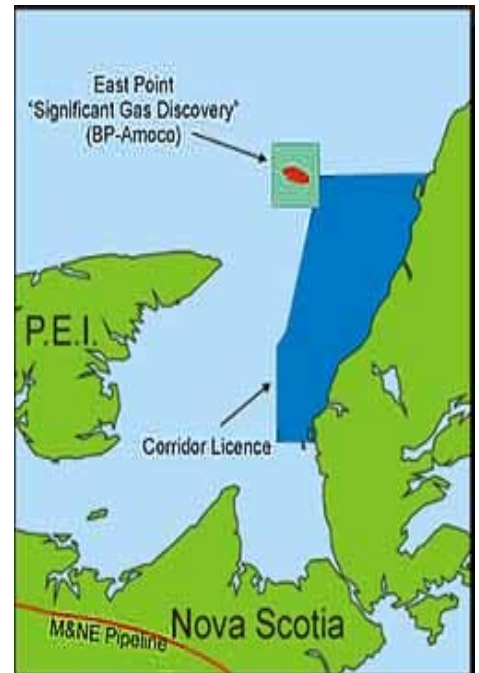
The Proposition

When gauging the effects of industrial development on a given economy, many people begin by assuming that further development can only be beneficial. Employment diversity, import substitution, improvement of existing infrastructure, and a greater potential for increased consumption in the given area due to higher wages and more disposable income per person are all factors that follow a successful development strategy. However, is industrialization worth it when other more sustainable industries are being

The fishery in the Southern Gulf Region of Nova Scotia will be placed under seri-

ous pressure with the impending oil and gas project in the hands of Corridor Resources Ltd. Corridor Resources Ltd. secured an exploratory permit for an inshore area known as Parcel

Parcel 1 is a stretch of inshore marine habitat that reaches over the better part of the western shore of Cape Breton. Fishermen are up in arms over this development and are pleading for a more sound environmental and economic assessment of what the effects of this intensive project would be. The first environmental concern with this project resides in the preliminary seismic testing which could potentially damage fish stocks and have other nuisance problems for local fishermen. After seismic testing has been completed, Corridor Resources will then undertake the second stage of their development, exploratory drilling in promising areas for oil and gas development. Exploratory drilling is preliminary drilling used to locate areas where copious amounts of oil reserves could be present. The company will then use the most promising sites from exploration to springboard into a full-fledged oil and gas



The dark shaded area to the west of Cape Breton is Parcel 1, where Corridor Resources has secured an exploratory oil and gas license.

Environmental Implications of Oil Development on the

It is difficult to measure the impact of oil development on the fishery. However, there have been environmental assessments on various regions where oil and gas development was either being planned or executed including George's Bank, the North Sea, and the Gulf of Mexico. These assessments typically break down oil and gas development into the stages previously discussed. The first stage of oil development, seismic testing, has many controversial implications for the fishery.

Seismic Test-

Seismic testing is a process whereby the seabed is analyzed in order to study its geophysical composition. A ship tows a source of sound (typically airguns or gas exploders) approximately 300 meters behind it. Up to eight kilometers of "streamers" are connected beyond the sound source containing hydrophones which record the reflected sound from the sea-bed. The sound waves give an indication of sub-surface geology and potential oil reserves. Seismic testing creates extreme underwater noise that is understood to disturb marine life, particularly whales and dolphins who live in a world of sound. Other possible effects are that seismic testing injures or kills plankton and fish, scares fish away from fishing areas, or reduces fish's vulnerability to capture.

Seismic testing tends to have extremely serious and potentially lethal effects on fish because of their swim bladders. Swim bladders can be ruptured with the intensive local noise that seismic testing creates thereby increasing mortality and disrupting fish populations.

Marine mammals, such as whales and seals, are also greatly disturbed by the noises created by seismic testing due to their developed hearing. In their mature state, fish with swim bladders and marine mammals are understood to be more seriously at risk than invertebrates. However, careful consideration must also be given to the effects of seismic testing on eggs and larvae of all marine species. Eggs and larvae can be damaged 1.5 m below individual air guns and up to 5.5 m below a large sub-array of airguns. (Brunswig *et al.* 2000).

Employment and business opportunities for this portion of the work are relatively modest.. This process utilizes a contracted seismic vessel which has its own crew. Only one or two fishermen

Exploratory Drilling and Production

After seismic testing is complete, the necessary exploratory drilling begins and will later evolve into full-scale production of oil and gas if the reserves discovered are seen as profitable. Drilling and production of oil and gas are a much more long-term process than the seismic testing, therefore the operation must be environmentally sound on a long-term basis. Potential cumulative impacts from discharges of drilling muds, production waters and displacement waters would likely be an ongo-

"The scientific community is still unable to adequately assess the impacts, potential or extant, of oil development on fisheries" (Benner *et al* 1991).

ing concern. Other impacts from drilling may include nuisances from infrastructure, such as ship movements, cables and debris, and the looming possibility of an accidental spill. The only way of assessing potential impacts of the production phase on the fishery is to analyze other research from ongoing oil activity in the North Sea and Gulf of Mexico.

Offshore oil production in both these regions has been occurring on a large scale since the early 1960s. It is difficult to tell what effect oil activity has had on the fishery in these areas. Fish landings have been declining in areas all over the world with or without oil production. However there has been information released on the number of “significant offshore accidents”. A significant offshore accident is when there is a blowout, explosion or any serious damage to a pipeline or rig.

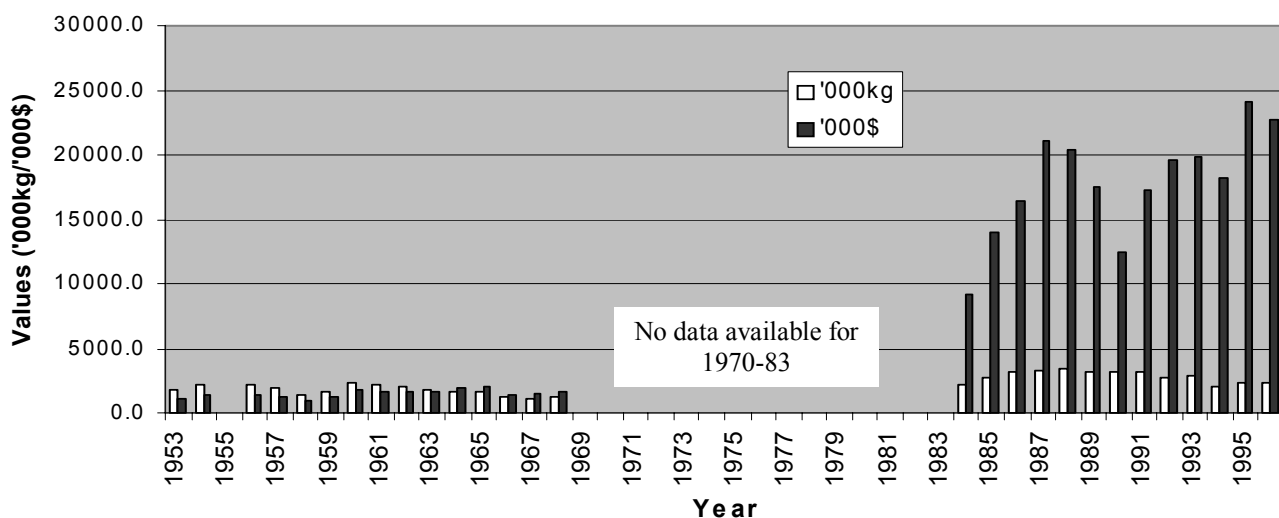
Oil production in the Gulf of Mexico has seen upwards of 25 of these accidents since 1964. The North Sea oil production has had only 3 significant accidents (Meltzer Research and Consulting 1998). In the case of the Southern Gulf, many have concerns over the presence of sea ice in the winter and the lack of potential drainage needed to flush contaminants due to the enclosed nature of the Gulf of St. Lawrence.

To summarize, major concerns over this impending development for fishermen include: lack of communication and notification from Corridor Resources, potential effects on juvenile fish species as a result of seismic testing, and the potential of an accident with profound long-term conse-

Economic Contribution of the Fishery

The Southern Gulf of Nova Scotia has a diverse fishery with a variety of integral species that are processed and shipped worldwide. Most important to the fishery is lobster. Figure 1 shows the high dollar value of lobster in

Figure 1: Lobster Landings and Values for Gulf Nova Scotia 1953 - 1999



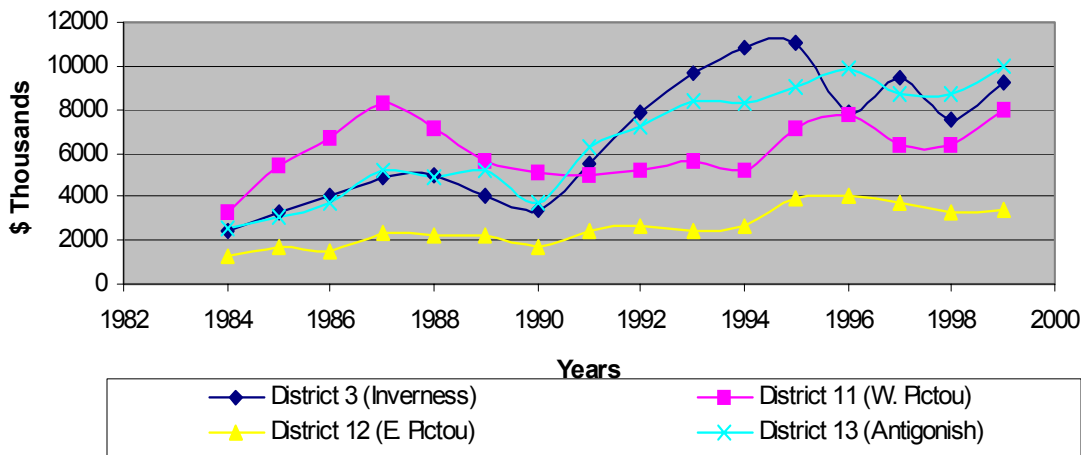
Source: Fisheries and Oceans Canada 2001a

relation to its landed weight. Not only does this graph show that lobster is a valuable product, it also underlines the sustainability of this product to the Gulf's fishery.

However, despite the fact that lobster is the primary fish product in the Gulf Region in terms of revenue, it should not be forgotten that fishing in the Gulf extends beyond just lobster season. Other important fish species include snow crab and various other shell fish as well as herring, mackerel, tuna, American plaice and flounder.

Despite the loss of access to groundfish since the moratorium was declared in 1992, the economic value of all fish landings in the Southern Gulf region has actually increased since 1990 as illustrated in Figure 2. Figure 2 shows values for four fishing statistical districts in the Southern Gulf. The economic buoyancy of the fishery in the late nineties is almost completely a function of rising prices for lobster. In 1990 fishermen were paid an

Figure 2: Value of Total Landings for All Recorded Species (\$000)



Source: Fisheries and Oceans Canada 2001b

“Although the commercial fisheries in Atlantic Canada have been hit hard with the groundfish moratorium in the last few years, the Gulf Fisheries landed value has increased substantially since the beginning of 1990” (Fisheries and Oceans Canada 2001b).

Over the past decades the small boat fishery has proven to be a sustainable employer in the Southern Gulf of Nova Scotia. As a case example, Antigonish County's fishery will be used to show typical employment

distribution in the fishery. The population in Antigonish County was approximately 19,554 people in 1996, 409 of whom were fishermen. To demonstrate the long-term sustainability of employment in the fishery of Antigonish County, DFO registered a similar number of 407 fishermen in the region in 1955 (Statistics

Canada 1955). The number had fluctuated over the years, however, it is encouraging to note that the fishery held a similar potential for employment 40 years later. In the Gulf Region as a whole there were approximately 3212 participants in the fishery in 1999 (DFO 2000). This is quite a size-

Major Consequences to the Gulf Region Snow Crab

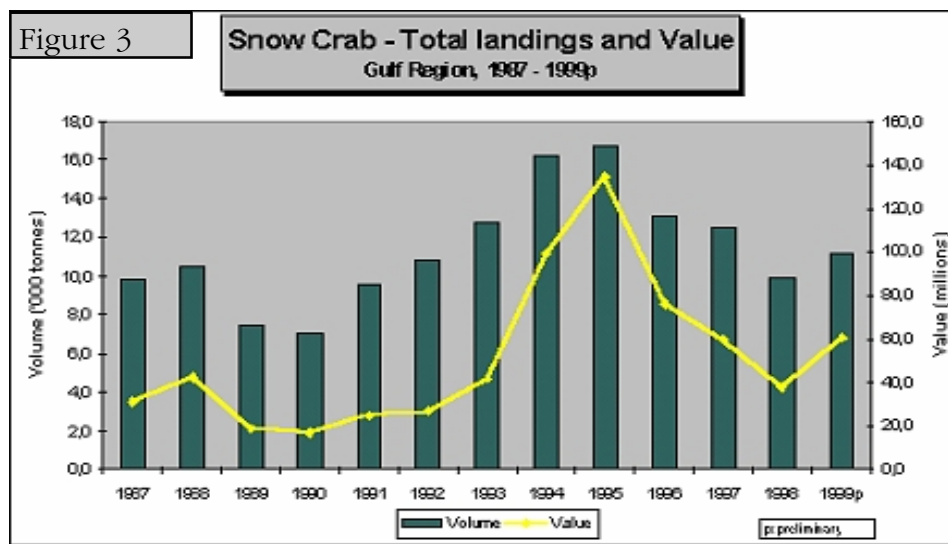
Over the last ten years the Snow Crab fishery has proven to be a successful and high value fishery throughout the Gulf Region. This fishery is organized on the basis of a number of management zones, or Crab Fishing Areas (CFAs) as indicated by Figure 4. DFO and the fishing industry have created these individual areas for various reasons and a limited number of license holders have access to each CFA. Over time additional experimental zones have been created to test the viability of those areas. At present two experimental zones are attached to Area 12 – “E” & “F”. Fishermen suffering from the effects of the groundfish moratorium have the chance of acquiring a one time temporary permit.

The accompanying map displays a marine area that fishermen have fished for centuries. If Corridor Resources succeed in their endeavor to acquire Parcel 1, inshore crab fishermen will experience not only a significant drop in their livelihood, but also loss of access to historic fishing grounds.



Source: Fisheries and Oceans Canada 2001c

Lobster and snow crab are mostly responsible for the huge increase in the landed value of the Gulf Fisheries in the last few years. In 1995, the landed value of lobster reached a high of \$168.7 million



Source: Fisheries and Oceans Canada 2001b

The snow crab fishery has been managed collaboratively by DFO and the fishing industry. This partnership has resulted in the successful implementation of a viable and at times lucrative fishery.

of snow crab also reached a peak of \$134.7 million (see Figure 3). In 1999, the total landed value of lobster was \$188.200 million which accounted for 57.6% of all fish landings in the Gulf region. Snow crab landings were \$60.5 million or 19.2% of all landings (DFO 2001b).

Conclusions

The Gulf fishery has undergone many changes over the past few decades. The high prices offered for shellfish over the past two decades have provided the necessary relief for fishers suffering from the groundfish moratorium. This relief, however, is also placing more pressure on what is now an extremely valuable resource to both the Gulf Region and to Nova Scotia as a whole.

If oil and gas exploration goes ahead on parcel 1 without careful planning and environmental assessment, the fishery in the Gulf could potentially be affected negatively. Nothing is proven, in terms of the effects of seismic testing or gas development on lobster, the Gulf's most valuable species, therefore Corridor Resource should make any possible consequences of this development public. The fact that Parcel 1 is an inshore project causes multiple concerns for fishers and other stakeholders in the area. The process of the impending development on Parcel 1 needs to be open to public scrutiny and a true assessment needs to be made before any stage of this development is



References

- Benner, C.S. and R.W. Middleton. 1991. *Fisheries and Oil Development on the Continental Shelf*. (Outer Continental Shelf Fisheries Management Conflicts Symposium, 1989, Anchorage, Alaska). Bethesda, MD: American Fisheries Society.
- Boudreau, P.R., D.C. Gordon, G.C. Harding, J.W. Loder, J. Black, W.D. Bowen, S. Campana, P.J. Cranford, K.F. Drinkwater, L. Van Eeckhaute, S. Gavaris, C.G. Hannah, G. Harrison, J.J. Hunt, J. McMillan, G.D. Melvin, T.G. Milligan, D.K. Muschenheim, J.D. Neilson, F.H. Page, D.S. Pezzack, G. Robert, D. Sameoto, H. Stone. 1999. *The Possible Impacts of Petroleum Exploration Activities on the Georges Bank Ecosystem*. Ottawa: Minister of Public Works and Government Services Canada.
- Brunswig, M., P. Gonzalez, J. Huston, M. Mehedi, M. Yousuf. 2000. Ecology of the Southern Gulf of St. Lawrence :Description and Investigation of the Effects of Potential Oil and Gas Exploration and Development. Document prepared by Marine Affairs Program, Dalhousie University, Halifax, NS.
- Corridor Resources Ltd. 2001. Corridor Resources Inc. Exploration Areas [webpage]. Available at

- Davis, A., L. Kellman, G. Ruseski, J. Williams, C. Cameron, S. Mitchell, C. Edwards, D. Spencer. 2000. St. Georges Bay Ecosystem Project: Research Report 1. Document prepared by ISAR, St. Francis Xavier University, Antigonish, NS.
- Gordon, D.C., L.D. Griffiths, G.V. Hurley, A.L. Muecke, D.K. Muschenheim, P.G. Wells. 2000. *Understanding the Environmental Effects of Offshore Hydrocarbon Development*. Canadian Technical Report of Fisheries and Aquatic Sciences 2311. Fisheries and Oceans Canada.
- Fisheries and Oceans Canada. 2000. *Overview of the Gulf Region*. Moncton: Department of Fisheries and Oceans Canada.
- Fisheries and Oceans Canada. 2001a. Aggregated data compiled by Gulf Nova Scotia Bonafide Fishermen's Association from statistical records obtained from the Moncton, NB and Dartmouth, NS Offices of Fisheries and Oceans Canada
- Fisheries and Oceans Canada. 2001b. General Overview of the Gulf Fisheries 1987-1999 (webpage). Available at www.glf.dfo-mpo.gc.ca/pe-pe/sta-sta/overview-1987-99-e.html#landed_value.
- Fisheries and Oceans Canada. 2001c. Snow Crab Fishing Areas (webpage). Available at www.glf.dfo-mpo.gc.ca/fm-gp/maps-cartes/snowcrab-crabedesneiges-f.html.
- Hardie, D. 1986. *Petroleum Exploration on the Canadian Georges Bank: A Discussion Paper on Environmental Implications*. Ottawa: Department of Energy and Mines Resources Canada.
- Meltzer Research and Consulting. 1998. History of Offshore Oil and Gas Development: Norway and the Gulf of Mexico. Available from: www.ycn.library.ns.ca/georges.htm [Accessed 15 Aug 2001].
- Statistics Canada. 1955. *Fisheries Statistics Nova Scotia 1955*. Ottawa: Statistics Canada.

Gulf Nova Scotia Bonafide Fishermen's Association (GNSBFA)

The GNSBFA is an organization formed to represent the interests and concerns of the Nova Scotia bonafide fishermen working within the Lower Northumberland Strait, Southern Gulf of St. Lawrence and St. Georges Bay regions. The GNSBFA's first responsibility is to represent its membership's concerns in fisheries management meetings that decide on subjects such as policy, annual allocations, regulations, and fishing effort. The GNSBFA recognizes that fulfilling this responsibility requires that it have access to and knowledge about research and research results. An example of the GNSBFA's interest and involvement in research is the St. Georges Bay Ecosystem Project. The GNSBFA is a founding partner in this project and has been instrumental in its definition and development.

Starting in 1999 GNSBFA became involved in the SRSF project which runs until March 2003. To find out more about the research GNSBFA has engaged in through SRSF contact our office.

HOW TO CONTACT US:

Kay Wallace
Community Research Coordinator

Gulf Nova Scotia Bonafide Fishermen's Association

RR# 4
Lakevale
Antigonish Co.
Nova Scotia
B2G 2S3

Phone: (902) 867 1438
Fax: (902) 867 1439

Social Research for Sustainable Fisheries (SRSF)

SRSF is a partnership linking university researchers and capacity with Mi'kmaq and commercial small boat fisheries community organizations. Although administered at St. Francis Xavier University, SRSF represents a working collaboration between Guysborough County Inshore Fishermen's Association, the Gulf Nova Scotia Bonafide Fishermen's Association, the Paqtnkek Fish and Wildlife Commission located at Afton and St.F.X researchers. Other university-based social researchers and additional fisheries and community organizations are linked with SRSF through relations with these core partners.

SRSF is funded by the Social Sciences and Humanities Research Council of Canada (SSHRC) through its Community-University Research Alliance (CURA) program. The basic purposes of SRSF are: to develop fisheries-focused social research linkages between university researchers and community organizations, to build social research capacity, and to facilitate specific fisheries social research activities that will examine the concerns of the partnered community organizations. Social research capacity, experience and linkages are developed through research-focused workshops and specific research projects.

HOW TO CONTACT US:

Social Research for Sustainable Fisheries

St. Francis Xavier University
PO Box 5000, Campus Box 21
Antigonish, Nova Scotia
B2G 2W5

Phone: 902-867-2292