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Research Chairs Strategy Committee
Malaspina University-College
c/o Research & Scholarly Activity

Dear Committee Members,

On behalf of the Steering Committee of the Institute of Coastal Research (ICR), I am pleased to submit a two page proposal to you for the placement of a Canadian Research Chair in the ICR to develop interdisciplinary research programs in the general field of sustainable community development. The research envisioned would focus on complex issues related to community development and resource management and will be interdisciplinary in nature and weighted toward the social sciences and humanities.

The ICR was planned from the outset as an interdisciplinary research centre aimed at addressing the concerns of BC coastal communities, and the issues faced by these communities span many academic disciplines. Although many of these are scientific in nature, and interdisciplinary studies involving traditional sciences studies will be supported by the ICR, many of the most urgent challenges to coastal communities are best addressed by disciplines in the social sciences and the humanities. Prominent among these are issues surrounding resource management where questions and debates have arisen that have not been solved by scientific research alone. It appears that the values held by different groups of people and their views on the environment may be stronger components of the issues than has generally been recognized. Thus this proposal for a CRC chair is central to the work set fourth for the ICR to do.

We are just now beginning to formally organize the ICR after a planning period of several months. There are many potential projects for the ICR to undertake, but the research program described in our proposal would create a cornerstone project and would set the ICR well along its way to success. The ICR has enormous potential to contribute to the reputation of Malaspina University-College and its evolution toward university status. The work to be done by the proposed CRC position would bring great benefits to faculty from many departments within our institution and provide superb opportunities for students to learn through direct involvement in interdisciplinary research projects.

I have added an appendix to the two page proposal which I hope contains some useful background as examples of the types of issues that would be studied by the Canadian Research Chair and the research teams that would be formed at the ICR. If you require any further information, I will be most happy to provide it.

Yours sincerely,

Bill Pennell
Acting Director, Institute for Coastal Research

BP/sml
Enclosures

A Social Sciences/Humanities CRC in Interdisciplinary Research on Sustainable Coastal Community Development

Proposal for a Canadian Research Chair to Reside in the Institute of Coastal Research.

Recently it was announced that a third CRC was available at Malaspina University-College and that the CRC Committee would entertain proposals. The new Institute of Coastal Research (ICR), located in the new Library is, at present a nascent institute, ready to begin work, with an Acting Director, modest start up funds and a Steering Committee. The ICR however enjoys a superb physical setting with office space, meeting and seminar rooms and research areas. During the planning process for the ICR, over 40 Malaspina people were interviewed and a workshop convened to discuss the possible roles of the Institute. One strong theme to emerge was that the ICR, through research and discussion, might help bring clarity to complex and controversial issues now being discussed on the BC coast, many of them tied to resource management policy. It was suggested that the ICR should bring coastal people and academics from various disciplines together to have a fresh look at issues which in many cases have stagnated into polarized positions. In addition to research, communication and community participation will be important to meet this goal.

The presence of a full time researcher in the ICR would move this process forward dramatically. The ICR will gain credibility, and Malaspina will benefit by demonstrating concern about some of the most the vital issues facing our region. The chair will create research opportunities for faculty in many departments and for students throughout the campus. Malaspina University-College will garner a reputation in the field of policy development and conflict resolution in coastal resource issues. We are perfectly situated for this with several resource management and relevant science departments on campus to act as information resources, and we have faculty in several social science and humanities disciplines who have already done research on such issues, and many other faculty with skills and expertise to contribute. The ICR in the centre of campus is ideally poised to orchestrate and enhance an, interdisciplinary research program in this field. What we need now is a full time researcher to lead the development of the program, and this CRC position would provide this perfectly with ten years of secure funding.

As explained in the attached Appendix, resource management conflicts are often framed as environmental issues, and the research in such sciences as biology, ecology and oceanography is usually mobilized to settle the questions so raised. However the deeper, more fundamental issues are more complicated and usually related to human values and world views. This implies that interdisciplinary research outside of the traditional sciences may be more appropriate than the traditional science based studies, if we are to see the sustainable development of coastal communities which rely heavily on marine and other coastal resources. In the end this is expressed as effective policy development, policy that works for everyone and is accepted by coastal communities as well as by urban communities who influence provincial and federal policy.

A Canada Research Chair in the Institute of Coastal Research will bring together researchers from many disciplines, both on campus and from other institutions, to

A Social Sciences/Humanities CRC in Interdisciplinary Research on Sustainable Coastal Community Development

create research programs targeting the social and economic aspects associated with resource management issues. The resources may include forestry, mining, oil and gas extraction, aquaculture, fisheries, tourism and others. The research disciplines involved will likely include any of the social sciences as well as humanities, for example, history, First Nations studies, the arts, and others. We have these disciplines and excellent scholars in them on campus. The CRC's job will be to mobilize them, create research programs, and deliver funding. The CRC will also set the foundations for communication with community groups and facilitate open discussion of issues in an intellectually neutral and respected environment. Later, publications will result both in academic journals and in special productions of the ICR. As this work develops, interest in the ICR will grow, and it will become an internationally known institute where this work is done. This will greatly enhance Malaspina's reputation in the academic world and in the coastal communities.

Much benefit will come to Malaspina students who will be involved in the studies as a part of their education. The opportunity to work directly with interdisciplinary teams on real life problems is an educational chance of a lifetime, and there will be many such opportunities. The value of combining research with education has been well demonstrated in such departments as Tourism and Recreation, Biology and in the new Centre for Shellfish Research. In the ICR, students will become part of research teams in the social sciences and learn first hand the value and challenges of interdisciplinary research. Faculty will engage in research, and the research capacity of the institution will increase.

The discipline of the successful CRC candidate is less important than the candidate's ability to communicate with scholars and to build respected interdisciplinary research teams beginning with Malaspina faculty but later including researchers from other institutions. We will require a person with an established research record demonstrating impartiality in the face of competing stakeholder interests, and who is willing and able to do the hard work of creating interdisciplinary research teams and raising research funds. This person will also have the ability to communicate effectively with a broad cross section of our coastal communities, to organize events such as conferences and workshops and to promote Malaspina University-College and the Institute for Coastal Research.

Finding such a person will be challenging, but not impossible. Malaspina University-College is a very attractive institution with great potential, and the ICR has a most impressive infrastructure. The opportunity to create a new and unique research institute on the BC coast will be very appealing to a researcher just moving into the exponential phase of a career.

ICR Steering Committee

Background to the CRC proposal for the Institute of Coastal Research.

Introduction

APPENDIX I

Introduction

There are many complex and controversial issues related to the management and allocation of the marine and coastal resources of BC. Frequently these issues explode in public debate and the debate is often framed in environmental terms. However these issues have a social component that is often, perhaps always, at the heart of the discussions. World views and views of the environment often collide and render communication difficult and occlude the issues. Scientific studies and risk assessments are interpreted from inside the competing world views and fail to provide the common ground on which solutions could be built. A few examples are given below from fisheries, aquaculture and forestry resource management histories, but these are a few examples only and there are many more. Other areas such as tourism, mining, oil and gas extraction could have been chosen – each of these would offer an equal number of complex issues and debates.

The BC Coast, in its more remote regions, was arguably once much more densely populated by people of the coastal First Nations before European contact than it is today. These peoples were then drastically reduced in numbers through disease and social disruption. By the early 20th century the coast was again quite heavily populated by new residents active in logging, fishing and other resource extraction industries as well as by recovering First Nations communities. However by the end of the twentieth century, the remote regions of the coast were again sparsely populated. The reasons for this depopulation are complex but shifts in the organization of forest and fishing industries, the reduction of mining operations and the closing of mills and processing plants have led to migrations of coastal people to urban centres. Those left in remote coastal communities are very hard pressed to make a living, and this has resulted in a search for new economic ventures, for example harvesting of alternate forest products, new forms of tourism, new fisheries and aquaculture.

Overlying these ventures are widespread and often conflicting world views of society and nature. The First Nations consider their views of nature to be distinct and basic to their cultures. In the urban centres which dominate Canada there are views of nature and the environment ranging from pure preservation to practical management for human benefit. Preservationists may see nature as an unchanging solitude free of mankind and developers may be more interested in maximising the yield of nature's products for economic benefit. In BC it appears that these two approaches or attitudes often lead to a strong polarization of opinion on many issues, especially toward economic ventures that would seek to restore coastal economies. Aquaculture for example, especially salmon farming, has become a constant battle ground between environmental groups and proponents of the industry. Many observers of this debate have come to the conclusion that biological and physical sciences cannot resolve the controversy despite millions of dollars spent on research. The issue may run much deeper than the statements of environmental impacts which, on the surface, characterize the debate.

Background to the CRC proposal for the Institute of Coastal Research.

Introduction

Academic discussions of humanity's relationship with nature have moved beyond the simple dichotomy of development versus preservation. Biologists, social scientists, philosophers and others have explored these issues from many points of view. Scientists are concluding that there are no environments unaffected by human activities and that major environmental damage is being done and will increase worldwide. There is much less agreement on what to do about this. Many believe that simple preservation of ecosystems is no longer appropriate or effective, but that instead we must intervene and manage the environment to maximise ecosystem services (rather than products), and that intervention is necessary to preserve any aspects of wilderness that we may value. This is of course a complex and controversial area. Part of it is science driven and part, the more important part, is driven by values. To chart a course of development, one must understand the values held by people and the forces creating and upholding these values. This is as true globally as it is regionally, for example on the BC coast.

Coastal communities range in size from major port cities such as Vancouver to small villages such as Bamfield and Klemtu. This discussion focuses on the smaller and more remote communities, but similar issues can be found in large coastal cities.

Examples of Coastal Issues

Fisheries

In the latter half of the 19th century, salmon fisheries were commercialized on the BC coast. Early salteries were replaced by large canneries and these were spread out over the coast to be near the Pacific salmon when they returned in summer and fall. As is the case with many new fisheries, the resource seemed inexhaustible and indeed there were prodigious numbers of returning fish. Dr William Ricker estimated the number of sockeye salmon returning to the Fraser River to be as high as 160 million fish on a cycle year (today's escapement is usually less than twenty million). Reduction of salmon stocks was due to over fishing, and environmental damage. Despite reductions in (and extinctions of) some major salmon stocks, many runs are still quite healthy and many depleted stocks have rebuilt. For example recent pink salmon returns to some northern Vancouver Island streams have surpassed all historical records and the Horsefly River sockeye run has gone from virtual extinction to an escapement of several million fish over the last 12 years. The problem with the salmon fishery is more complicated than the cliché of too many boats after too few fish.

In the mid 1980s, the dramatic rise of salmon farming in many countries (Norway, Scotland, Chile, Ireland and others) led to a severe reduction in the market value of all salmon. More salmon are now farmed than are caught from the wild. The hundreds of small boats along the BC coast were no longer profitable despite catch levels that in most cases had not declined. The solution chosen was to buy back salmon licenses and to allow the combining of small boat licenses into single, larger vessel licenses. A

Background to the CRC proposal for the Institute of Coastal Research.

Introduction

series of “buy backs” led to the nearly complete removal of salmon fishing activity based in small communities. For example the communities of Alert Bay and Sointula were the home of scores of salmon fishing vessels as recently as the early 1980’s. Now there are fewer than six salmon boats in both towns combined. Instead, larger and more efficient boats operate out of larger ports, for example Vancouver and Nanaimo, and the employment once afforded to the small coastal communities by salmon is gone.

Another form of fisheries management may also lead to a reduction of benefit to small communities. This is the Individual (Transferable) Vessel Quota (IVQ) system. Black cod and geoduck fisheries provide good examples. In both of these lucrative fisheries, the number of licences has been restricted to a small group of harvesters who had at the time of the restriction demonstrated significant catch rates in the fishery. In both fisheries this number is approximately fifty, fifty licences initially associated with 50 vessels. In the geoduck fishery, 55 license holders do all of the harvesting of this multimillion dollar resource. The quota is set by scientists, in this case one percent of the estimated biomass per year. This is divided equally by the 55 harvesters. A geoduck clam may weigh ten pounds and be worth as much as \$10.00 dollars per pound when exported to Hong Kong or Japan. The industry is essentially privatized, and the 55 owners may have a vested interest in sustaining the harvest through good management. DFO (Dept of Fisheries and Oceans) taxes the industry to pay for management, and this costs the taxpayers nothing. Because the industry is privately controlled, marketing (now organized by the Underwater Harvesters Association – the 55 licence holders) is more effective and the price for the product has increased dramatically. Because this is an export product, the BC economy benefits. The original licenses cost \$50.00 each but now can be sold (transferable) and may be worth one to two million dollars each.

This would appear to be a perfect solution to fisheries management and it is being considered for many species. It eliminates the competitive scramble for resource share which is so difficult to manage, the value of the resource is increased, and overseeing of the industry costs DFO (and the tax payer) nothing. Coastal communities have noted however, that the harvest vessels are based in large port centres, and that the crews come from these centres and not coastal communities. Furthermore the licenses can be sold and there is nothing to prevent a single offshore company from taking ownership of a common property BC resource. This is seen by some as a removal of local resource benefit from coastal communities.

As fishing resources become efficiently harvested, the stocks either decline or are managed at a maximum sustained yield. In either case, the value of the product increases. (Salmon is an exception due to aquaculture production.) Ownership issues then emerge and government policy decisions result in systems of allocation such as the IVQ approach described above. The results may appear rational and beneficial, but these systems may undermine the economic and social health of some communities. IVQ, or IVQ-like, systems are used for sea urchin, crab, prawn and other fisheries and are contemplated for other species.

Background to the CRC proposal for the Institute of Coastal Research.

Introduction

Another dynamic associated with IVQ fisheries in BC is resistance to aquaculture. When marine resources become valuable, due either to increased demand or resource scarcity, aquaculture steps forward as a means of increasing the supply. IVQ license holders realize that aquaculture has a track record of increasing supply to the extent that prices reductions occur – as we have seen dramatically in the case of salmon, and they resist the development of aquaculture for their species. The controversies that result may be intense, for example the anti black-cod culture campaigns that have recently taken place on Salt Spring Island. The discussion is usually framed in environmental terms but the real issue in these cases appears to be ownership of the resource.

Coastal communities might argue that aquaculture can provide the means to bring the lost fisheries resource value back to their communities since aquaculture is done locally and makes use of local human resources. But aquaculture is the centre of other controversies, these at least to some extent driven by urban views of nature, but again, framed as environmental impact issues (see section below). Finding socially acceptable ways to combine sustainable (properly done) aquaculture and fishing of various species so that both license holders and coastal communities benefit is necessary, but very difficult. In Japan it is the norm, but in BC it has yet to be done.

New fisheries may be developed to create economic benefit to coastal communities, but this is increasingly difficult due to new federal policies that emphasise conservation and minimizing ecological damage to the marine environment. It is extraordinarily difficult to create a new species fishery and very expensive.

Another example of a collision of world viewpoints with coastal community well being and values centers on the sea otter. The sea otter was extirpated from BC waters about 150 years ago by European and Russian traders who either killed the otters themselves or traded with First Nations for otter skins which were exported to China where they had a very high value. The sea otter pelt is one of the most luxurious of all animal furs with thousands of soft hairs per square centimetre of skin. This is so because the sea otter stores little body fat and relies on dense fur and a prodigious appetite to keep warm. The harvest for this commodity almost led to the extinction of the species, but refuge populations persisted in Alaska and elsewhere.

In the 1970s, in the spirit of ecological awareness, DFO reintroduced sea otters from Alaska to BC waters. The goal was to restore the coastal ecosystem to its former state, and the project received much enthusiastic support. The reintroduced populations have steadily grown over the last 30 years and may be said to have achieved persistent levels in some regions of the coast, for example the Northern region of the west coast of Vancouver Island. This should be a success story enjoyed by everyone. The ecosystem may have been returned, in these regions, to what it was before contact. However the marine ecosystem today is in no way the same as the one first encountered by the Russian and European sea otter traders. Humans have replaced the sea otter as the keystone predator of marine invertebrates. The sea otter with its great appetite, (they

Background to the CRC proposal for the Institute of Coastal Research.

Introduction

consume 20% of their body weight per day), had a great effect in the structuring of coastal, shallow water ecosystems. For example sea otters controlled kelp feeding abalone and urchins which led to proliferation of kelp forests. Kelp forests provide habitat for fish and sea birds.

As the population of otters has grown, local residents have noted the impact on invertebrate populations and many, including some First Nations people, have begun to demand a reduction in otter numbers. Otter harvesting, a “fishery”, for the pelts, has been suggested and one geoduck harvester has called for sea otter “exclusion zones”. The sea otter is a protected (recently endangered) species however, and there is no policy to allow such measures, themselves of doubtful effectiveness. Because sea otters are charismatic species, they are gaining economic value in the ecotourism industry and undoubtedly the urban population who sees these animals as unbearably cute, would strenuously object to any control measures. The situation is complex and layered with irony. There are similarities to issues with bear, wolf and cougar populations in many parts of North America where preservationist ethics have created opportunities for large predators to expand their populations near human settlement. Solutions have been difficult.

In all of the above examples, hard science, for example fisheries biology, ecology and oceanography, has not offered complete solutions to issues that are complex, emotional, and very difficult. Such questions as who benefits from policy decisions are best solved in the social sciences arena. Sociologists for example will have dealt with similar situations in other contexts and through research, may be able to guide managers to better solutions for policy development. Economists, geographers, political scientists, and even psychologists and philosophers all have much to contribute to these discussions. There is also an ethical component – for example who *should* benefit from the management of coastal resources and what are our ethical responsibilities to other ecosystem components? Malaspina University-College has scholars in all of these fields and there is scope for fruitful interdisciplinary research programs that would benefit our students and faculty alike, and in addition create a reputation for Malaspina in the area of coastal resource management.

Aquaculture

This issue is a bit more personal to me because I have been involved in aquaculture for over 25 years and been up close to the debates. Aquaculture may well not be the subject first chosen for research at the ICR, but it does provide a good example of resource management controversy on our coast.

During the ICR interviews, and in general over the last several years, I have often been challenged on the Malaspina University-College response to the vigorous BC aquaculture debate. From many quarters, we in the Fisheries and Aquaculture Department, have been criticised for not taking a firm stand on the controversial issues that are so prominent in the media. We have a well known program training students to take up careers in finfish and shellfish farming, so implicitly, it would appear that we

Background to the CRC proposal for the Institute of Coastal Research.

Introduction

endorse this industry, but we do not enter the public discussion and say so. From other quarters we are challenged to either meet or agree with the arguments against this industry. We attempt to maintain an objective, academic distance from these confrontations, but this is not satisfactory to either side of the polarized positions in the aquaculture debate. By remaining aloof from the debate, we may indeed preserve an academic remove, but in doing so, we are not contributing to a solution to this problem so very important to the coastal communities we serve.

Why aquaculture? Commercial fisheries world wide are considered to be fully exploited with few new potential fisheries to create new catches. Many fisheries stocks have in fact been over exploited and are either in recovery, or are still being overexploited so that recovery may never occur. World fisheries catch hovers between 80 and 100 million metric tonnes per year and will not increase. The world population is growing, and over one half of the world's people live in coastal areas that are now becoming intensely populated and heavily exploited. Marine food plays an important role in local nutrition and in coastal economies, and without some new sources, will soon be in very short supply. With wild fisheries fully or over-exploited, coastal communities are turning to aquaculture to provide that source.

World aquaculture has developed exponentially over the last 30 years comprising 7% of the total marine production in 1981, 14% in 1991, and 29% in 2001 roughly doubling each decade. By 2010 – 2015 well over one half of global ocean food production will come from aquaculture operations, and its value will very soon exceed that of the wild catch.

Aquaculture is a dominant coastal industry in most SE Asian countries, in Europe, and is growing very rapidly in maritime Latin American countries. In British Columbia, a relatively small aquaculture industry has already exceeded the total wholesale value of all wild BC fisheries. Last year its value was \$689 million Cdn., most of this from salmon farming. BC has 29,000 kilometres of coast line, most of it unpolluted and much of it suitable for aquaculture. There is a growing pressure from off-shore business to invest in aquaculture in BC, and for the most part, coastal communities in BC are in serious economic trouble due to shifts in renewable resource industry structure. In many First Nations communities, unemployment is greater than 90%. It would appear that aquaculture has the potential to alleviate these economic problems. As an example, Norway with a similar coastline and oceanographic regime, exports about four billion dollars per year in aquaculture products. Japan's industry exceeds 14 billion dollars per year in aquaculture production. It is in the nature of aquaculture that most of the employment takes place in remote communities where the jobs are badly needed.

In BC however, aquaculture is extremely controversial and the controversy has slowed development here. For a variety of reasons, a strong opposition has developed to aquaculture development on our coast. Proponents of aquaculture maintain that this new industry bolsters the wild harvest by creating year round markets (and jobs) using the same infrastructure as the commercial fishery (processing plants, market distribution, management), and is in many ways more manageable than the wild fishery.

Background to the CRC proposal for the Institute of Coastal Research.

Introduction

Opponents generally focus on environmental risks, but frequently other motivations are apparent. The opponents of aquaculture may have contributed to a more careful approach to aquaculture development and regulation, but the debate is now impeding development and could cause a retrenchment of aquaculture in BC. It is arguable, in fact, that we have not yet had a thoughtful and rational discussion of this issue, simply because the existing debate has become so polarized.

It needs to be said clearly that aquaculture can cause significant environmental damage if it is not done carefully, and indeed this has happened in several industries elsewhere. Thus the environmental discussions must take place and BC must develop aquaculture (that is, if we are to develop this industry) with great care.

Most of the aquaculture controversy centres around salmon farming, but shellfish farming, usually seen to be a more sustainable industry, is now becoming targeted by environmental groups. Coastal First Nations have become very interested in shellfish aquaculture but are generally against salmon farming. Some First Nations communities however have embraced salmon farming which has created schisms among First Nations communities, some quite closely related to each other (e.g. Bella Bella and Klemtu).

The question for coastal BC residents is: Should we develop aquaculture to the extent that it is developed in other places, for example in Japan and Norway, and if so, how should we guide the development to attain the most desirable industry structure? To answer this question we must look further afield and explore the global sustainability of aquaculture in comparison with other potential coastal economic activities. The term, "sustainability" is used in many ways, but it can be carefully defined to focus attention on specific aspects of human activities. Another way of framing the question might be: Can aquaculture contribute to the health of coastal human communities over the long term without seriously impinging on other activities or on the effective functioning of ecosystems and the services that they provide? This question goes well beyond biological science and its answer requires a broad interdisciplinary research approach.

A Possible Research Approach to the BC Aquaculture Debate

The difficulty of approaching this problem in BC is that the debate over aquaculture has become so intense and polarized that it is very difficult to convene a temperate and rational discussion. By framing the issue as a global one, we step back from the BC situation and also achieve a broad view of aquaculture in a world context. Such issues as ecological footprints (e.g. protein, energy) or effects on social structure can be assessed, and examples of alternative or novel approaches can be examined. Also by framing the discussion in an interdisciplinary context, we move away from the existing environmental debates that are not leading to a consensus.

Some of the research questions to be posed and studied could include:

Background to the CRC proposal for the Institute of Coastal Research.

Introduction

1. What is the nature of community and individual health and well-being? What are the expectations of coastal community members in BC and elsewhere? Looking at regions over the world, are there trans-cultural constants in relationship to community structure and the attainment of individual expectations?
2. What are coastal people's views of their environment?
3. What are the underlying psychological worldviews, especially those related to the environment, that have directed or influenced the different sides of the debate?
4. Are there examples of aquaculture clearly demonstrating a socially and environmentally sustainable role in coastal communities?
5. What economic structures most lend themselves to providing benefits to coastal communities? For example, are there problems specifically related to multinational corporations or are these, in the long-term, beneficial structures?
6. Are there useful, general, ecological indicators that warn of non-sustainable environmental states?
7. What are the broad social, environmental, and economic contexts within which aquaculture operates?

These and other such questions span many disciplines. They can be framed at any level, e.g. global, national, or regional, and each level can shed light on the others. Once answers begin to emerge, the key question can be answered – Can aquaculture become a broadly sustainable activity contributing to the health of coastal communities in the world and in BC? Where has this happened? What indicators can be used to assess this? What were the components of success? How can this be applied to BC? In taking this approach we have stepped well outside of the current, regional debate, and we will begin to contribute to policy development that could move our own industry toward the goal of becoming a long term, sustainable contributor to coastal community health. (And alternatively, aquaculture might not turn out to be a good choice for BC.) The benefits to Malaspina University-College are clear. There are research opportunities for faculty and students from many departments and we could establish a reputation for this research that would extend far beyond our region while at the same time contributing to our local coastal community.

Forestry

Malaspina University-College has a very well developed Forestry diploma program that now ladders into a degree program at UBC, so we have in-house expertise in this

Background to the CRC proposal for the Institute of Coastal Research.

Introduction

discipline. As well, several faculty members have done research on aspects of forestry including policy development. Forestry in BC is at least as controversial as aquaculture or fisheries, and the controversies have been active for longer and it is a much larger industry. The issues are many and include the preservation of old growth forests, the effects of forestry on stream habitat, especially on salmon streams, biodiversity and threats to endangered species. Forestry discussions have erupted into near violence in the woods and in the press, and environmental groups have taken their arguments into the international market place creating boycotts or threatened boycotts of BC forest products.

The industry that once employed a very large work force has become more efficient so that fewer people are employed per unit of wood cut and the amount of wood harvested has also declined significantly. There have been many sawmill closures and some closures of pulp mills, and these have devastated whole communities. There have been repeated recommendations that value added products be made in BC to increase the employment and revenue from wood cut here, but small ventures typically have a difficult time obtaining wood. This is a policy issue as is the export of raw logs to other countries.

Despite these and other problems, forestry remains a major industry in BC, and much research has been done on environmental issues. However much remains to be done and many of these issues are rooted in values, not easily addressed by science alone.

Forestry jobs typically pay well, but the industry is dominated by male jobs, and in those small communities supported mainly by this industry, social problems have been noted. The logging of old growth stands has been the source of most BC wood, but these are diminishing and their use is very controversial. Many consider this a form of tree mining since the old growth trees are often centuries old. Government policy regulates the industry, but private land in some regions, for example Vancouver Island, complicates jurisdiction. There are many types of old growth forests, not all of them dominated by large trees. High altitude logging may be another example of timber mining since trees at altitude are old and soils thin. There is an interplay between snow pack melt rate and tree cover in mountains and this affects stream freshet hydrographs and hence flooding and fish habitat damage. These appear to be scientific issues, but many environmental groups would like to see no logging at all, despite the economic consequences that this would imply. As with aquaculture, the world view or value system of people comprising these groups may be driving the discussion.

Nonetheless, forestry was probably the first resource industry in BC to become heavily politicized and there is now considerable experience of finding innovative solutions to problems within the forestry sector. The level of noisy conflict – the kind that generates more heat than light – has noticeably diminished over the last decade. Lessons from more advanced sectors like forestry could help sectors that are still in denial, like aquaculture and offshore oil and gas, before they reach the head banging stage. There is, as yet, very little transfer of policy or process from one resource sector to another.

Background to the CRC proposal for the Institute of Coastal Research.

Introduction

The ICR is in position to take a key leadership role in comparative analysis and lesson drawing.

Conclusion

The above case examples are only a few of the possibilities that could have been discussed. There is ample opportunity for interdisciplinary research to take place which would bring clarity to the discussion that so often appear stalled in rigid positions. Malaspina University-College is very well situated to take on this task and become recognized as a leader in this field. We most of the necessary components and the Institute of Coastal Research is the ideal vehicle to move in to this important scholastic niche. Both faculty and students stand to benefit from the research and dialogue that will take place and as we move toward university status, a respected position in sustainable coastal community development will help secure our reputation.