

# Assessment Report

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The dominant paradigm for the conduct of research and education in academies of higher education continues to be the "ivory tower." In this paradigm, faculty dons are seen as needing to be removed from the "heat and dust" of the everyday world and can then conduct their intellectual pursuits free from the pedestrian concerns of politics, finances, and the other biases prevalent in the world outside the academy. At the same time there has always been a minority of faculty that strongly believe that their intellectual pursuits are best fulfilled contributing to and learning from their involvement with people and their aspirations outside of the walls of the academy. This group of faculty members frequently chose the harder path, requiring double service to their university and to the community, encountering the complexities of their institution as well as the communities in which they serve, taking care of both their academic and community responsibilities. Prof. Anthony Davis and his faculty and staff colleagues at St. Francis Xavier (St. FX) University chose to be a part of this latter group, and in doing so, seek to utilize their training, experience and skills in service to the fishing communities in Nova Scotia. The comments and perspectives seek to assess the issues raised by this work and evaluate the results of this work. They are in no way critical of the basic decision to develop university community partnerships, nor should our comments be interpreted in any way other than an expression of admiration for the energy and commitment of Prof. Davis and his colleagues in taking on this mission and its attendant responsibilities.

In March, 2002, the CURA program, at St. Francis Xavier University invited an on-site program review to assess the structure, process, overall effectiveness and future of the program entitled: "Social Research for Sustainable Fisheries". The aims of this three-year program, which evolved via a history of collaboration with partner organizations, have been to:

Build fish harvester organizations' applied research capacity, research skills, and scientific research literacy;

Provide St. FX and ISAR-linked expertise with the means to implement action, problem-centered and needs-based interdisciplinary research;

Provide ISAR and St. FX senior students with the opportunity to participate in action research internships; and,

Contribute to development of harmonious, research-focused partnerships among government, university, Mi'kmaq and non-native marine harvester organizations.

This report represents the results of a three-day visit to the program, including interviews with past and present staff members, members of the advisory committee, site visits to each of the three partnership sites, and lengthy discussions with the St. Francis Xavier staff, researchers and the Principal Investigator. The assessment was conducted by an anthropologist and director of a non-university research institute committed to community-based research, and a university-based anthropologist involved in many university-community partnerships both in the US and internationally. The schedule for the visit, which was followed with minor scheduling changes, is appended. We conducted interviews (face to face or telephone). In some cases (research coordinator, project director and project officers) we were able to conduct several formal interviews and hold informal discussions that covered several hours. All interviews were documented, transcribed and referred to during the writing of this report.

In this report we first situate the program in the context of the need for community-based research, the role of the university in promoting CBR through research partnerships, and some of the challenges these relationships encounter, especially when the partnering university is an undergraduate school. Next we will review the program's purpose, structure, sites, and the context of the program of sustainable fisheries and sustaining communities, outlining strengths and accomplishments and challenges to growth. We will do this by addressing six major questions:

1. What are the features of the SRSF U-C partnership, what can be learned from its formational struggles, and its current efforts to continue and expand?
2. How and to what degree has the infrastructure put into place for research implementation been effective in responding to community partners' needs, student growth, university development and the university-community partnership?
3. In what ways has research served organizational capacity building?
4. What are the promises and challenges for the future.

We ask these questions in the context of the scope of the problem faced by SRSF - sustaining fishing villages whose economies are being undermined by government and private development concerns and changes in fishing regulations and practices that increase the cost of fishing while reducing the value of the catch? In addressing the above questions, we will also review the status of the four major goals of the project identified above. The last part of the report will address the question of future directions for the program, the university and the communities and suggest recommendations for development.

At the outset we wish to congratulate SSHRC for developing and supporting the CURA program. The role of the Canadian government in providing funding for CBR directly to communities, and through the formation of university-community partnerships, has been highly significant in moving forward this promising approach to social and biological sciences. Because the field of CBR is relatively new, there is no "right" way to develop such programs. Specifically for this reason, it is very important to study and to document those efforts that are currently underway, in order to evolve promising practices and to share them with the field. We commend the leadership of the SRSF program for seeing this need and addressing it by calling for external program review. At the same time we believe that only those directly involved in the program on a day-to-day basis can really fully document a process, which can result in a generalizable methodology and a set of "best practices." We note that the SRSF project has made a special effort to document its development and make the resulting information accessible to diverse sectors through its monographs, website, newsletters and academic publications. Finally, we approach this report from the perspective of two social science researchers involved in CBR from both a community and a university-community partnership perspective. We have seen the advantages and the challenges with each of these approaches and know both from literature review, and from personal experience how difficult it is to achieve the "ideal". Thus any critique we offer must be tempered by the recognition that all such efforts are difficult and challenging, made more so by the complexity of the problems they attempt to address, the frequently short term nature of the funding, and the differences and some-time contradictions in priorities of the partners, which must constantly be negotiated.

## **1. What are the features of the SRSF U-C partnership, what can be learned from its formational struggles, and its current efforts to continue and expand?**

### **University-community collaboration**

The development of a research effort based in the university, which is of benefit to the community, must first be considered within the context of St. FX and institutions of higher learning in general. The institutional context offers elements, which can undermine community based research including:

The individualistic nature of promotion/tenure, publication, and reputation for faculty who are confronted by disincentives to be involved in community-based research

The "unpredictability" of community based projects, which may result in a lack of data generation and publications

A promotion process focused on traditional academic publications, which may not be the natural products of community-based research

The difficulty of universities sharing financial resources with non-university organizations and entities

A focus on single discipline (and sub-discipline) work within the university versus the need for a great diversity of foci and collaboration outside the university

A narrow view of what constitutes the student educational process, especially at the undergraduate level where data collection methodology and primary research is underemphasized (It is too early to say whether and to what degree the promotion of undergraduate research and the promotion of undergraduate CBR as a form of service learning and faculty development will come together, although signs are that progress is being made in this direction)

Despite the structural disincentives, there are now many examples of university-community collaboration, some of which involve community based research. What does it take to bring these efforts together? Required are a set of dedicated social or biological scientists committed to seeing research in the service of community development, community organizations that understand that research capacity can enhance their mission and promote improved well-being in their communities, and a program of involving students and community organizations together in learning the tools of research and using them for community benefit. The SRSF program includes all of these elements. An account of its experience has much to offer other universities and community organizations interested in using research as a tool for linking knowledge generation with practical directions for change.

The strengths of the Canadian CURA program lie in its promotion of the development of research infrastructure in community organizations, the direct or sub-contractual financial support to community organizations to conduct research for community benefit, and the support for involvement and training of young social scientists and seasoned faculty in meaningful community research partnerships that foster organizational advancement and professional growth. The SRSF program of St. Francis Xavier responds to these directions, beginning with the clear understanding that the community organizations with which the university has a historical partnership, desire to and can benefit directly from defining, conducting and assessing the results of community research.

### **Building the SRSF U-C partnership**

What are the structural characteristics of the SRSF U-C partnership, what can be learned from its formational struggles and its current efforts to continue and expand? The SRSF CURA partnership was forged from a programmatic and personal history of relationships between centers in St. Francis Xavier University and fishing associations or other organizations along the northern and western coasts of Nova Scotia. These relationships were based on the recognition by both researchers at the University and fishermen's associations, that after the collapse of groundfish, the fishing industry and related economic and social infrastructure of coastal communities could not survive without dramatic change. Participating organizations saw that research could offer tools for documenting community strengths, testing new harvest methods and resources and identifying factors influencing the availability of existing harvests, and critiquing government policies and regulations with regard to fishing practices, economic decision-making and new, potentially damaging forms of economic development in the area. The history of relationships among participating organizations is outlined in the original CURA proposal for SRSF and reflected in a proposal to SSHRCC Research Development Initiatives (RDI) Program entitled: "*Exploring and Reconciling Competing Systems of Ecologically-Framed Knowledge: Lessons from Maritime Canadian and North Atlantic Fisheries* and resulting documentation.

### **Early history and evolution of the SRSF Project**

A brief chronology of the background developments which lead to the Formation of the *Social Research for Sustainable Fisheries (SRSF)* Partnership highlights the context from within which the community-university research alliance arose.

April 1996 - St. Francis Xavier University receives \$350,000 from the Nova Scotia Department of Education and the Crabtree Foundation for the purposes of developing its proposal for an Interdisciplinary Studies in Aquatic Resources (ISAR) program. Dr. Anthony Davis is appointed ISAR Coordinator.

October 1996 - Anthony Davis invited by the Fundy Fixed Gear Council to deliver a social research methods seminar and to join their Research Committee.

June 1997 - Interdisciplinary Studies in Aquatic Resources (ISAR) at St. Francis Xavier University receives formal approval from the Maritime Provinces Higher Education Commission and, in September 1997 and accepts its first students.

March 1998 - Gulf Nova Scotia Bonafide Fishermen's Association approaches ISAR with a request to launch an ecosystem study of St. Georges Bay with a focus on lobster-hake interactions.

April 1998 - The St. Georges Bay Ecosystem Project (GBEP) is launched with a variety of university, marine harvester and government agency partners, including the Gulf Nova Scotia Bonafide Fishermen's Association and the Mi'kmaq Fish and Wildlife Commission. All partners share a concern for the development of ecologically sustainable fisheries livelihoods as well as for the development of a fisheries management system in which marine harvesters have effective 'voice'.

April-September 1998 - ISAR develops and oversees student internship positions with organizations such as the Gulf Nova Scotia Bonafide Fishermen's Association and the Guysborough County Inshore Fishermen's Association.

February 1998 - Anthony Davis, ISAR Coordinator, develops and submits an application to the Social Sciences and Humanities Research Council of Canada (SSHRC), Research Development Initiative (RDI) concerning social research and ecological knowledge systems. [Note: the RDI project is related to but entirely distinct from the current SRSF project]. Fundy Fixed Gear Council, Mi'kmaq Fish and Wildlife Commission, Guysborough County Inshore Fishermen's Association, and Gulf Nova Scotia Bonafide Fishermen's Association are the marine harvester organizations which express interest in and formal support for this research initiative. The SSHRC-RDI application is awarded full funding by SSHRC in October 1998.

March 1999 - St.FX gives its institutional support to the CURA Letter of Intent proposed by the 'Coastal Communities and Sustainable Fisheries' alliance. The community organizations and university program partners identified in the letter are: the Centre for Community-Based Management (St. FX Extension), Interdisciplinary Studies in Aquatic Resources, the Fundy Fixed Gear Council, the Gulf Nova Scotia Bonafide Fishermen's Association, the Guysborough County Inshore Fishermen's Association, the Marine Resource Centre, and the Mi'kmaq Fish and Wildlife Commission. On March 31st, 1999 the St. FX CURA Letter of Intent is submitted to the SSHRC-CURA programme office.

May 1999 - The first RDI Ecological Knowledge working seminar is held in Antigonish, Nova Scotia.

April - September 1999 - ISAR develops and oversees student internship positions with the Gulf Nova Scotia Bonafide Fishermen's Association and the Centre for Community-Based Management.

June 1999 - the St.FX CURA partnership is one of 75 groups invited by SSHRC to develop and submit a complete proposal to the CURA competition.

September 2nd and 3rd, 1999 - the 'Coastal Communities and Sustainable Fisheries' alliance meets in Truro, Nova Scotia to frame and fine-tune the CURA application details and budget.

October 1st, 1999 - the full St.FX CURA proposal is submitted to the SSHRCC-CURA program office.

December 1999 - St.FX's CURA partnership 'Social Research for Sustainable Fisheries' receives notification that its three year proposal is one of 22, from the 72 complete applications submitted, which has been awarded full funding.

As apparent in this chronology, the development and work of the ISAR program at St. Francis Xavier University formed the context within which relations between various fisheries-focused community organizations and university-seated research and education expertise was established. The SRSF partnership grew from these relationships as did the SRSF focus on building community-university fisheries-focused research capacity.

### **Partnership Decision-making and Governance**

With relationships already in place, the project was able to formalize contractual relationships with partners quickly. Within the first 3 months of receiving the CURA award, the SRSF partnership developed a "Memorandum of Understanding" (MOU) that was intended to establish the principles and procedures whereby SRSF would be governed and arrive at decisions. In the MOU the partnership advanced the principles of 'inclusivity', 'accountability', 'transparency' and 'timeliness' as fundamental to SRSF governance, decision-making, and process. In particular, the MOU specifies that decisions respecting particular research topics and themes will arrive at through a process in which,

"Each partner must develop and submit proposals to the [Steering Committee] respecting the specific research and research capacitation activities of particular concerns for and interest to their organisations. The [Steering Committee] will have the responsibility to prioritise proposed activities with respect to the allocations of [SRSF] support and resources. Additionally, the [Steering Committee] will specify the timelines for and character of the 'deliverables' (e.g., data, reports, working documents) expected from [SRSF] supported activities" (MOU, p. 2). The MOU also stated that "It is understood by the partners that continued access to [SRSF] resources and support is contingent upon the [Steering Committee's] judgment that the undertakings engaged and the deliverables provided met the expectations and understandings agreed to within the timeframes specified" (MOU, p.2).

The original SRSF partnership included several centers at St. FX (ISAR for interdisciplinary social science research focused on sustainable fisheries; CCBM, the Center for Community Based Management for support in the area of community based management), several fishing associations, Gulf, Guysborough, Bay of Fundy Marine Resource Centre (MRC), and the Fundy Fixed Gear Council (FFC) both of which had contractual relationships with the CCBM, and the Mi'kmaq Fish and Wildlife Commission (MFWC), affiliated with the Mi'kmaq Afton Band. These entities were formed into a Steering Committee, with a role "to provide overall governance." The Steering Committee, chaired by the Project Director who is also the SRSF Director, is composed of a representative from each of the collaborating Mi'kmaq and non-native fisher organizations, the Research Coordinator, one St. FX Co-Investigator and two independent, non-St.FX social scientists, Drs. Richard Apostle (Dalhousie University) and Anthony Charles (St. Mary's University), recently replaced by Dr. Barbara Neis of Memorial University.

SRSF's commitment is to a process whereby social research capacitation and research activities are arrived at through the direction that the partners receive from their constituencies' interests and concerns. These interests and concerns are brought to the Steering Committee for discussion and development. The Steering Committee explores commonalities in the partner proposals in relation to available research expertise and resources. The outcome of this process is that the Steering Committee specifies the ways and means to address the research issues and needs, which have involved combinations of specialized research seminars, research design and methodological instrument development workshops, research using secondary sources such as government documents, historical documents, and published research findings, primary research, data analysis, and preparation of research reports. The aim is to arrive at decisions through the development of consensus and then to jointly develop work plans and timelines for activities. The evaluators were very impressed with the level of partner participation in the substantial background documents covering the organizations and their fishing constituencies as a primary example of the level of university-community collaboration.

St. FX faculty, staff and students strive to use their research expertise to propose and assess the means and methods necessary to address community needs and community-defined research topics. Of particular concern and focus in this process is the development of research designs and methodological approaches most likely to produce representative, comprehensive and defensible outcomes, particularly with the DFO. The methodological rigor of the research is considered critical by the SRSF alliance to achieving the outcomes sought by the partners. The focus on outcomes is critical to a local sense of accomplishment, accountability, representation and voice.

At the same time, the emphasis on outcomes can be contradictory to capacity building, which is a somewhat slower process of transferring research knowledge and building university and community applied research infrastructure to ensure sustainability. The challenges of maintaining equal participation across sectors is reflected in the following comments based on the evaluators' interviews during the site visit.

"The role of the CRCs is content specific. The partners are involved...they have a lot of respect and assume that the academics are not questioned. The way local experts are viewed depends on the chair. A chair can build on local knowledge by going around the table and finding out local expertise. Democratization of knowledge doesn't go on at the steering committee."

..."there is a dual role; (the non-research) committee members have a role but not necessarily fully participatory..."

The Steering Committee establishes overall operating priorities, works with the partner community organizations to identify research and training needs, identifies and pursues additional funding sources, identifies and invites additional marine harvester organizations to participate in the CURA, identifies and invites additional social science and business organization research and research education expertise to participate in the CURA, organizes and conducts independent project evaluations, and develops regular project reports. The Steering Committee takes the lead in developing bridges and working collaborations between Mi'kmaq, non-native fishers, and university-seated social research expertise.

Members of the Steering Committee recognize the uniqueness of the project. A sociologist familiar with the project and with trends in Canadian universities and funding mechanisms noted that: "...there is a new trend in granting designed to build bridges between the university and community and to build research capacity in communities, to allow relevant groups to do their own research. This may be an intermediate or transitional movement. A competing trend is to have government to move research intramural. This all is coming from academics trying to promote research of public relevance, mainly sociologists and anthropologists...there are many advantages when this is done well. This project is one of the best...Academics must treat partners as equal, but how can it be equal given research technology? Fair change is what is important...academics can provide systematic procedures (methods), while communities are doing important things. The community partners will deal with the public in the end.

At the university, a co-directorship of the directors of ISAR and CCBM, two organizations with different missions but potentially mutually reinforcing contributions to organizational capacity building (community-based research and community-based management) proved to be non-viable. The reasons for this lack of viability appeared at first glance to lie in personality differences between the co-directors. However, closer reflection on the missions and evolution of the two organizations suggests mutually contradictory missions. The CURA mission, also reflected in ISAR's broader agenda, was to build research capacity in the community and at the university, but did not include community-based management; CCBM did not appear to have a clear conception of the role of research in community-based management as suggested by an informal discussion with the Bay of Fundy CRC in Hartford the prior year. Further ISAR, was relatively well developed and included organizational partners that had made a commitment to research; while CCBM was a relatively new entity and had as affiliates organizations that had been drawn to the tenets of community-based management. The facilitation skills and knowledge transfer strategies of community-based management and participatory action research is very different. A further problem lay in the geographic distance between the Bay of Fundy Marine Resource Center, introduced to the project by CCBM, and the other community partners, making face-to-face meetings and other forms of communication among partners and the university difficult. Conceptual, philosophical, structural and geographic differences were profound and, in the end, made cooperation between the

two university-based entities and their community affiliates irreconcilable, resulting in the withdrawal of the Bay of Fundy Group and CCBM from the project.

The first four months of the project were spent sorting out and eventually resolving these differences in performance and expectation among University-based partners. Some of the individuals interviewed saw this process as delaying the implementation of the program, or as rooted in personality and power struggles. Differences of mission, philosophy, operational and working style, and associated alliances are inevitable in university-community partnerships. Sometimes, especially if organizations are experienced at partnership formation, it is possible to identify beforehand potential sources of friction and difference. But more often these differences are discovered in practice. Even if a partnership has prior experience, a safe assumption is that it may take up to a year to establish ground rules, clear roles and expectations and tasks and deadlines. The SRSF process fell well within the boundaries of normal configuration and management of research consortia.

Sorting out the partnership arrangements called for a considerable amount of organizational time, but it did yield positive results: 1) it left SRSF with a much more geographically focused and manageable project; 2) it allowed for the creation of a much-needed full-time, dedicated "Research Coordinator" position (in the form of a postdoctoral fellowship) rather than the original part-time position filled by St. FX's CCBM Director; and 3) it called for the development of conflict resolution and consortium maintenance practices and policies that have strengthened the partnership and have been valuable in withstanding other challenges over the course of time.

Another unanticipated problem occurred with the demise of the Mi'kmaq Fish and Wildlife Commission (MFWC), an original project partner. Kerry Prosper became one of two co-chairs of the MFWC after it lost its source of original source of funding and continued in this capacity until the official creation of a new organization at Afton; the Paqtnkek Fish and Wildlife Society (PFWS). Kerry Prosper was hired in 2000 as the SRSF Community Research Coordinator (CRC) for MFWC. With the decision to create and incorporate the new organization at Afton, he continued at its head. The PFWS has its own Board of Directors, drawn mainly from the Afton community but with Mi'kmaq and non-Mi'kmaq members from outside Afton as well. PFWS is the new SRSF partner and Kerry Prosper is the SRSF CRC. The original organization, MFWC, still exists officially, but for now is dormant. While, as a result, there has been a consistent organizational partner for SRSF in Afton First Nation, it would seem to the evaluators that the PFWS is still emergent. While the shift from the MFWC to the PFWS took some time, nonetheless an office has been maintained, the CRC and research assistant positions have been sustained and have conducted SRSF-linked work, and social research capacitation and activities have been on-going as is evidenced in the completion of the Mi'kmaq American Eel background document and 2 SRSF fact Sheets (#s 6 & 7). Kerry Prosper as the CRC is deeply committed to the use of research for cultural conservation and with the support of the PFWS board of directors, has begun to develop the conceptual and structural base for traditional Mi'kmaq culture focused on the eel as the center of indigenous fishing economy and advocacy. By the time the assessment visit occurred, he had re-established good working relationships with other members of the Afton Band, with anticipated support for the center concept he was proposing. Still, further organizational development and community support will need to be a necessary part of future activities.

### **SRSF Research Functions and Roles and Responsibilities**

The SRSF program components consist of three community organizations or associations representing a broad distribution of associated organizations and agencies along both coasts, as well as researchers, staff and students at St. Francis Xavier, and researchers elsewhere in the northeast. The core of the work revolves around research links between the partners and the university. SRSF components communicate and exchange information via meetings, face-to-face visits, telephone conferencing and the Internet.

There are a number of approaches to research represented within the program currently. These include responding to an overall project plan to produce situational studies at each of the partner sites (the site reports), linking students interested in fisheries related research to local research needs and providing them with assistance to do relevant research of program and community benefit, discussions regarding projects and studies that are desired at each site, offering research training to Community Research Coordinators (CRCs) at each site, and conducting, in partnership with CRCs and partner organizations, research on local ecological knowledge, utilizing consistent research methodology. The daily decision-making and responsibility for carrying out each of these elements of the research program appears to lie with different program staff.

Partnerships depend on face-to-face communication. Relationships are usually initiated by the leadership and continue as people at different levels develop relationships with each other. In large and complex projects, those in leadership positions generally have limited time for sustaining relationships and must depend on others to do so on a daily basis, and to assist them to maintain good connections with the project components and sites. In this project, in addition to the steering committee meetings, a critical link in the face-to-face communication activities of the program is the program officers based at the university, whose overall assignment was to facilitate ongoing communication and coordination between the community partners and the university. Overall, program officers were very dedicated to promoting the development of the participating organizations. But they were much less experienced in understanding how research could facilitate community development, and how to connect community researchers, especially undergraduates, with community site needs. Budgetary constraints required choosing young and relatively inexperienced program officers. Program philosophy called for mentorship in supporting their growth in the implementation of applied community based research. Research officers had to cope with complex problems with limited experience in research or in linking university faculty with community organizations. They also were expected to address the complex communications problems that can arise as needs and priorities of the various entities differ and each must address the demands of different funders, constituencies and economic and time constraints. This type of linkage position is very complex and demanding, both socially and scientifically. It is very difficult to find experienced personnel who are committed to community development through research and sufficiently knowledgeable about both the academy and the realities of community life to be able to facilitate appropriate connections. It is also difficult for faculty researchers who have teaching and other commitments to provide sufficient mentorship. This is an area that needs further attention in future program administration.

It is also important to note that this problem is not unique to the SRSF project, but one that challenges the emerging field of CBR especially when senior researchers, who have the experience, are drawn by necessity into other areas of university service, research and administration, and the responsibility is left to service learners or to people who do not have the technical expertise to do the work. Unfortunately it is all too often the case that the demands of this work are underestimated and undervalued. High staff turnover and organizational and administrative dissatisfaction with performance can be expected when occupants are underpaid and under-experienced and expectations about their performance are unrealistic.

On the community side are the CRCs for each of the participating organizations. CRCs have been hired by partner organizations. The jobs were advertised in various local/regional media and individuals were hired independently (that is St. FX SRSF staff, including the Director, did not participate in candidate solicitations and assessments) by each partner organization based on their qualifications (office and administrative skills, research skills, knowledge regarding local fisheries, inter-personal skills, etc.). The challenge to the project has been to train CRCs, who have limited or no research background, to carry out essential research roles while at the same time respecting their unique background and experience in local fishery communities. Thus, the core unit of the SRSF project are the CRCs based in their community and partner organization locales and the project officers based in Antigonish but traveling to the partner organizations to link with the CRCs. The project officers were young, enthusiastic, recent graduates, with some community based domestic and international management experience; and indigenous CRCs with much enthusiasm and commitment, and deep local experience and knowledge, but limited or no research background. The program attempted to meet these challenges including that of mentorship through workshops and other opportunities for structured learning. In fact, there have been many workshops on community-based research for both the project officers and the CRCs conducted by Prof. Davis, Dr. Wagner and outside experts, as evidenced by the following quote and the history of activities on the SRSF website. "...when the partners would get together, Tony would provide research methods from his background, others would have input, the group would talk about questions, in the first year there was a research workshop..."

However, there is a continuous need for both supervision and training for this core project unit (project officer/CRC). Alternative staffing patterns including Masters-prepared program officers would have been financially prohibitive, even if appropriate candidates could be found for these short-term positions; hiring non-local CRCs with a research background would have violated the basic methodology of the project. The "raw material" of program officer-CRC pairings must be trained, consistently supervised and guided. They must develop a strong and collaborative

relationship, identify needs, challenges and opportunities on site, translate these into research operations, collect and analyze data, and disseminate the results. It is a tall order for these relatively untrained personnel and puts a heavy burden on the project director and post-doctoral researcher as senior researchers and mentors to project officer/CRC dyads.

In the face of these ongoing structural challenges, what currently exists is a network of independent and cooperating organizations including the University, that see their interests being met by membership around building research capacity and a strong local knowledge base, and have a strong and continuing commitment to working together. University researchers involved in the project plan to continue joint research on local ecological knowledge, and to seek for resources to continue the placement of students as research support to the partner organizations. Partner organizations, for different reasons, see value in continuing their relationship with the university, and at the same time, recognize that research funding may come to an end. All of them have decided to expand their university and other organizational partnerships and to continue the program of research that they have begun through the SRSF program.

**The sites/partner organizations**

The SRSF project works collaboratively with three organizations/sites: (1) the Guysborough County Inshore Fishermen’s Association (GCIFA), Canso; (2) The Gulf Nova Scotia Bonafide Fisherman’s Association (GNSBFA), St. Georges Bay; and (3) the PFWS supported by the Afton (Paqntkek) Band of the Mi’kmaq, Antigonish Co. It is unlikely that there could be three more different organizations and sites. There are two ways to view this organizational diversity; that it is difficult to fully test the methodological approach of the SRSF project given the wide range of needs and challenges of each organization; or that the variability assists in the development of appropriate applied research methods to fit a variety of organizational types and community challenges. The sites/partner organizations can be characterized in the following way:

**Social Research for Sustainable Fisheries**

<b>Organization/ Site</b>	<b>Organizational structure</b>	<b>Role of (CRC)</b>	<b>Organizational Focus</b>
Guysborough	Well-developed with a director and specialized staff, large membership with a solid active core, established links with other fisher organizations.	Assessing fish harvester informational needs, assisting in interviews on local ecological knowledge, collecting data for and writing reports	Focused on specific ecological issues including decline in lobster harvest, rebuilding of fisheries, developing snow crab, and addressing green crab invasion.
Gulf Bonafide	Developing organization (initiated in 1998), limited staff, with the need to expand membership, early stage of links with other fishing organizations	Key staff member in organizational development; limited time and resources to be involved in data gathering on local ecological knowledge and report writing.	Ground fish (with particular emphasis on the impact of the hake moratorium predation on juvenile lobster to counter DFO perspectives on the problem; concerns about the Marshall Decision
PFWC	The Mi’kmaq Fish and Wildlife Association (MFWC) organized by the Assembly of Nova Scotia Mi’kmaq Chiefs 1995 has been dormant since 2001. The PFWS, a new non-profit organization with an independent board of directors, now is a full partner in the SRSF.	Emphasis on the study of and report writing on the traditional eel harvest and Mi’kmaq cultural continuity; the evaluators were less clear about the organizational development role.	The PFWC is supported by a board of directors with significant Afton Band representation. The BOD supports the CRC focus on cultural continuity linked to the eel harvest.

Although it may have been difficult to anticipate, organizational adequacy and effective management for partner organizations is a necessary prerequisite to SRSF strategy. To be effective, partner organizations need to have consistency of leadership, a core active membership, specialization of roles, growth potential, and links with other harvester organizations. Two of the three partner organizations (Gulf Bonafide and PFWC) need to place a greater emphasis on building the organizational base and distinguishing personnel involved in organizational management from those involved to research and information collection. In Gulf Bonafide, we would recommend that the CRC be permitted to address organizational issues until the organization develops to the point that a director could be brought on. Alternatively the CRC could assume the Directorship of Gulf Bonafide and a new CRC could be identified. In either case, the need for organizational development has slowed the pace of research for Gulf Bonafide.

In the case of the PFWC, organizational development is in process as the PFWC has recently incorporated, with access to the information and materials collected through the prior organization. It is necessary that the PFWC demonstrate broad based community support for the development of culturally based research and educational programs, and identify organizational resources that can assist in mobilizing the community, developing activities, storing and utilizing information and developing broader political support and advocacy. In this way, the roles of the CRC and the organizational leader, now one and the same, could be differentiated.

The Guysborough County Inshore Fishermen’s Association (GCIFA) represents an organizational type, which has developed a solid funding base, an active board and membership, and a large and skilled staff. The CRC at this site, Virginia Boudreau, is able to focus her attention on research and identification of research-oriented problems, with others handling organizational issues. The Guysborough group in some ways presents an

ideal situation; a mature organizational structure with a director and multiple staff (including the CRC) who can play specialized roles and address particular issues. It is not unexpected that the monograph, *"Fishing for a living: A Profile of the Guysborough County inshore Fisheries"* by Virginia Boudreau was the most comprehensive. However, if all community-based research were limited to such well-developed organizations, there would be few opportunities for university-community partnerships. We believe that there is a role for the university both in support of mature organizations and those in which both organizational development and research need to go hand in hand. It suggests that researchers need to play unfamiliar roles of organizational consultants, while organizationally oriented staff must play the unfamiliar role of researcher.

The SRSF with the support and participation of the CRCs has produced extremely good documentation of the history of the community, the nature of the organizational structure, the history of fish harvest in the area, current research being conducted, description of the ecosystem and many other topics. Key monographs and publications in addition to Guysborough have included: *"Gulf Nova Scotia Small Boat Fisheries: A Socioeconomic Profile"* (Kay Wallace), and *"Mi'kmaq and the American Eel"* (Kerry Prosper). SRSF Research Reports 1 and 2 have further examined the issues of groundfish predation on juvenile lobsters in St. Georges Bay and lobster harvesting in southern Richmond and Guysborough Counties (see appendix 1 for a complete listing of products). In addition Anthony Davis and John Wagner have initiated a series of interviews with fish harvesters that comprehensively assesses local ecological knowledge from a historical and current perspective.

In the next phase of research, we would suggest a more focused approach in which projects would be geared to specific expressed interests of fish harvesters from the three sites in the "social" as well as the ecological sphere. By "ecological" we mean those activities directly related to fish harvesting or the environment within which fish harvesting is conducted. There is a natural tendency for the fish organization partners to more readily focus on this ecological sphere. By "social" we mean the dynamics of the community, the relationships among fish harvesters and between fish harvesters and other sectors of the community and the government. This suggestion evolves from comments made by people interviewed in each of the sites during our site visit. We asked the fish harvesters in each of the three sites to describe their research interests. The comments below represent a single conversation with the two CRCs in Afton, two fishermen from Gulf Bonafide and five fishermen from Guysborough. Their interests were as follows:

**Gulf Bonafide** fish harvesters were concerned about how the next generation would enter the fish harvesting industry. They pointed out that whereas they paid 25 cents for a fishing license, it now cost \$350,000. This high cost prohibits them from passing the license on to their children since they (or their children) would have to pay capital gains. In addition the increasing technological demands require the acquisition of high cost equipment for the boats. In the face of the rising costs of fishing was the concern about the diminishing supplies of lobster and fish, making the whole operation a losing proposition at best. Many fish harvesters were avoiding bringing children on their boats so as to not interest them in the occupation. Since many of the communities have few sources of revenue other than fishing, it means that the next generation is forced to migrate out of the area. SRSF and the CRCs can make a major contribution to Gulf Bonafide and its communities by assessing the location, occupations, and future interests of the children of current fish harvesters, assessing the actual costs and processes for those children who are considering entry or have entered fishing, and identify collective approaches (economic, legal and social) to entry of the next generation into fishing.

**PFWS:** The focus of the work of the CRC has been on the harvesting of the eel as a symbol of the importance of maintaining Mi'kmaq cultural continuity. The suggestion of the CRC is that this work should result in the transfer of cultural knowledge to children and young adults in the Afton community. It was hypothesized that the strengthening of traditional culture and the training of youth in that culture would increase community spirit and individual self-esteem and reduce negative behaviors associated with substance abuse, crime and sexuality. A plan that was discussed in our site visit was to:

- Continue to collect information on eel harvesting and other approaches to hunting and gathering from the elders of the band.
- Document social, cultural and ethical principles of Mi'kmaq culture
- Develop the capacities of elders to be culturally appropriate trainers of youth
- Train youth in fishing, hunting, social values and other aspects of Mi'kmaq culture
- Facilitate the application of the Mi'kmaq way of life as a means of enhancing youth responsibility and social contributions to the community, to prevent negative behaviors (sexual risky behavior, substance abuse, crime), to improve education and economic achievement, and to raise self-esteem.
- Learn and document the changes within our environments as experienced by Mi'kmaq hunters, fishers and gatherers in the past and present.
- Learn from these documentations how we can assist in the survival of the Mi'kmaq culture process.

**Guysborough:** The fishermen in our discussion group are most concerned about the impact of the current harvesting and licensure situation (particularly for snow crab) on the income differentials among fisherman in the Canso area. Our sense is that while traditionally some fish harvesters made more money than others, it was a product of working harder and/or of greater skill in locating and catching fish. The current situation has more to do with who is gaining access to snow crab licenses. Fish harvesters who have multi-generational bonds and would rise to the occasion to support fellow community residents in the event of an emergency, were, in their view, now hoarding snow crab licenses and generating large profits while many without snow crab licenses were generating limited income, which barely covered expenses. The feeling was that these economic disparities that resulted from a failure to share access to harvesting would "tear the community apart." Using the basic data collected from the community on the history of the community and local ecological knowledge interviews, the research can be disseminated to fish harvesters to establish clearly common and historically significant community and supportive bonds. The research could also examine the structure and organization of licensure distribution and harvesting to establish, with the participation of the community, approaches which will provide more equitable financial distribution.

These are some suggestions and directions emerging from our interaction with a handful of individuals in each of the sites that suggest possible directions for future partnership research.

#### **Communication Across Partners and Sites, with special reference to the relationship between commercial fishermen and Mi'kmaq"**

All three Community Research Coordinators have reported that they and the organizations they represent have benefited a great deal from the aboriginal/non-aboriginal collaboration that is occurring within the SRSF project. This is the case, in part, because such collaborations have occurred infrequently (if ever) in the lives of these organizations and all still have a great deal to learn about the "other's" perspective. Analysis of the Marshall Decision, and consideration of such issues as research ethics, have also led the CRCs to shared perspectives in instances where such common ground did not exist before.

All CRCs have also expressed a desire to see more communication and different forms of interaction among the members of their respective organizations and communities, and not just among those involved directly in the SRSF project. To some extent this goal was realized during the Feb. to April period, 2001, when Afton residents and GNSBFA members met informally at the GNSBFA office in Lakevale (1 meeting) and at Afton (3 meetings). GCIFA did not attempt to set up similar meetings because there is no active Mi'kmaq presence in Guysborough County and no intent by the Mi'kmaq (at that time) to enter into Chedabucto Bay fisheries.

The Afton/GNSBFA meetings provided the opportunity for frank discussion on the fisheries issues arising out of the Marshall decision, and for a level of personal interaction unprecedented for these two communities. Many fishermen reported, for instance, that they had never before set up in the Afton community, despite a lifetime's residence in the area. One outcome of the 2001 meetings was the decision by all involved to set up a joint committee to further facilitate opportunities for consultation and discussion. Although this decision was not implemented in 2001, the two groups are once again actively engaged with this issue and plan to proceed with the joint committee initiative this year.

## Partner Organizations: Capacity Building and Accomplishments

Through the Community Research Coordinators, the SRSF research process has resulted in the engagement of the partner organizations in information-sharing and collaborative activities with other related organizations. GNSBFA have significantly expanded their regional and provincial network. They now collaborate regularly on a number of fisheries issues with the Nova Scotia Fleet Planning Board, the Southern Gulf of St. Lawrence Research Network and the PEI Tuna Fishermen's Association. They are also working closely with a US graduate student who is carrying out a study of property rights as they impact on the lobster fishery. GNSBFA are also involved in a collaborative project with Fisheries and Oceans Canada to study hake predation on juvenile lobster in St. Georges Bay.

GCIFA have also begun to work more closely with adjacent associations as a result of SRSF research projects. The cooperation of the Richmond County Inshore Fishermen's Association (RCIFA) was obtained prior to the telephone survey conducted in June, 2001. This survey included members of RCIFA and also of the fishermen's association located immediately to the south of GCIFA, the Eastern Shore Fishermen's Protective Association (ESFPA). The research project has resulted in closer collaboration and information sharing with both of these groups. The dissemination of various SRSF publications has also resulted in feedback and stimulated discussion on a number of issues with many other associations throughout the province. These publications also led the Nova Scotia Fisheries Sector Council to contact GCIFA with a request for additional information. The Council is a federally funded organization mandated to deal with human resource issues in the fisheries sector in Nova Scotia.

PFWS research activities have brought them into a closer working relationship with the Mi'kmaq Treaty and Aboriginal Rights (TARR) Research Centre in Shubenacadie, NS. The TARR Centre conducts research on behalf of the Nova Scotia Confederacy of Mainland Mi'kmaq. PFWS and the TARR Centre have developed an information-sharing arrangement in respect to the PWFS eel fishery project. PFWS has also developed a closer working relationship with the Confederacy as a result of their SRSF activities.

PFWS are currently engaged in a collaborative effort with Dr. David Cairns of Fisheries and Oceans Canada and Norm Seymour of the St. FX biology department to develop an eel-monitoring project in nearby estuaries. This collaboration has been facilitated by SRSF but operates outside the SRSF project itself. PFWS are also currently setting up an education and employment program with David Garbary, the head of the biology department at St. FX. This program will involve a 'science tour' at the university for Mi'kmaq high school and university students and the subsequent hiring of one Mi'kmaq high school student and one university student for summer work terms.

PFWS have also established an on-going working relationship with the Nova Scotia Museum. This relationship began as a consequence of Kerry Prosper's attendance at a Museum sponsored "Mi'kmaq Heritage Workshop" in Halifax, and the interest expressed by the Museum in the eel research project.

## 5. Building Research Capacity

One of the overall goals of the SRSF project is the democratization of research through the development of research literacy. The project believes that community researchers and the organizations they represent will be better able to negotiate their needs and knowledge by gaining capacities to critique existing policy research, and by gaining the ability to contribute to scientific knowledge through conducting their own research. Research literacy is best gained through active engagement in the research process. The first step in increasing research capacity in partnership organizations has been to provide matched funding for community research coordinators (CRCs). The partnership with community agencies is solidified through each organization's financial and in-kind contributions to the position of the CRC and to the conduct of research. Ways of furthering the development of research infrastructure have included the following critical components.

**A. Direct support to participating organizations.** An important dimension of increasing research capacity is to provide direct training and support for research that community organizations wish to conduct by and for themselves. Steps taken by the project to make it possible for community organizations to do so include:

1. Providing financial support for community research coordinators representing their communities and partner organizations to conduct research, engage others in research, and demonstrate through experience the value of research to their constituencies.
2. Conducting workshops and seminars on research methods for community research coordinators, students and other faculty.
3. Introducing communities and CRCs to St. Francis Xavier and outside university experts in topical areas of interest to them, related to sustainable fisheries and local ecological knowledge so that they could access these university-based resources later on as needed.
4. Supporting each organization's development of a community report on the history and status of the fishing industry in each area, fishing resources, projections for the inshore fishing industry for the future and a plan for ongoing and further research.
5. Assisting in the development of organizational infrastructure necessary to support the conduct of research (computers, space, filing etc.).
6. Connecting CRCs and others to higher education in order to enhance research and administrative skills.

All of these steps have been taken during the first two years of the project. Community reports that require considerable technical knowledge, have been written, published and posted on the SRSF website. CRCs wrote these reports with varying degrees of support from university research staff, students and project officers. The process of producing these reports was tedious; however they have value to the organizations, each of which uses its report and supporting materials to present themselves, their accomplishments and their needs and to advocate on their own behalf with respect to policies that affect them. It is worth noting that two of the three organizations initially did not have the capacity to identify and compose the components of the baseline report and relied heavily on university personnel to identify the data, organize the report, and assist in writing. The reasons for this have much to do with the "readiness" of each of the organizations for conducting their own research. Components of readiness include:

Status of the organization (stage of formation, organizational structure, mission, membership, financing, etc available organizational infrastructure (space, computers and computer equipment, time, administrative and support personnel)

Community support for research and for research-based approaches to sustainable resources

Prior experience conducting research, analyzing data and writing research reports

All community-university knowledge exchange programs involving CBOs or membership organizations with financial constraints, multiple agendas and constituency needs face these constraints. Despite them, the reports were finished, report results have been used in various formats in each of the settings with varying degrees of sophistication and success, and all three CRCs are planning additional research, and playing an active role in the implementation of a key project research component, the study of local ecological knowledge.

The work of the CRCs is perceived as very valuable to community organizations. And their contribution to further site growth is evident in the following quote. "Their role is to build capacity in the partner organizations. For example, at Gulf Bonafide, before the SRSF project, there was no professional staff, no paid executive, no office equipment or computer. They had little way to respond to the DFO. Now they have office equipment and a permanent location, they are networking with other fish harvester associations, will combine space with others and the CRC/director will be paid by them, and they will charge membership fees. The CRC is involved in the research and interviewing on LEK." At Guysborough they are "...writing proposals for more funding and reports." A fisherman commented about the CRC at his site: "the organization needs our CRC...they (DFO) are using science as a barrier. Someone has to translate the science. We are reacting, how about acting.

**B. Linking organizations to the university by providing them with student support and faculty linkages for priority projects/studies.** One component of research capacity building is the development of ongoing links and structural connections between CBOs and universities. In addition to the Community Research Coordinators, SRSF's capacity-building work has also focused on developing the skills and know-how of the program officers and students who have participated in this alliance. The *program officers*, all of whom hold a social science-focused undergraduate degree and completed an internship through the Coady International Institute with fisheries community organizations in development settings, were expected to work with SRSF's community partners on achieving various targets *as decided upon by the SRSF Steering Committee*. The targets ranged from the development of work plans, through organization and drafting of documents, to participation in research activities. While working under the immediate supervision of the SRSF Director and Research Coordinator, the program officers are understood by the alliance to be human resources equipped with specific skills and experiences that are available for work with and valuable to all of the partners. From the outset SRSF has intended that the program officer position be occupied by enthusiastic persons keen on learning more about doing and mobilizing social research within community settings. SRSF has wanted to provide these persons with the opportunity to learn more about designing and conducting social research as well as about connecting the results of social research with community organizations and their memberships through the timely preparation and dissemination of research results. To this end, SRSF has encouraged the project officers to be involved fully as participants in all research design and methodological instrument development workshops. Additionally, SRSF has encouraged project officer participation in research and in assisting the alliance members to prepare research results and issue documents such as the SRSF fact sheet series. Throughout SRSF has recognised project officer formal training and experience limitations, and as a result never expect them to initiate and to assume responsibility for primary activities. Rather, SRSF expects that the program officers will work with the partners in order to facilitate Steering Committee decisions and goals. It is hoped that through the program officer position and opportunity the SRSF experience and challenge will further develop social research know-how and sophistication in association with community organisations and dynamics, thereby contributing to the further development of persons interested in working with communities and their organisations. This is a key dimension in SRSF's goal of building human resource capacity.

A similar goal and process is associated with the placement and support of undergraduate student research assistants with SRSF's partners, especially ISAR senior student interns. Again, the intention is to engage students with fisheries community organisations and issues in a manner that develops their interest and engagement. At the same time, the prospect of engaging an ISAR intern offered the partners the opportunity of benefiting from the student assistants' educational skills while also receiving the outcomes from these students' program requirement to design, conduct and complete research on a topic of particular concern and interest to the community organisation internship providers. The outcomes from this work constitute the ISAR students' senior year paper. It is anticipated that undergraduates exposed to and working with community organisation settings are likely to carry their experiences forward through future work with similar sorts of settings. Contributing to such human resource development is central to SRSF's capacitation strategy.

Through ISAR and the SRSF project, community partners can indicate priority studies they need done, and their needs can be matched with student interests. Student projects tend to be individualized and small scale. Further, students must have the capacity to coordinate with community partners and to work independently since supervision is limited in community settings. Approximately 10 students have completed studies for the partner organizations and organizations have reported satisfaction with student involvement. Students have been especially helpful to the Gulf Bonafide organization, conducting a very important study of the effect of the hake moratorium on juvenile lobster. They are also instrumental in assisting the PFWC CRC and the band in the development of research on the Kat (eel) and the formulation of ideas for the development of a traditional information center.

Linking students with organizations has involved:

- Discussing research project priorities with each of the organizations
- Identifying senior students who could conduct independent research
- Identifying outside funding through fellowships that could provide financial support to these students.
- Assisting these students to complete sound and valuable studies of use to the community organizations
- Creating opportunities for future studies engaging student assistance

Two important outcomes of this learning process are: (a) studies requested by partners funded and completed: and (b) the fact that all three organizations have indicated that they now have the capacity to approach universities directly for student assistance and have done so independently.

A significant gap in the project is the limited involvement of other research faculty at St. Francis Xavier and in the area in studies negotiated with community partners. This is the case despite workshops and other opportunities for exchange. Faculty interviewed in this assessment indicated interest in the project and related research but distance, their own research priorities, and in some cases, their commitment to basic or policy research (which calls for researcher rather than community-driven approaches) seemed to limit their involvement. Project administration expressed disappointment with the limited response of other faculty to opportunities for the conduct of their own CBR through the project. Though there was considerable involvement of faculty in training efforts as yet few faculty have taken up the challenge of conducting new projects with the SRSF partners. However, the SRSF organizations have found other research partners elsewhere, an indicator of progress in mutual recognition of the value of research in community settings and with community agencies.

When more university faculty have further financial and career-related incentives to engage in CBR, the number who show interest in research opportunities in these settings will increase. Further, many university researchers are unfamiliar with the process of negotiating studies with community based organizations, and more might be encouraged to do so if, after the door is opened, they are shown the way through continuing workshops and other collaborative educational opportunities. Finally, with resources scarce, and the importance of achieving tenure a primary goal, new faculty who might be more interested in partnership research find it difficult to devote the time required to it as well as the multiple other demands of their institutions. As tenure requirements and other university incentives change, we are optimistic that interested faculty will turn more attention to the research and development work required in the SRSF program.

**5. The Role of Local Ecological Knowledge in the Project.** Anthony Davis, with the support of other St. FX faculty, has devoted considerable time and resources to fostering partnerships among fishing communities, the academic community and DFO. One of the outcomes of those partnerships has been the development of a research project with a strong LEK component.

Through a government funded series of workshops, the university has brought together teams of national/international experts working conducting work on sustainable fisheries and other natural resources to explore theory, method partnerships and approaches to the study of LEK and the promise of its applicability to needed policy reform. It is well recognized that more productive dialogue and cooperation among DFO, fisher organizations and universities is desirable, and that improving local communities' ability to generate their own knowledge base and to advise and work with scientists is an important element in furthering the on-shore fishing industry's sustainable future. LEK is an important component of the SRSF project. A major challenge for CBR with respect to LEK is the relationship between the methodology for gathering local ecological knowledge and the ability of local communities to use the process and results in the policy and advocacy dialogue.

The knowledge and experience of peoples who are dependant for their livelihood on natural resources has been contrasted variously with "scientific knowledge" and with efforts of non-local, national and regional regulatory agencies to manage these natural resources. This triangular relationship of harvesters, scientists, and managers has been fraught with problems:

Managers respond to the political processes and ignore the ecological scientists in their organizations



Scientists based in the DFO and universities use methodology which fail to incorporate the fish harvesters experience and observations

Managers issue what fish harvesters perceive to be arbitrary regulations, which are perceived to be part of an effort to drive them out of fishing.

The concept of local ecological knowledge (LEK) is an effort to create a more balanced, triangular knowledge generation and management process through recognition of what indigenous people have learned by experience and passed down from one generation to the next. This more balanced process is seen as leading to "local resource management." The development of LEK has proceeded from several "assumptions":

Natural resource dependencies within specific locales result in an intimate and functional relationship among people, environment and natural resources.

The knowledge of that relationship makes for more successful harvesting

The nature of the harvest using LEK fits into cultural beliefs, social relationships, and protection of the natural resource

Persons of advanced years and senior status are the best repositories of LEK.

We do not present ourselves as experts in LEK nor do we wish to criticize the concept. What we attempt to do is to explore its role in the SRSF and its partner organizations. With this goal in mind we ask the following questions/points:

The ecology of the Nova Scotia waters and its fishing industry have gone through enormous change in the last two decades; to what degree is LEK applicable to current fish science and management when it is based, in part, on the historical availability of groundfish and a much greater abundance of lobster?

Much of LEK is focused on ecological and biological issues, directly linked to the harvesting process; less well articulated are the social and cultural aspects of LEK (although 'berths' may be an exception) that are the specialty of the SRSF personnel.

The procedures currently being employed by the SRSF Director and Research Coordinator require multiple interviews using detailed sea charts; recognizing that the CRCs are currently participating in collecting these data, how will these data be analyzed, and what is the timetable and resource allocation for the collection and analysis of this in-depth and extensive body of valuable data?

How will the information collected from these interviews be useful to the project and for the partner organizations?

With what will LEK data be combined to move local fish harvesters to collective and mutually supportive action, to open the minds of scientists to LEK perspectives and to cause managers to change policy and regulations?

Do core activists in the partner organizations fully understand the concept of LEK?

Can the principles of Western scientific validation be applied to "...a way of knowing distinct from Western science..."

Local Nova Scotia fish harvesters are no longer members of isolated communities with limited links to the external world; they are fully articulated to the province, the nation and the world through media, bureaucracy, travel, and dissemination and acquisition of knowledge from many sources. Under these circumstances, can we define a "separate LEK?"

Anthropologists have a great deal of commitment to and belief in the accuracy and functionality of LEK and other forms of local knowledge; what if parts of that knowledge system are no longer applicable, are wrong, or are shared, but with strong differences among different segments of the local harvester community?

While these questions should be asked and remain to be addressed fully in the evolving field of LEK production, it is important to note the very strong commitment among fisheries researchers and local communities to the concept and value of Local Ecological Knowledge. One faculty member said about LEK:

"LEK is social ecological knowledge. LEK is local, it depends on the fishing industries and local ecology, species, gear and the way fish harvesters interact with ecological system through their technology, local to their grounds. It involves fish behavior, spawning, nurseries and trends. Knowledge is what they observe, an oral reconstruction of their observations in the same environment where they work...and how they make sense of it. LEK is local. Scientists aggregate local knowledge to produce science. LEK is mediated by harvesters' behavior – it is not systematized. Sentinel fishermen recruited by the DFO systematize observations...these sentinel observations are too sparse and done in different ways in different places...they could be done in a more participatory way. This project is attempting to make methods for capturing LEK more rigorous through sampling and communicating social complexity."

Several faculty and associated researchers noted the importance of the approach for complementing or countering DFO policies and believe that this is possible. As a researcher said: "...take for example property rights. Fish harvesters have worked out property rights. If you have a right to fish you can fish everywhere, but people have worked out other arrangements. On one side, the grounds are distributed; on the other, there is no distribution and the grounds have worsened...regulations make it very difficult to use local knowledge to make a difference but the structure is a little more responsive than it used to be."

A research advisor noted the political importance of LEK in equalizing relationships between policy makers and fishing communities and in improving science: "normal science takes representative samples from fishing trawlers. This does not work onshore, it works offshore. We need to know about onshore conditions. LEK changes the structure of science. It gets policy makers and social scientists to think about local communities and local conditions."

Still, the conceptualization of local ecological knowledge, methodology to collect this body of knowledge, the content of this body of knowledge, its utility in generating useful information for fish harvester advocacy, its reception by scientists, managers, and fish harvesters is open to on-going testing. Further, whether this same body of knowledge is seen as scientifically and academically valid must still be tested. There are questions within the project team regarding the ways in which data will be analyzed and utilized, for example, one project staff member noted:

"I want to know how the information (about LEK) is going to be used...will it help the partners leverage more authority...?" Or, as another action oriented university staff member commented: "It's nice to know the information, but I for one want to know what we can do..."

The SRSF is now embarked on intensive, multi-visit interviews with elder fish harvesters in the three sites. These interviews require a great deal of experience, patience and expertise as historical data (using sea charts) is collected. We suggest periods of interim analysis and sharing of the preliminary results, to increase site involvement in and understanding of the methods and outcomes in the sites and partner organizations and to assess the potential impact of the results. We would suggest that senior researchers use the interim analysis to assess utility and direction for the intensive LEK data.

## **Generating Project Outcomes**

From the outset the SRSF project has had a strong research "outcomes" orientation. This approach is reflected in the original Memorandum of

Understanding signed by all partner organizations. This document makes specific references to "deliverables" (p. 2) and to "CURA documents, research materials, data and results" (p. 4). The writing up of research results is considered to be one of the key activities through which research capacitation will occur and the documents produced also serve as a demonstration of the fact that capacitation has, in fact, occurred.

In addition to the above, the project partnership has held a number of research skills and planning workshops since the outset of the project. Further, SRSF representatives have made site visits to other partnership projects in eastern Canada and the United States (including Georgia, Boston, Connecticut, and Vancouver, BC), and 2 CRCs and one project officer received grants to attend the conference entitled 'Putting Fishers Knowledge to Work' in Vancouver, BC, August 2001.

The SRSF team also places a strong emphasis on the widespread dissemination of research outcomes, posting relevant documents on its website and publishing articles in local, regional and national trade journals and newspapers and in scholarly journals, and through mail-outs of research reports and "fact sheets" to the members of partner organizations.

One important outcome measure is the ability of the partnership to generate additional income to support both partnership activities and specific projects. The SRSF partnership has won, thus far, the following additional resources in support of research.

SRSF at St. FX – 3 Fisheries and Oceans Science Horizons Internships in support of the project officer positions and specific research projects such as the St. Georges Bay Ecosystem Project and researching local ecological knowledge. **Total Value: \$36,000**

SRSF has won 5 Canada Human Resource and Development support for student assistanceships, and distributed these equally among the partners.

**Total Value: \$7,500**

Gulf Nova Scotia Bonafide Fishermen's Association in partnership with Fisheries and Oceans Canada and the St. Georges Bay Ecosystem Project has won a Fisheries and Oceans Science Subvention grant (one of 18 won nationally from a pool of 200+ applicants) to continue study of white hake predation on juvenile lobster as informed by fish harvesters' ecological knowledge. **Total Value: \$15,250**

Gulf Nova Scotia Bonafide Fishermen's Association in partnership with Fisheries and Oceans Canada and the St. Georges Bay Ecosystem Project initiated the study of white hake predation on juvenile lobster as informed by fish harvesters' ecological knowledge. Supported through a Fisheries and Oceans Science Horizon Internship (\$9000) and DFO contract (\$4900), as well as in-kind contributions from GNSBFA and St.FX. **Total Value: \$42,000**

Paqtnek Fish and Wildlife Society in partnership with Fisheries and Oceans Canada, and St. FX biologist won a Fisheries and Oceans Canada Science Horizons Internship in support of an American Eel population survey in Antigonish and Pomquet estuaries. **Total Value: \$6,000**

Guysborough County Inshore Fishermen's Association in partnership with Fisheries and Oceans Canada won two Fisheries and Oceans Canada Science Horizon Internships in support of lobster larvae and population studies. **Total Value: \$12,000**

The research capacity fostered by SRSF has contributed importantly to the partners' ability to identify funding potentials, to develop research proposals, and to engage as full collaborators. In several instances, government researchers have approached partner organizations with an offer to engage in research. In other situations several of the partners are initiating research proposals and the development of multifaceted collaborations. These outcomes reflect SRSF's determination to build on experiences, expertise, and successes for the purpose of further developing partner relationships and capacity through processes such as workshops focused on identifying research funding sources and grant application preparation, thereby laying the foundations for the potential continuance of partner capacity and partnerships once SRSF's core initial funding has ended.

### **Research Protocols**

SRSF places significant importance on the development of research protocols as foundational in building full and mutually beneficial partnerships in research. This was of particular importance to the Afton-based group when beginning their research project. PFWS organized a research ethics workshop with representatives of the Mi'kmaq Ethics committee. The Mi'kmaq Ethics Committee was set up in 1999 by the Grand Council of Mi'kmaq in order to safeguard the intellectual property rights of Mi'kmaq communities and individuals and to ensure that research conducted in Mi'kmaq communities is carried out in a way that respects their values and customs. PFWS (then the MFWC) hosted a workshop at Afton on June 27, 2001, led by Eleanor Bernard, Director of the Ethics Committee, and Eric Zscheile, a committee member and legal advisor to the Confederacy of Mainland Mi'kmaq. Following the workshop, in July 2001, PFWS applied to the Ethics Committee for approval of their proposed eel project. Approval was formally granted in the late fall of 2001.

The research ethics workshop at Afton stimulated wide-ranging discussion among SRSF project partners. This discussion was informed, not only by First Nations' issues, but also by the fact that many of the fishermen interviewed just prior to the ethics workshop had voiced complaints about the way in which research had previously been conducted in their communities. Many fishermen reported having been interviewed in the past but having never received any reports at the completion of the research project. Others complained that information gathered during interviews had sometimes been 'used against them'. The three SRSF partners thus discovered that they had a good deal of common ground when it came to research ethics.

The SRSF research protocol as posted on the project's website has also served to protect the intellectual property rights of the other two partners and all research participants. Finally, SRSF has developed and published as fact sheet (#2), a piece that directly addresses the need for fisheries research protocols by presenting justifications and recommendations.

The issue of research 'ethics' has been a key focus of the SRSF project since its inception. This is reflected in the content of the Memorandum of Understanding signed by all partners and dated January 13, 2000 and in an associated research protocol document also developed at the outset of the project. The activities of the Mi'kmaq Ethics Committee and the comments of many of the fishermen participating in telephone survey of June, 2001, reinforced the importance of this issue in the context of the SRSF project.

### **Recognizing the Scope of the Problem**

University-community partnerships and community-based research frequently take on the most difficult problems among groups who are politically and economically marginalized. The problem of sustaining fishing villages whose economies are being undermined by government and private development concerns and changes in fishing regulations and practices that increase the cost of fishing while reducing the value of the catch reaches far beyond what is possible in a single project. Measures of success in three to five year projects should focus on reasonable short-term results and mediating variables and funders should ensure long term support to enhance the promise of positive changes over a ten to fifteen year period.

### **Summary comments**

Universities talk expansively about their commitment to societal needs but rarely provide the incentives, funding, and educational structures to operationalize this commitment. As a result, the burden is taken up by the a small of group of faculty, with limited support, motivated by ideological commitments and a sense that the application of research to community needs will enhance the lives of marginalized peoples, as well as the quality of research and their professional and personal lives. The SRSF project was born as a part of this model and as a result its achievements have been gained despite many severe restrictions and because of the strong and constant commitment of project staff and partner organizations.

The restrictions the project has had to face are the following:

Project funds are too limited for the task and do not allow sufficient time for development of capacities and activities; five years should be the minimum period for taking on these kinds of activities.

The core group of staff is small (7 people) and faces the loss of some of its key members. The project officers (2) have left due to a lack of funds and their own needs for educational advancement, Dr. Wagner (1) will soon finish his post-doctoral position and move on to a faculty position in another institution. This leaves Dr. Davis and the three CRCs, as constants. There are promises, but no guarantees that the CRCs will be able to maintain their roles or their organizations. The heavy investment in their training, their skills, development of lines of communication and collaboration are heavily dependent on their continued availability. At the same time, the partner organizations recognize the value of the relationship with the university and SRSF, and can be expected to continue the partnership should any CRC be unable or unwilling to continue. Promise of continuing financial support will help to further institutionalize the project within the organization and the university to ensure consistency from both community residents and faculty.

Institutionalizing the research capability within the organization has to be considered in the context of the fact that two of the three organizations are very early in their development. The survival of these organizations as community based applied research centers could better be guaranteed with an additional 3 – 5 years of funding.

The outcomes of the project are heavily weighted toward written products that are available to the general public and to the academic world as well as to organizational membership. In addition, we would suggest emphasis on other outcomes that put new structures in place, develop educational, economic and social interventions, and other actions that are highly visible to both the partner organizations and the community.

The involvement of the project in three different and geographically disparate communities, with three very different organizations was a challenge for a small, and, at the CRC and project officer level, relatively inexperienced staff. A plan more specifically geared to the differential evolution and needs of each of the organizations would be beneficial and would allow for more targeted use of funding to enhance both organizational infrastructure and informational/research capacity.

Local ecological knowledge is a methodology and a principle. In the arena of policy and practice, its utility remains to be tested. In future action research, LEK needs to be tested against policy and practical structural changes that benefit fish harvesters as they use their knowledge and social capital to shift from the past to an uncertain future.

Given these points, we would attempt to answer the these questions in the following way:

*How might the partners continue to use and build on the capacity that is being developed now, independently or in other future partnerships? The promise of continued use of the research process will be realized only if researchers (faculty, university staff and students) can maintain a strong presence in the organizations and the communities. Presence may be from St. Francis Xavier or other universities. This presence should be stronger than it has been over the last three years. The evaluators suggest that the SRSF has made important contributions to Guysborough that may allow the CRC to function independently, or with limited consultation. The emphasis of the CRC in Bonafide was on organizational development; it is now time for that organization to increase its independence, and strengthen and expand its research focus to include social-ecological inquiry. This site knows how to use researchers to obtain needed information, and students have been well integrated into the site and should continue to be involved. We suggest that the SRSF place more emphasis in the future on the PFWS, using its full resources in organizational development, research, and the translation of the research into action and intervention programs, particularly for youth. It is, nevertheless, critical to retain relationships with all three sites and their related constituencies to continue making the important communications between the Mi'qmaq group.*

*How might the current SRSF process further advance the 'independence' of community partner research capacity? While we desire to see organizations and individuals learn about research, and believe that their collaboration is crucial to the research process, we think that is not possible that they can graduate to research independence without either having the capacity to hire their own researchers and generate their own research funds, or develop funded research related links with a variety of universities and other research entities. Research, like fishing, is a lifetime pursuit. The strong and continuing presence of both researchers and fisher community partners on a continuing basis is a prerequisite for applied research. To enhance independent research decision-making however, it would benefit all three organizations to: a) expand the process of defining needed research; b) increase funding capacity for advanced predoctoral or postdoctoral researchers to be situated in organizations working in direct partnership with CRCs or equivalents; c) continue to enhance research links between organizations and other researchers at SRSF and other Canadian and maritime universities elsewhere; d) expand the presence of the organizations on the internet; e) continue to engage the CRCs in the national and international world of sustainable fisheries research, intervention and policy.*

*How might the current SRSF process improve on engaging university social research expertise in research projects and relations with community partners? SRSF must take the lead in securing grants for the university and partner organizations that will purchase faculty time from courses, provide support for data collection, provide mentorship for junior faculty, generate data for publication, and contribute to securing promotion and tenure. It is our suggestion that SRSF advertise applied sustainable development as a research strength at the university, promote community based research in this area, and concentrate on the recruitment and retention of individual faculty who bring multidisciplinary skills and attract students.*

*In what ways can SRSF governance and decision-making be improved and made more effective? We believe that the formation of collaborative and supportive governance and decision-making structure was an important part of the first phase of SRSF. The project benefited from the input and consultation of researchers from other universities. In the next phase, we should see focused differential attention to the needs of each of the partners, including the university. If the university and each of the organizations is viewed as having specific skills and resources, and specific applied research challenges, this view may allow for the kind of rotating leadership suggested by some of the respondents who were interviewed for this assessment. The next research partnership application should reflect participatory leadership and differentiated roles and responsibilities.*

*What additional approaches will enhance SRSF's efforts at disseminating materials and information? SRSF needs to focus on a more structured evaluation of the university--CBO partnership in each of the partnership settings and at the university. The components of the program now are issue identification, and generation of knowledge. The next stages are translation of knowledge into policy and programmatic intervention. These should be structured and evaluated, and the process (stage I to now; and stage II to come) should be documented and outcome evaluated, assessing acceptability, integrity and efficacy in terms of improved quality of life, sustained fishing life style and promotion of desired lifestyle change. Faculty, students and partners utilizing a multi-media approach in academic conferences, DFO policy meetings, and many other fora can disseminate these case-oriented transformations collaboratively.*

Measures of success in three to five year projects should focus on reasonable short term results and mediating variables and funders should ensure long term support to enhance the promise of positive changes over a ten to fifteen year period. There are some examples of such long term commitment to local development. The Annie Casey Foundation, in the United States, for example, has committed to fifteen years of funding for projects in 22 cities across the country that are "making connections", recognizing that only long term investment can sustain development over time.

## 7. Summary comments

**These summary comments represent a response to the four questions addressed by the project:**

Build fish harvester organizations' applied research capacity, research skills, and scientific research literacy;

Provide St. FX and ISAR-linked expertise with the means to operationalize action, problem-centered and needs-based interdisciplinary research;

Provide ISAR and St. FX senior students with the opportunity to participate in action research internships; and,

Contribute to development of harmonious, research-focused partnerships among government, university, Mi'kmaq and non-native marine harvester organizations.

## 8. Final comment

Research partnerships such as those described here have immediate and long term practical as well as scientific benefits. In addition, they are highly satisfying to researchers who are interested in seeing immediate public payoff for their work. But, because they are based on trust and rapport, building these partnerships takes time, sometimes more than a decade. Community research organizations are well situated to build these partnerships because it is easy for their staffs to maintain continuing relationships with other community organizations, as well as development activities that may affect the lives and health of community residents. Once networks are established based on a history of positive relationships, it is relatively straightforward to initiate a research partnership. The partnership's success then depends on satisfactory resource sharing, participation in most or all aspects of the research, immediate attention to communications problems and gaps and continuing dialogue around use of the information for scientific and community development purposes (24) Any community organization with a commitment to research can develop a research program with experienced community based researchers. The CBR movement in communities will reach its full potential when researchers and funding agencies see the relative advantages of research positions in the community with ties to a university, rather than the other way around.

## 9. Quotes

### University Faculty

"the project is unique. SFX is an undergraduate school, far away from every urban area. Our department - Business Administration - traditionally did not have a strong track record in social research (compared to other social science disciplines) but is now placing more emphasis on publishing and peer review. In the last decade we have seen a change in social science research at the university and more interest in publishing and peer review....I am interested in what factors stimulate community based entrepreneurship. Government money doesn't build entrepreneurial capacity; people need to learn to be entrepreneurial.....local knowledge is set in the context of community history, core values and community resources. It's a matter of what the community is going to do with it. Everyone has something to bring to the table. For example LEK is about what norms develop and how conflict is resolved. If a community is not entrepreneurial it means you have to change community culture".

"...there is a new trend in granting designed to build bridges between the university and community and to build research capacity in communities, to allow relevant groups to do their own research. This may be an intermediate or transitional movement. A competing trend is to have government to move research intramural. This all is coming from academics trying to promote research of public relevance, mainly sociologists and anthropologists.....there are many advantages when this is done well. This project is one of the best.....Academics must treat partners as equal, but how can it be equal given research technology? Fair change is what is important.....academics can provide systematic procedures (methods), communities are doing important things. The community partners will deal with the public in the end.

"normal science takes representative samples from fishing trawlers. This does not work onshore, it works offshore. We need to know about onshore conditions. LEK changes the structure of science. It gets policy makers and social scientists to think about local communities and local conditions."

What is LEK? "LEK is social ecological knowledge. LEK is local, it depends on the fishing industries and local ecology, species, gear and the way fish harvesters interact with ecological system through their technology, local to their grounds. It involves fish behavior, spawning, nurseries and trends. Knowledge is what they observe, an oral reconstruction of their observations in the same environment where they work...and how they make sense of it. LEK is local. Scientists aggregate local knowledge to produce science. LEK is mediated by harvesters' behavior - it is not systematized. Sentinel fishermen recruited by the DFO systematize observations...these sentinel observations are too sparse and done in different ways in different places....they could be done in a more participatory way. This project is attempting to make methods for capturing LEK more rigorous through sampling and communicating social complexity."

"It's nice to know the information, but I for one want to know what we can do..."

"I am a science advisor. I helped with the original application, went to methods workshops and was asked to join the advisory committee. I had input into designing the lobster and eel studies. We organized a conference in Vancouver on LEK and three people - CRCs - came to that. We supported them in coming. Since then, someone left the advisory committee and I am now a science advisor. I have participated in teleconferences

"the role of the CRCs is content specific. The partners are involved...they have a lot of respect and assume that the academics are not questioned. The way local experts are viewed depends on the chair. A chair can build on local knowledge by going around the table and finding out local expertise. Democratization of knowledge doesn't go on at the steering committee."

..."there is a dual role: committee members have a role but not necessarily fully participatory..."

### From a fish harvester:

"the organization needs our CRC...they (DFO) are using science as a barrier. Someone has to translate the science. We are reacting, how about acting.

### From a Research coordinator:

About LEK, "take for example property rights. Fish harvesters have worked out property rights. If you have a right to fish you can fish everywhere, but people have worked out other arrangements. On one side, the grounds are distributed; on the other, there is no distribution and the grounds have worsened.....regulations make it very difficult to use local knowledge to make a difference but the structure is a little more responsive than it used to be. "

"I want to know how the information (about LEK) is going to be used...will it help the partners leverage more authority...?"

### Program Personnel

About CRCs: "Their role is to build capacity in the partner organizations. For example, at Gulf Bonafide, before the SRSF project, there was no professional staff, no paid executive, no office equipment or computer. They had little way to respond to the DFO. Now they have office equipment and a permanent location, they are networking with other fish harvester associations, will combine space with others and the CRC/director will be paid by them, and they will charge membership fees. The CRC is involved in the research and interviewing on LEK....At Guysborough they are writing proposals for more funding and reports."

"The steering committee was always chaired by the university; it should be chaired by the organizations. This is how they learn best. They should contribute more."

"If the partners would get together, Tony would provide research methods from his background, others would have input, the group would talk about questions, in the first year there was a research workshop..."

## Appendix A – SRSF Research Documents

### SRSF Research Report Series

SRSF Research Report 1: Guysborough County Inshore Fishermen's Association (GCIFA). 2001. The SRSF Eastern Shore Nova Scotian Coastal Fisheries Ecosystem Project: A Social Profile of LFA's 29 (Southern Richmond County), 31A and 31B (Guysborough County) Fisheries: A Preliminary Report of Research Results. 25 pp.

SRSF Research Report 2: Gulf Nova Scotia Bonafide Fishermen's Association (GNSBFA). 2001. The St. Georges Bay Ecosystem Project: A Social Profile of Lobster License Holders in Pictou, Antigonish and Inverness Counties: A Preliminary Report of Research Results. 17 pp.

SRSF Research Report 3: Watts, Hadley. 2002. An interdisciplinary study of St. Georges Bay Fish Harvesters' ecological knowledge and White Hake (*Urophycis tenuis*) predation on Juvenile American Lobster (*Homarus americanus*). Phase 1. A preliminary report of research results. Produced as a collaboration of Social Research for Sustainable Fisheries (SRSF), Gulf Nova Scotia Bonafide Fisheries Association (GNSBFA), Interdisciplinary Studies in Aquatic Resources (ISAR) at St. Francis Xavier University, and Fisheries and Oceans Canada, Gulf Region. 21 pp.

### SRSF Working Paper Series

Boudreau, Virginia. 2001. Fishing For a Living (a background document prepared for the Guysborough County Inshore Fishermen's Association). 38 pp.

Prosper, Kerry. 2001. Mi'kmaq and the American Eel, (Kat) (a background document prepared for the Mi'kmaq Fish and Wildlife Commission). 35 pp.

Wallace, Kay. 2001. Gulf Nova Scotia Small Boat Fisheries: A Socio-economic and Historical Profile (a background document prepared for the Gulf Nova Scotia Bonafide Fishermen's Association). 51 pp.

### SRSF Fact Sheet Series

Fact Sheet 1: Highlights of the Marshall decision. June 2001. 6 pp. (co-authored by V. Boudreau, A. Davis, C. Dyer, J. Paterson, M. Paulette, K. Prosper, P. Rhynold, J. Wagner and K. Wallace).

Fact Sheet 2: Who benefits from research: the need for a fisheries research protocol. August 2001. 6 pp. (co-authored by V. Boudreau, A. Davis, C. Dyer, J. Paterson, M. Paulette, K. Prosper, P. Rhynold, J. Wagner and K. Wallace).

Fact Sheet 3: Who'll be left fishing? The dilemma of recruitment in small boat fishing. October 2001. 8 pp. (co-authored by V. Boudreau, A. Davis, C. Dyer, J. Paterson, M. Paulette, K. Prosper, P. Rhynold, J. Wagner and K. Wallace).

Fact Sheet 4: Lobster policy: inconsistencies in regulation and questions about conservation measures. November 2001. 8 pp. (co-authored by Matthew Beson and Judy Peitzche, student interns).

Fact Sheet 5: The southern Gulf of St. Lawrence Herring fishery. December 2001. 6 pp. (by Sarah Kinnie, student intern).

Fact Sheet 6: *Kat* (American Eel) life history. January 2002. 8 pp. (co-authored by Mary Jane Paulette and Kerry Prosper).

Fact Sheet 7: The Mi'kmaq relationship with *Kat* (American Eel). February 2002. (co-authored by Mary Jane Paulette and Kerry Prosper).

Fact Sheet 8: Small boat fishermen are ready and wired: plugging in and turning on to potentials and possibilities of the information highway and the new economy. February 2002. 8 pp. (co-authored by V. Boudreau, A. Davis, C. Dyer, J. Paterson, M. Paulette, K. Prosper, P. Rhynold, J. Wagner and K. Wallace).

Fact Sheet 9: Oil rigs or fishing boats: what are the potential effects of oil and gas development on southern Gulf Fisheries? April 2002. 8pp. (co-authored by and Kay Wallace).

Fact Sheet 10: Fishermen's Associations: Independent Agents or Paper Tigers? June 2002. 10 pp. (co-authored by V. Boudreau, J. Wagner and K. Wallace).

### Additional SRSF Reports

Boudreau, Virginia (GCIFA Community Research Coordinator). 2000. Community organization profile of Guysborough County Inshore Fishermen's Association. 55 pp.

Boudreau, Virginia. 2000. Guysborough County Inshore Fishermen's Association 1977-2000. Newsletter, July, 2000. 13 pp.

Boudreau, Virginia. 2000. Association Newsletter. August, 2001. 6 pp.

Murphy, Flora (SRSF Project Officer). 2000. Report on Experience with the Institute for Community Research (ICR), April 26-30, 2000, Hartford Connecticut. 6 pp.

Murphy, Flora (SRSF Project Officer). 2000. Summary of the 1st Social Research for Sustainable Fisheries Workshop, May 8-9, 2000, St. Francis Xavier University, 6 pp.

Boudreau, Virginia, Flora Murphy and Maria Recchia. 2000. Third Annual Community Research Network Conference, Morehouse College, Atlanta, Georgia, June 15-18, 2000, 14 pp.

Murphy, Flora. 2000. Alternative Funding Sources. 16 pp.

Murphy, Flora. 2000. Associated Research Approaches and Interests and Research Services for Fish Harvesters. 27 pp.

## **SRSF Research Inventories**

The Community Research Coordinator for each partner organization has developed an inventory of all research documents used during research projects. These inventories were created using a bibliographic database and contain records of all published and unpublished literature reviewed or written, raw data collections and correspondence. Each entry identifies where the document can be accessed, whether in the organization's office or elsewhere. These inventories will be regularly updated throughout the life of the project and beyond.

### **SRSF Student Intern Papers and Reports**

Baker, Tanya (Student Intern, Fundy Fixed Gear Council. 2000. Developing an Integrated Communications Plan for the Fisheries Development Center. 22 pp.

Beson, Mathew (GCIFA Student Intern). 2001a. A bird's eye view of the Arrow spill and its effects on the Chedabucto Bay area. 17 pp.

Beson, Mathew (GCIFA Student Intern). 2001b. Ichthyosporidium disease and its effects on the Herring stocks in the Chedabucto Bay. 11 pp.

Mattie, Kirk (Bay of Fundy Marine Resource Centre Student Intern). 2000. Economically Enhancing the Southwest Nova Fixed Gear Fishing Industry: Understanding New England Models. 26 pp.

Peitzsche, Judy (GCIFA Student Intern). 2001. The Canso Causeway and its effect on its surrounding areas. 11 pp.

Peitzsche, Judy (GCIFA Student Intern). 2001. The Herring fishery in Chedabucto Bay from the 1960s to present. 11 pp.

Peters, Chris. 2002 (GNSBFA Student Intern). --- speak to Lynn P.

Purdy, Jana (GNSBFA Student Intern). 2000. Science and Ecological Knowledge: Insight into conflicting claims concerning cod and hake predation on juvenile lobster. 14 pp.

## **Scholarly Publications**

Davis, Anthony and Svein Jentoft. 2001. The challenge and the promise of indigenous peoples' fishing rights – from dependency to agency. *Marine Policy* 25: 223-237.

Davis, Anthony (with contributions from V. Boudreau, C. Dyer, J. Paterson, K. Prosper, J. Wagner and K. Wallace). 2001. Diving into the Chowder? *Canadian Issues* Aug./Sept., pp. 8-12.

Davis, Anthony and John Wagner. Who Knows? On the importance of identifying 'experts' when researching local ecological knowledge. A paper currently under review by the journal *Human Ecology*, 46 pp.

Davis, Anthony and John Wagner. 2001. Near Shore Oil and Gas Exploration in Whose Interests? Impacts on and Concerns about Community and Ecological Sustainability. A paper submitted to the Public Review Commission Into the Effects of Potential Oil and Gas Exploration and Drilling Activities off the Coast of Cape Breton, Nova Scotia.

### **In Progress**

Wagner, John and Anthony Davis. Not all elderly are elders and not all elders are elderly: on the social construction of wisdom in local ecological knowledge. A paper being prepared for submission to *Human Organization*, 30+ pp.

### **Trade Journals, Newspapers (in chronological order)**

SRSF. 2001. Green Crab – threat or future of Guysborough County fishermen? *Guysborough Journal*, July 25, 2001.

Wagner, Susanne. 2001. Research project raises questions about future of local fisheries. *Guysborough Journal*, July 25, 2001. 1 p.

SRSF. 2001. Benefits of fisheries research protocols. *The Casket*, Aug. 22, 2001, p. 11b.

SRSF. 2001. Who benefits from research: the need for fisheries research protocols. *The Sou'wester: the Voice of Atlantic Canada's Fishing and Marine Industry*, 33 (22):9-11, Sept., 2001.

SRSF. 2001. Who'll be left fishing? The dilemma of recruitment in small boat fishing. *The Sou'wester: the Voice of Atlantic Canada's Fishing and Marine Industry*, 33(24):16-17, Oct. 2001.

SRSF. 2001. Study looks at impact of groundfish on young lobster. *Atlantic Fisherman*, Oct. 21, p 21.

SRSF. 2002. Who'll be left fishing? The dilemma of recruitment in small boat fishing, Part 1. *Atlantic Fishermen*, June, 2002.

Davis, Anthony, John Wagner and Virginia Boudreau. 2002. Terrorizing Livelihoods as Fisheries Management. Submitted to *The Sunday Herald*, June, 2002.

Davis, Anthony and Virginia Boudreau. 2002. DFO intimidating, jeopardizing small boat fish harvesters: underlying threat hangs over snow crab fishers. *The Casket*, May 15, 2002, p. 11b.

Davis, Anthony and Virginia Boudreau. 2002. Manufacturing crisis and conflict as fisheries management. *The Sou'wester: the Voice of Atlantic Canada's Fishing and Marine Industry* 34(16):10-13, June 1, 2002.

### **Conference Papers**

Boudreau, Virginia. 2001. How can we have more participation by the fishermen in fisheries science? A paper presented at the "Putting Fishers' Knowledge to Work" conference, University of British Columbia, Vancouver, BC, Aug. 27-30, 2001.

Prosper, Kerry. 2001. Traditional knowledge and human indicators. A paper presented at the "Putting Fishers' Knowledge to Work" conference, University of British Columbia, Vancouver, BC, Aug. 27-30, 2001.

Dyer, Christi and Jessica Paterson. 2001. Social Research for Sustainable Fisheries; a university community research alliance. A poster display presented at the "Putting Fishers' Knowledge to Work" conference at the University of British Columbia, Vancouver, BC, Aug. 27-30, 2001.

Davis, Anthony and John Wagner. 2002. Who Knows? On the importance of identifying 'experts' when researching local ecological knowledge. A paper accepted for presentation at an Ocean Management Research Network conference in Moncton, N.B., June 21,

2002.

Wagner, John and Anthony Davis. 2002. Not all elderly are elders and not all elders are elderly: on the social construction of wisdom in local ecological knowledge. A paper accepted for presentation at the annual conference of American Anthropological Association, New Orleans, LA, Nov. 20-24, 2002.

### Research Instruments

SRSF Coastal Fisheries Ecosystem Project, Phase I, telephone interview schedule. A research instrument developed for use in a survey of lobster license-holders in Guysborough and Richmond Counties, NS, Canada. Completed June 2001. 18 pp.

<http://www.stfx.ca/research/srsf/2005d4.htm>

SRSF Coastal Fisheries Ecosystem Project, Phase II, ecological knowledge interview schedule. A research instrument developed for in-depth interviews with peer-referenced local fishing "experts" in the Chedabucto Bay and St. Georges Bay regions. 16 pp.

American Eel Mi'kmaq Local Ecological Knowledge Study, Phase 1 – Household Study. A research instrument developed for use in a door-to-door survey of Afton households. 11 pp.