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THE CASE FOR INCLUDING THE CULTURAL AND SPIRITUAL VALUES OF EULACHON IN POLICY AND DECISION-MAKING

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I-INTRODUCTION

> *wildlife, in all its forms, has value in and of itself and is valued by Canadians for aesthetic, cultural, spiritual, recreational, educational, historical, economic, medical, ecological and scientific reasons* (Preamble to SARA).

This paper explores the extent to which the cultural and spiritual values of one small fish should influence fisheries policy and decision-making on the Pacific Northwest coast. The fish in question, the eulachon, *Thaleichthys pacificus*, was the fifth in market value in British Columbia in 1912 (Scott and Crossman 1973). Its current commercial value is trivial compared to other species, but the remaining commercial fishery on the Fraser River is significant to participants. Eulachon were a major component of the culture and economy of coastal Aboriginal peoples, and are of significant ecological importance (Stoffels 2001).

Eulachon abundance has declined in recent years, causing deep distress to Aboriginal people, and prompting discussion of the pros and cons of listing eulachon under Canada's *Species at Risk Act* (SARA) (Pickard and Marmorek 2007) and a request to list the southern eulachon population under the US *Endangered Species Act* (NOAA 2010). This would indeed catapult eulachon into policy and decision-making, but endangered species legislation can be rejected when listing a species or population of little economic value will negatively impact lives and livelihoods in other areas, as with the Cultus Lake and Sakinaw sockeye salmon (Canada 2004). There is no doubt about the cultural and spiritual value of eulachon and other species to Aboriginal people. The over-arching question is whether the rest of society shares these values and to what extent they are accommodated under existing policy and legislation. This broad context is essential to lift the debate above the balancing of economic interests and entertain approaches to the consistent incorporation of spiritual values in policy and decision-making which do not rely on monetary metric.

> *An emergent property is a "phenomenon that is not evident in the constituent parts of the system but that appears when they interact in the system as a whole."* (MEA 2003b, 211).

I suggest that the spiritual or sacred dimension of nature is emergent from the relationship between people, biota and environment. Cultural expressions of the sacred will thus vary with the particular characteristics of lands, waters and species. What Garibaldi and Turner (Garibaldi and Turner 2004) refer to as "cultural keystone species" are thus nodes within a spatial and temporal web of ecological and social relationships—what might be termed the sacred dimension of social-ecological systems (Berkes *et al.* 1998; Berkes *et al.* 2003). The sacred is inextricably linked to the flourishing of species, environment and the well-being of human communities. As will be seen, for some Aboriginal people, eulachon are of greater cultural and spiritual importance than salmon.

A sense of the sacred may be felt as a powerful connection or belonging to other lifeforms and the environment, whether walking in the woods, on the beach or out on the water. Almost anything can trigger this sense of 'belonging', from a killer whale jumping beside your boat to the first spring flower. There is no substitute for the direct relationship between people and 'nature'. As eco-theologian Sallie McFague observes, "A live caterpillar means more to a child

than a Komodo Dragon on TV[1]". The subtext is that we love the world we live in. We fight to protect things because we love them and we'd miss them if they were no more. Where between the orca and the caterpillar does the eulachon fit? If the spiritual value of nature is an expression of connection or relationship, is it even a question of 'fit'? How can we 'measure' the spiritual value of nature as referenced in the preamble to SARA, or 'balance' it against other considerations?

Little fish make a vital connection between plankton and animals higher up the foodweb. Little fish matter. The Peruvian anchoveta (*Engraulis ringens*) is the largest fishery in the world. No-one questions the importance of herring or sardines to emerging concepts of ecosystem-based management. Is eulachon just a minor species, an 'extra' that can be written out of the script with no loss of meaning or continuity?

While this paper touches on the ecological importance of eulachon, its main intent is to focus on the effect, rather than the reasons for the decline in abundance. It is therefore intended to complement, not to replace scientific assessments of stock status (e.g., Hay and McCarter 2000; Drake *et al.* 2008).

The paper is organized as follows: Section II reviews the past abundance and importance of eulachon. Section III discusses the economic, social, ecological and cultural implications of declining abundance. Section IV describes and evaluates the ability of whole ecosystem valuation frameworks such as total economic value and ecosystem services and concludes that they are necessary to quantify environmental externalities, but not sufficient to include the spiritual dimension of nature. Section V considers where cultural and spiritual values fit in Canada's policy and legislative framework. Section VI summarizes and recommends on how to incorporate cultural and spiritual values of eulachon in Pacific fisheries policy.

II. PAST ABUNDANCE OF EULACHON

The eulachon *Thaleichthys pacificus* is a small fish of the smelt family (Osmeridae). Eulachon are found only in the Pacific Northwest, from California to the Pribiloff Islands. Eulachon are not well represented in the fossil record, so their antiquity is unknown, but the smelt family is one of the earliest forms of bony fish and may have originated in the Pacific Ocean (Hay and McCarter 2000). Eulachon remains from archaeological sites at Namu on the Central Coast of BC are between 6-7,000 years old (Cannon 2000), i.e., are contemporaneous with the earliest record of drying and storage of salmon (Cannon and Yang 2006). It is likely that salmon storage and eulachon consumption occurred even earlier, but there are no faunal remains from the period 11,000-7000 years ago (Aubrey Cannon, McMaster University, *pers. comm.* May 2009). Eulachon bones dating to the early Holocene have been recovered from marine mammal scats in caves on Prince of Wales Island in SE Alaska (Crockford and Wingen n.d.).

Baseline shift and small fish abundance

'Baseline shift' studies confirm that past ecosystems were much more abundant in large fish. The abundance of salmon and other freshwater fish that amazed explorers and early settlers on the east coast of N. America was in fact no greater than it had been in pre-industrial Europe

[1] Address to BC Premier Gordon Campbell and attendees at *Faith and the Environment* conference, Langara College, Vancouver, April 28, 2008

(Roberts 2007). European abundance was so great that significant marine fisheries did not get under way until after 1,000 AD (Barrett *et al.* 2004). This is a regional example of "baseline shift", where the perception of the number and size of fish there 'ought to be' ratchets down over successive generations (Pauly 1995). By this reckoning, BC today is the endpoint of a process of serial depletion starting in industrial Europe and continuing through the east coast of N. America. Our good fortune is to be aware of it and to have instruments such as the FAO Code of Conduct (FAO 1995), commitment to an ecosystem approach and instruments such as SARA.

The question of the abundance of little fish in past ecosystems is contentious. Computer simulations that compare the Strait of Georgia marine ecosystem of 1900 with the present day (Dalsgaard *et al.* 1998), suggest that numbers of little fish must have been significantly higher to feed 2-600 resident humpback whales (Winship 1998) and high populations of seals, lingcod, rockfish and other predators (Haggan *et al.* 2004), although this "would imply a herring density greater than anywhere else in the world" (Doug Hay, cited in Wallace *et al.* 1998). The inference for eulachon is that we need to pay more attention to historical accounts of abundance:

> *There were some years, they were so plentiful that you could just go down and hand-fish them off the side of the river bank. Just walk down and grab them and put them in your bucket…there'd be a four foot black streak going up the side of the bank* (Anfinn Siwallace, Nuxalk Nation cited in Moody 2008).

Marine scientists of the 1930s and 50s paid a lot more attention to little fish than those of today. This may have been because little fish were much more plentiful (Doug Hay, *pers. comm.* April 2009), because the marine scientists of the day were naturalists rather than single species specialists, or spent more time on the water. Whatever the reason, the move towards precautionary ecosystem-based management mandated by the UN Code of Conduct for Responsible Fisheries (FAO 1995) and Canada's Oceans Act and the increasing prominence of small fish in endangered species legislation and litigation, e.g., the snail darter, *Percina tanasi* (Spiller and Tiller 1996), and eulachon (NOAA 2009; 2010) under the US ESA and the Nooksack dace *Rhinichthys cataractae*, (FC 2009) under SARA require a renewed research effort on little fish.

Eulachon as an ecological and cultural keystone species

An ecological keystone species is one that changes the environment to an extent disproportionate to its biomass (Paine 1995; Power *et al.* 1996), or a single species whose loss would impact many others (Mills and Doak 1993). Examples include coral polyps that create an entire reef environment and sea otters (*Enhydra lutris*) that structure kelp forest communities (Estes *et al.* 1989). Eulachon are ecologically-important in that they deliver a large pulse of food and nutrients in early spring when other food sources are scarce or lacking, and may be critical to the energetics of Steller's sea lion *Eumetopias jubatus*, (Sigler *et al.* 2004). Willson and Halupka (1995) consider anadromous smelts as keystone species based on over forty predators that depend on them.

The arrival of eulachon in early spring when dried salmon and other food sources were low or exhausted made them critically important prior to European contact. Eulachon were called 'starvation fish' in Tsimshian, 'salvation fish' in Nisga'a and 'Preservation' fish in Nuxalk (Harrington 1967; Moody 2008). Sources cited in Mitchell and Donald (2001) report that the

Katzie word for April and the Sardis and Nanaimo words for May referred to eulachon time. Eulachon are thus cultural keystone species *per* Garibaldi and Turner (2004):

> *…species that shape in a major way the cultural identity of a people, as reflected in the fundamental roles these species have in diet, materials, medicine and/or spiritual practices.*

This relates directly to the 'culturally appropriate' term in the UN definition of food security:

> *Food security exists when all people, at all times, have physical and economic access to sufficient, safe, nutritious and culturally appropriate food to meet their dietary needs and food preferences for an active and healthy life* (World Food Summit 1996).

Eulachon—the forgotten anadromous fish of the research community

The first major international conference on anadromous fish makes no mention of eulachon (Dadswell *et al.* 1987). The only mention in the 20-year anniversary conference in Halifax (Haro *et al.* 2009) was by this author on National Aboriginal Day 2007, immediately following a Nuxalk Nation *Feast of Mourning and Shame* for the demise of the Bella Coola and other eulachon runs (Hume 2007; OKNTC 2007; Senkowsky 2007). Eulachon are of tremendous importance to Aboriginal people, are of significant ecological importance, but, for some reason, are the "forgotten anadromous fish" of the research community (Haggan *et al.* 2009). Strangely, eulachon are "not on the radar" of the North Pacific Anadromous Fisheries Commission (Doug Hay, *pers. comm.* 2009).

III—ECONOMIC, SOCIAL AND CULTURAL IMPORTANCE

Past commercial importance

Early BC policy documents actively encouraged Aboriginal participation and even control of the "inexhaustible" fisheries as more economic (Box 1). The small size of Indian reserves in coastal *vs* interior BC—and indeed the rest of Canada and the US—reflect the fact that most were fishing stations and that Indians 'derived their living from the sea'. The small size was justified on the aforesaid assumption that fish were inexhaustible (Huxley 1883) and that "Indians" would enjoy unrestricted access (Harris 2001). Access was successively restricted as commercial fisheries grew and with the dawning realization that fish populations were finite (Haggan 1998). By the late twentieth century, Aboriginal people had been reduced to 4% of the commercial salmon fishery (Pearse and Larkin 1992). Legal scholar Doug Harris (2008) reviews the work of successive reserve commissions in assigning and re-evaluating reserves. Reserve Commissioner Peter O'Reilly comments on the prevalence of fishing in general and eulachon in particular:

Box I-Inexhaustible fisheries /unrestricted access

Our numerous bays, inlets, and rivers contain inexhaustible supplies of the finest fish…No good reason exists why "Fisheries," such as those established by our merchants on Fraser River for curing and exporting salmon, and other merchantable fish, should not be erected in suitable places for the benefit of the Indians, and be in time profitably controlled and conducted by themselves… they would possess an enormous advantage as long as wages [for non-Aboriginal people] remain at their present high figures (BC 1875).

> *To lay out all the inlets pointed out and claimed by them,* [Nisga'a Chiefs] *would be impossible. They were given the right to all streams which run through their reserves, and every fishing ground pointed out by them, of every sort or kind, was reserved for them.* ***There was no difficulty in doing this, as the fish of special value to the Indians the white men do not care for, therefore their interests do not clash.*** *But to declare every inlet, nook, and stream an Indian reserve would virtually be to declare the whole country a reserve.* [cited in Harris (2008), Emphasis added].

A 56-page online appendix[2] to Harris (2008) identifies all the reserves set aside for fishing in British Columbia, including observations on species and relative importance. There are some 28 references to eulachon (23 to "oolachan" fisheries, 3 to "small fish" and two sites important for cedar, spruce and hemlock to make "grease boxes"). Accompanying notes on 188 reserves make specific mention of salmon, but ~290 are just marked as "fishing station(s)" and numerous others as a "fishery". A full, geo-referenced analysis of how many relate to eulachon is outside the scope of this paper, but the low value attached to the fish "the white men do not care for" (eulachon), "in the O'Reilly quote above and recurring comments such as "highly prized by the Indians", "of special value to the Indians" in his notes; suggest that such identification would indicate that eulachon outweighed salmon in importance to some peoples, as indeed they still do:

> *"This is the most important one—salmon there are many kinds. This one there is only one kind."* (Bill Glendale, cited in Cranmer 1999)

[2] https://circle.ubc.ca/bitstream/2429/648/4/HarrisD_IndianReservesBC_WebTable.pdf

It was not long before the little fish that "the white men do not care for" attracted attention, as indicated in an 1866 report by Judges Cornwall and Planta:

> *The oolichan fishery is of great value. ... Each man engaged in the fishing expects besides providing for himself and family enough grease for annual consumption, to put up ten boxes for sale; each box is of a certain size and shape and is of the average value of seven dollars.... The number of Indians assembling on the Naas for fishing is estimated by thousands, and so the enormous value of the fishery may be seen at a glance. The value of the fishery thus demonstrated, it must follow that the enjoyment of it should be confined to our own people.* (cited in Corsiglia 2007)

A "Nisga'a Oolichan Petition" printed in Gitladamix "demonstrates a thorough understand of the biology of anadromous fishes, an astute assessment of the nature of commercial enterprise based on greed and racial bias, and a capacity for using formal communication and skillful lobbying". The Nisga'a succeeded in obtaining an exclusive right of access in 1886 (Corsiglia 2007).

Eulachon were the 5th largest fishery in BC in 1912, with a value of $78,950 (Scott and Crossman 1973). Conversion to current year dollars is tricky, but a UK web-based currency converter[3] suggests this would translate into a contribution of $30 million to GDP. In the US, "*newsreels shot as early as 1919 carried news of the Cowlitz smelt* [eulachon] *run throughout the United States and abroad…*" (Hinrichsen 1998). During 1940-1992, catch on the Columbia River and its tributaries averaged 1,076 tons, but dropped to just 90 tons since 1993 (Hinrichsen 1998).

Moody (2008 Table 4.10) reconstructed eulachon abundance in Pacific Northwest coast eulachon systems from 1927-2006, using a fuzzy logic approach that combined multiple sources of information including traditional ecological knowledge. Aboriginal catch estimates for the Nass River range from ~2,100 t in the 1840s to 500 t from the early to mid 1900s with an additional 5-500 t of commercial catch (Moody 2008 Figure 2.11). Current Aboriginal catch on the Nass varies between 126-420 t. Fraser River catch has varied between 40 and 200 t (Moody 2008).

Ongoing importance to Aboriginal people

Here I draw on accounts by Aboriginal people to give a sense of the significance of this little fish and why the terms 'Mourning and Shame' used by Aboriginal people to express their sense of grief and loss (Hume 2007; OKNTC 2007) go some way to convey the impact of depletion and fear of extinction[4] and why I suggest that the tables, graphs and scholarly descriptions of "depletion" must not be separated from the language of grief, love, loss and despair. In the words of Hereditary Chief Percy Starr of Kitasoo cited in Hume (2007).

[3] http://www.measuringworth.com/index.html

[4] "Extirpation" is the technically-correct term for a species that is still represented somewhere on the planet, but "local extinction" is more apt when a species disappears from part of its range. The distinction is certainly lost on people who have lost an economic and cultural keystone species. In any case, global extinction is just the last in a series of miserable local extinctions.

> *It is very painful when you lose something that has been the backbone of your people. It's about more than the loss of a resource. It's about the loss of a culture. The loss of eulachon is spiritual … this is the foundation of a people.*

The depth of the historic connection between the health and well-being of eulachons and Aboriginal people is hard for most city-dwellers to grasp. Before the advent of supermarkets and central heating, starvation was no stranger. Winters were colder, particularly during the 'Little Ice Age' from 1630-1940[5]. Eulachon were often fished through the ice (Forester and Forester 1975; Mitchell and Donald 2001). Food sources in the Pacific Northwest are abundant, but mostly low-calorie, so that most of the energy gained was expended in gathering and processing (Anderson 1996). Berries were often consumed and preserved with eulachon grease for an additional energy boost:

> *Without Oolichan grease it would have been impossible to survive the harsh winters of Northern British Columbia.* Nisga'a Chief James Gosnell, cited in Corsiglia (2007).

It is significant that the cover of the Nuxalk Nation Nutrition Handbook (1984) figures a hand dipping a piece of dried salmon or '*sluq*' into a bowl of eulachon grease. You couldn't make it through a cold winter on dried salmon and berries, but you could if you added grease. "Should the runs of oolachans fail, hundreds of natives literally die of starvation" (Bland n.d. cited in Moody 2008), see also references in Mitchell and Donald (2001).

The health benefits of eulachon grease have been well documented (Nuxalk Food and Nutrition Program Staff 1984; Kuhnlein *et al.* 1996), also that the traditional way of preparing grease has the effect of concentrating key nutrients. The Gitksan name for eulachon *ha ha mootxw* means "for curing humanity" (Drake and Wilson 1991). Heiltsuk Nation Elder Beverley Brown recalls her Grandfather telling her that people who took ½ cup of boiled grease per day were resistant to the Spanish Influenza of 1918 (*pers. comm*. 2006).

The trading of eulachon grease throughout the Pacific Northwest created a network of 'grease trails' connecting coastal and interior communities. At least twenty-three major trails traversed the region, many of which served as the basis for modern day roads and highways (Campbell 2001). This network also served for the transfer of information, news and social announcements such as future feasts and celebrations (RBCM n.d.a). Grease trails were important in the development of *Chinook*, a trade language derived from Northwest Coast languages, English and French. According to Drake and Wilson (1991) "Eulachon" is a Chinook word with many variant spellings, e.g., oolachon; eulachan; oolichan; hollidan; hollican; holligan; ooligan; oligan; olachan; oulachon; uthlechan; ullachan; ullochan. Byram and Lewis (2001) suggest that Cree people came to the coast to trade for grease and make an interesting case that the name "Oregon" is derived from a Cree pronunciation of 'ooligan'. The traditional Haisla calendar was read by noting the position of the sun over the mountain crests visible from the centre of Kitamaat Village (Robinson 1961). Along the crest were two 'canoes'. When the sun reached the first or "herring canoe", it was time to go herring fishing; the second was the "eulachon canoe". Both are high-energy foods in a hungry time, so both were eagerly awaited.

Haisla Nation researcher Jacquie Green (2008) describes her childhood experience of eulachon

[5] http://faculty.washington.edu/scporter/Rainierglaciers.html

fishing. Her focus on the importance of stories conveys how eulachon season in the past differed from the present and what the loss of eulachon would mean. In the past, the village would almost empty, leaving only the elderly and infirm. Preparation entailed setting up camp, making nets and gear to replace those lost to time and the depredations of small animals and fishing for halibut and lingcod. Excitement mounted as eulachons were first found in the stomachs of the catch. The arrival of the eulachon run was attended by large numbers of predators. Eulachon fishing and grease making were a time of intense activity. Children and young people learned by helping and from stories told by the elders. In earlier times, grease making was followed by a hunt to allow the grease time to cool and set for carrying over grease trails. Demands of work and schooling have shortened the traditional schedule and with it the opportunity for maintaining cultural continuity through storytelling and example (Green 2008; Turner *et al.* 2008).

The documentary film "*T'lina, The Rendering of Wealth*" by Barb Cranmer of the 'Namgis First Nation (1999) is a powerful testament to the continuing cultural, social, economic and spiritual importance of eulachon to the Kwa'kwakawak. The film records family grease-making at Dzawadi (in Knight Inlet) with a focus on preparations by Chief Art Dick to give a 'Grease Feast' to honour his late father. Throughout, it is clear that there is no greater undertaking, no greater honour than to make enough grease to give away in wholesale quantity with surplus to burn (Cranmer 1999). While this may seem wasteful, the ability to generate and give away surplus was a sign of ability to manage territory and contributed to social, economic and territorial security (Trosper 2009). Seen in this light, and at a time when eulachon were abundant, it is more relevant and less wasteful than a fireworks display or consumption of non-renewable fuel at an airshow. The following description of the feast goes some way to illustrate how eulachon is much more than 'just a little fish' and how the loss of eulachon equates to the loss of a culture.

In the opening sequence, a dancer in a killerwhale mask represents the late Chief Art Dick Sr. The dancer moves through the feast hall, 'spouts' eagle down as a sign of peace, and fades back into the crowd. A later sequence superimposes the whale mask on a whale-shaped mountain crest which towers over the fishing site. Eulachon fishers 'read' the mountain to predict the weather and fishing success, concern is expressed about the impact of logging and receding glaciers. Continuity is conveyed by the spirit of the father and in Chief Dick's words about how hard the responsibility falls on him now that he can't ask his Dad for advice and his concern about passing the tradition on to his son. The continuing importance of eulachon is powerfully stated in the words of several families with up to four generations present.

While it is true that new technology[6] and time demands take a toll on transfer of knowledge, it is equally true that Aboriginal traditional knowledge is not a fossil—it grows and adapts with time (Berkes 2008; Turner *et al.* 2008). This growth and adaptation that enabled indigenous cultures to survive, and in the case of the Pacific Northwest, sustained complex cultures and high population levels is recognized in Article 2 of the UN Convention on Intangible Cultural Heritage[7] as follows:

[6] This is not an argument against the use of technology, As the Supreme Court of Canada note in *Sparrow*, Aboriginal people are under no obligation to use traditional means in the exercise of a right (Canada 1990), a point reinforced by Cranmer-Webster (2001).

[7] http://www.unesco.org/culture/ich/index.php?pg=00022&art=art2#art2

> *This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity.*

The key role of eulachon in shaping cultural identity is seen in the story of the founding of Kitamaat Village (Box II);

Box II—The Founding of Kitamaat Village

The story of the founding of Kitamaat Village starts when a hunting party failed to return from Kitamaat Arm. When their relatives went to look for them, they saw an enormous mouth open and close in the distance. Their monster story made such an impression, that no-one dared go again (Robinson 1961). In Robinson's telling, sometime later, a Wuikinuxv man called Waa-mis had to flee his village after inadvertently killing his wife. Fearing for his life, he fled with a small group, thinking to take refuge near the monster, where no-one would dare follow. After a long journey and many dangers, they set up camp at Kil-dala Arm. Waa-mis continued by canoe with two companions. Sure enough, in the distance they saw a huge white mouth slowly open and close. Gathering courage they paddled slowly on. When the got near, they could see that the 'monster' was nothing more (or less) than "countless millions of seagulls" rising and falling as they fed on small fish. They brought some of the fish back to camp, where the oldest woman cooked some and ate them to see if they were OK. She fell fast asleep, because the fish were so fat that they made her drowsy—when she woke up, she said the fish were very good, so they moved camp to the mouth of the Kitamaat River where they founded a community. In later life, Waamis took the name *Hunclee-qualas*, meaning Archer and founded a fair sized village.

Haisla researcher Jacquie Green (2008) tells how *Huncleesela* (*Hunclee-qualas*) became curious about some cut sticks which floated downriver but didn't look like the work of beavers. Travelling upriver, he learned that the sticks were used by trappers and fishermen from Kitselas and Kitsumkalum, some of who joined him at his new village. Later some people from Kemano also joined, so the Haisla of today have identities and characteristics relating to eulachon fishing, Wuikinuxv, Tsimshian and Kemano peoples. The Archer dance is also performed by Wuikinuxv and Heiltsuk peoples.

A new dance composed and performed by Charlie Matilpi of the Namgis Nation is a good example of how the UN concept of 'intangible cultural heritage' is renewed. The dance enacts the behaviour of seagulls circling and swooping down on eulachons (Cranmer 1999). The dance celebrates the abundance of eulachon that delights both seagulls and people. Charlie Matilpi named the Mamalilikala, Kwakwakawak, Ma'amtagila, Lawitsis and Namgis as Nations who fished together at Dzawadi in Knight Inlet (Cranmer 1999).

While access to eulachon fishing areas was shared, the first fishing right at Dzawadi belonged to the Chief of the Dzawada'enuxw people. Fishing could not commence until he had dipped his net and said the appropriate words:

> *"Go on, friend, on account of the reason why you came, placed in the hands of my late ancestors by our Chief Above, our Father, and go and gather in yourself the*

> *fish, that you may be full when you come back, friend." Before putting his catch into his canoe, he spoke to the eulachon, "Now come, fish, you who come being sent by our Chief Above, our Praised One, and you come trying to come to me. Now call the fish to come and follow your magic power that they may come to me"* (Franz Boas, cited in Webster 2001).

Conflict over access to eulachon was not unknown, but tended to be speedily resolved in a way that secured access (Mitchell and Donald 2001). Ongoing access to eulachon was also a consideration in ending unrelated conflicts between nations with access and those without, such as the Heiltsuk and Haida Nations (Mitchell and Donald 2001). These authors suggest that the way returning eulachons spread out made fishing sites hard to control. Grease is indeed very valuable, but the potential hike in exchange value did not justify the effort and risk involved in excluding others.

Respect for eulachon

> *The names and stories tell of a time when S'aaw (eulachon) graced our rivers in the southern parts of Xaayda Gwaay.yaay, the story tells us if we are not respectful of the other creatures, they will leave us. The S'aaw have never returned to our rivers.* (Haida teaching cited in Brown and Brown 2009).

Eulachon are predictable as indicated by continuing fisheries; but their spawning sites are more likely to change according to small changes in habitat (Doug Hay *pers. comm.* December 2009). Strict rules govern behaviour on eulachon fishing grounds, to ensure that the fish will not be offended. If the proper procedure is not followed in making grease, the fish will be "ashamed" and fail to return (Mitchell and Donald 2001). Chief Adam Dick holds the hereditary name *Kwaxsistala*, or river guardian for eulachon on the Kingcome river (Deur and Turner 2005 p. 164; Turner 2005). It was the responsibility of his ancestor to watch for the eulachon to arrive and ensure that enough got up to spawn before giving permission to fish the eulachon; also to prevent pollution (*pers. comm*. to Nancy Turner, ~1997). McIlwraith (1948) describes the role of river guardian in Nuxalk (Bella Coola) territory. Polluting the river before or during salmon or eulachon runs was punishable by death. In recent years, the Nuxalk Nation sought and failed to get a ban on the use of floatplanes and outboard motors, but voluntarily shifted to rowboats for their own in-river eulachon and salmon fisheries (Moody 2008). The Wuikinuxv (Oweekeno) people in Rivers Inlet, who have not seen a viable eulachon run since the mid 1970s; have very strict rules on silence and staying out of the water during eulachon season (Clifford Hanuse, Wuikinuxv Nation *pers. comm*. ~1987). The legal sanctions that governed eulachon fishing attest to its importance, but the moral example in the teachings of elders and adults supervising fishing and production were likely even more effective.

This teaching starts from very early age. Arnie Narcisse of the Stlatlimx-Blackfeet Nations (2007) acknowledges a deep debt to his grandparents who taught him to prepare and catch fish as a small child. His concept of inter-generational equity is to be able to pass this knowledge on to his grandchildren (Narcisse 2007). Percy Williams and Fred Sampson of the Siska Nation put safety ropes on their six-year old boys so that they can watch them fish the Fraser River in the same way their fathers did to them—the ability to fish in the same place as their many times great grandfathers is critically important (Jurak 2001). Chief Simon Lucas tells how his father had to tie him to the mast when he was five years old because he was so active. By the time he

was ten, he had learned the *Mit'tuk* or seamarks to all of his father's fishing sites and the interplay of weather, tides, predators and prey that governed fishing success (Lucas 2007).

Impact of decline

> *"Our people have watched as the birds and mammals gather as they have always each spring awaiting the eulachon. But nothing comes: the whole ecology is wounded."* (Wuikinuxv Nation Chief Frank Johnson, quoted in OKNTC 2007)

People still fish eulachons and make grease. They still fish in their traditional places, but even these times spent where the eulachon run to freshwater, where the 'ecosystem' is right in your face as the seals and sea lions, the seagulls, halibut, lingcod and other predators gather; are compressed (Green 2008).

Jennifer Walkus of the Wuikinuxv Nation describes separating male from female eulachon as a small child, "Very soon you don't have to look, you just know" (*pers. comm.* November 2008). The minor physical differences described by biologists (e.g., Scott and Crossman 1973), do not approach the visceral knowledge transmitted through the cold fingers of a child. Mayne (1862) describes "women and children" stringing eulachon to dry in the sun by the Nass River. Moody (2008) conveys a strong sense of the social cohesion and sharing involved when children, parents and grandparents work together and distribute the first catch to elders. Thomas McIlwraith (1948), who spent time with the Nuxalk between 1922 and 1924, speaks of the "great good humour and merriment" from the knowledge that they were "storing up luxuries for the coming winter" (McIlwraith 1948, cited in Moody 2008). The excitement and joy in McIlwraith's 1922 account is still present in contemporary descriptions of eulachon fishing and grease making (Cranmer 1999; Green 2008), but with an undercurrent of sadness and fear as numbers shrink. The concern of those fortunate enough to still have eulachon in their traditional territory changes to grief for those like the Wuikinuxv who lost their eulachon run in the 1970s and the Nuxalk who have not seen a good run since 1995. In the words of Ray Morton of the Nuxalk Nation:

> "*I heard a young boy from our village ask recently: What's an eulachon? Imagine that! A Nuxalkmc who has never had the experience of catching, eating, or even knowing what an eulachon is*!" (quoted in OKNTC 2007)

The strength of the traditional and physical 'hands-on' connection between eulachon and people, and depth of loss conveyed in these and other references point for a need for full documentation of the cultural, social, spiritual and economic impact of the decline and disappearance of eulachon.

IV 'NON-MARKET' *VS* CULTURAL AND SPIRITUAL VALUES

Recent approaches to expand ecosystem valuation beyond standard cost benefit analysis include 'total economic value' and 'ecosystem services'. Examples from the Millennium Ecosystem Assessment (MEA 2003b) and a major review of aquatic ecosystem services by the US National Research Council (2005) suggest that they are necessary to quantify environmental externalities, but not sufficient to represent the spiritual dimension of the relationship between people, landscape and biota or "social-ecological systems". The manifold cultural expressions of this dimension can only be understood in terms of relationship—joy and social well-being when the eulachon ecosystem flourishes, grief, anger and despair at decline and loss.

Whole ecosystem valuation

Figure 1 presents total economic value categories and valuation methods *per* the Millennium Ecosystem Assessment (2003a Figure 6.1). These categories are briefly described and discussed in terms of their application to eulachon.

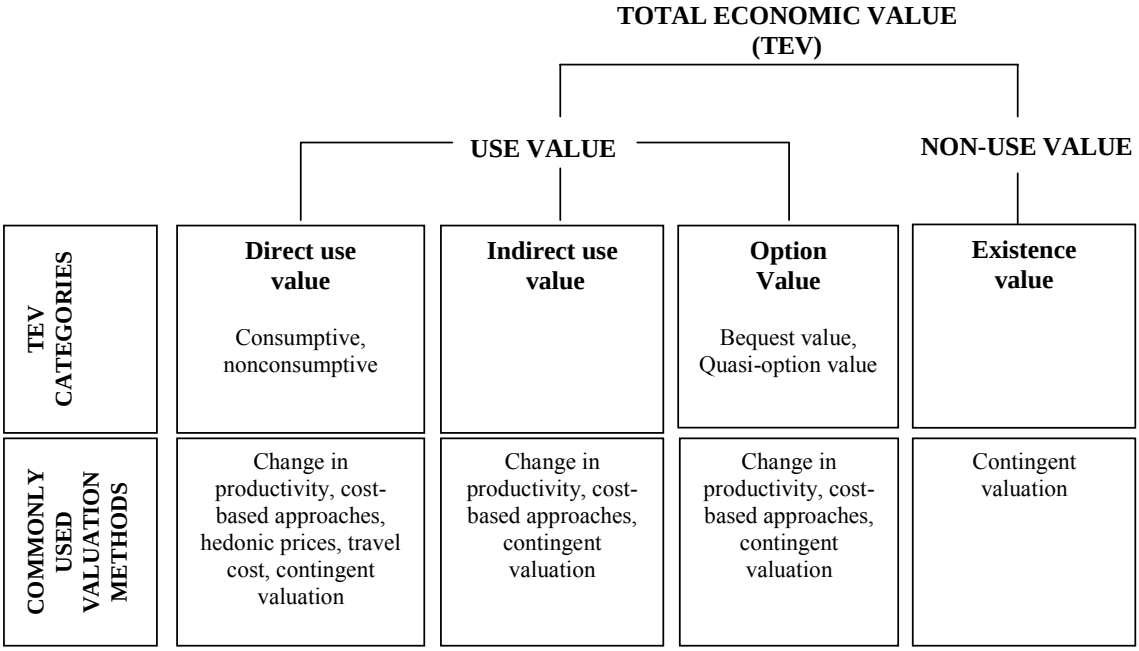

Figure 1 Categories of ecosystem value and methods *per* the Millennium Ecosystem Assessment (2003a Figure 6.1).

Consumptive use refers to the personal, community, trade sale and health benefits. The decline of eulachon has reduced consumptive use where runs are functionally extinct or depleted, forcing people to buy eulachon grease at prices inflated by scarcity. Consumptive use of eulachon—fresh, dried, smoked and grease—is vital to celebration and cultural identity and important to health. Omega 3 fatty acids have potential to reduce the risk of cancer, control obesity, increase liver function and reduce the risk of problems such as rheumatoid arthritis and psoriasis by controlling the protective inflammatory response (Turner *et al.* 2007). Fish oil has been suggested for treatment of Crohn's disease and nephropathy or kidney disease (Turner *et al.* 2007). Fish oil is beneficial in treatment of major and post-partum depression (Logan 2003; Freeman *et al.* 2006). "Current dietary intakes of [Omega 3 fatty acids] in North America and

elsewhere are well below those recommended by the American Heart Association for the management of patients with coronary heart disease." (Holub and Holub 2004). This list of real and potential health benefits suggests a) that Heiltsuk Elder Beverley Brown may well have been correctly informed that a daily dosage of eulachon grease protected against the Spanish flu of 1918, and b) that there may be much more to learn about the health benefits of eulachon consumption. The relatively recent discovery of the health benefits of eulachon oil by mainstream science points to a generic problem of 'leakage' or overlap between categories, 40 years ago these 'consumptive' benefits would have fallen into the category of *option value* discussed below.

The *non-consumptive use* value of eulachon includes the sheer joy of watching eulachon runs far in excess of harvest requirement—grease to burn, the social cohesion of storytelling, camping, fishing and generosity involved in distribution. Eco-tourism opportunities to watch huge aggregations of predators are also precluded by depletion and local extinction.

Indirect use refers to the ecosystem structure and functions that contribute to direct and indirect use. This category is specifically designed to quantify environmental 'externalities' - the environmental costs and benefits (usually costs) that do not show up on the balance sheets of economic decision-makers. One example of indirect use of eulachon is the ability to avail of large concentrations of predators Green (2008). Wuikinuxv people were able to catch large halibut in the mouth of a river beside their main village, rather than traveling long distances to the head of Rivers Inlet (Late Percy Walkus, *pers. comm.* ~1985).

Option value (Weisbrod 1964), is defined as maintaining the opportunity to use something in the future which we don't presently value or might not even be aware of. It can be seen as a form of insurance, increasing the likelihood of future discoveries (Gowdy and McDaniel 1995) and maintaining linkages of which we may never become aware, but might be vital to ecosystem function (Attfield 1998). The full ecosystem role of eulachon is not yet understood, so extreme diligence is needed in both research and conservation. The survival of eulachon is vital for future generations to have the option of carrying on and developing traditions (Cranmer 1999; Green 2008).

Quasi-option value equates to the benefit of delaying a decision when there is uncertainty about the benefit of alternate choices, at least one of which entails irreversible harm (Arrow and Fisher 1974). Quasi-option value thus translates into the value of information that becomes available only with the passage of time. As used by decision-makers, quasi-option value relates to the value of information gained through policies of risk aversion (Coggins and Ramezani 1998), adaptive management, safe minimum standards, and the precautionary principle (NRC 2005 p. 50). There is growing public concern that excessive consumptive use today or actions that threaten species such as eulachon and their ecosystem and human connections may impact future amenity and other non-consumptive values (Krutilla 1967; Rappaport and Sachs 2003; Berman and Sumaila 2006). This suggests that there is support for the Precautionary Principle in policy and legislation such as SARA and the Oceans Act.

Bequest value (Krutilla 1967) extends the case for public investment in preserving option values (Weisbrod 1964) to the personal desire for one's children and grandchildren to enjoy as much or more of the natural world as ourselves. While this sounds good, the examples of cod on the east coast, lingcod in the Pacific and the depletion of global, local and regional fisheries shows that

past generations of fishers were either unable or unwilling to leave as much as they found (Haggan in press). While depletion is often attributed to the 'Tragedy of the Commons', this denies the ability of Aboriginal and small-scale fisheries to self-regulate (Box III):

Box III—Hardin revisited

Garrett Hardin's seminal and much-cited paper on the 'Tragedy of the Commons' {{1603 Hardin, G. 1968}} is a misreading of history. Livestock on the English commons to which Hardin refers were as well or better managed than after the commons had been enclosed {{781 Neeson,J.M. 1993}}. Hardin's error is understandable given that the arguments for enclosure advanced by landlords prevail in the Parliamentary records {{781 Neeson,J.M. 1993}}. Depletion and extinction should not be laid at the door of small-scale fishers {{713 Clark,C.W. 1973}}:

> *Yet the most spectacular and threatening developments of today, such as the reduction of the whale stocks and or the demersal fisheries on the Grand Banks can by no means be attributed to impoverished local fishermen. On the contrary, it is the large, high-powered ships and the factory fleets of the wealthiest nations that are now the real danger. Poor and wealthy nations alike, however, may suffer unless successful control is soon achieved.*

Indeed, and even more true 27 years later considering the failure to ban international bottom trawling and, most recently, to halt fisheries that threaten bluefin tuna with extinction. {{2156 CITES 2010}}. Aboriginal and small-scale fisheries have a much better record of long-term sustainability due to concepts of proprietorship, reverence, reciprocity and the sacred. In such cases, the 'tragedy of the commons' will not necessarily apply {{228 Menzies,Charles R. 2007; 2155 Ostrom, E. 1999}}.

The previous examples of the cultural and spiritual values of eulachon fishing and grease making provide a much stronger bequest motivation. Martin Weinstein (2007) describes a "covenantal relationship":

> *For the Nisga'a, the eulachon migration timing was deliberately set so that they will swim up the river in the early spring to save people from starvation after a long, hungry winter. Other stories speak about the relationship between people and fish; that fish spirits clothe themselves in flesh to go to people and leave their flesh bodies behind as tokens of the relationship. These understandings remain as core cultural foundations in many places. Their premises are that the welfare of people and fish are intertwined, that some form of covenant remains between the cultures and the fish, and, that part of that covenant is the reciprocity between fish and people. Fish give and people give.*

Existence value

Existence value is the value that people attach to "knowing that a resource exists, even if they never use that resource directly" (MEA 2003a). Existence value is defined as "a willingness to pay for retaining an option to use an area or facility that would be difficult or impossible to replace…" (Krutilla 1967). Many people value the knowledge that wilderness continues to exist "even thought they would be appalled by the prospect of being exposed to it" and/or subscribe to conservation organizations to preserve species they may never see.

Calculating non-market values

Contingent valuation, determined by surveys of what people are willing to pay to conserve species and ecosystems is the economist's preferred method for non-use values. The approach has some significant flaws and issues (Box IV):

Box IV—Issues of contingent valuation

A 1987 contingent valuation study (Bishop *et al.* 1987) showed that residents in the US state of Wisconsin were willing to pay $US28 million to protect bald eagles (*Haliaeetus leucocephalus*) from possible extinction. This is no surprise as the eagle is the national emblem and has use value from birdwatching to T-shirts and coinage. What *is* surprising is that the same residents were prepared to pay $US12 million to protect the striped shiner (*Notropis chrysocephalus*), a small endangered fish of no use value whatever. The authors note that the striped shiner was likely acting as a proxy for all endangered fish. Values can vary substantially with the order in which survey questions are asked (Clark and Friesen 2008). Values in a survey of willingness to pay to preserve visibility in the Grand Canyon were five times higher when the 'visibility' question was asked first than when it came third (Tolley and Randall 1986). Ordering effects are not necessarily tractable to randomization. A marine mammal study valued seals more highly when the seal question came before the 'whale question'—the value of whales did not vary (Samples and Hollyer 1990). There is an 'embedding' effect where respondents will put the same value on losing one lake out of five as on losing them all (Kahneman and Knetsch 1992).

Sagoff (1998) suggests that the embedding effect, zero values based on belief that government or polluter should pay and high to infinite values are based on principle rather than individual satisfaction. A high figure may also be attributable to a 'warm glow' effect of support for a good cause (Diamond and Hausman 1994; Nunes and Schokkaert 2003). These concerns are consistent with Nobel Laureate Amartya Sen's (1977) point that commitment is at least as potent a motivation as individual preference satisfaction. This commitment might well be to the spiritual value of nature, particularly but not exclusively in the case of species such as eulachon and ecosystems as traditional territory of Aboriginal people. The likelihood that respondents are considering the general good of society rather than individual satisfaction and the very large amount of information required to make informed judgments suggests that 'mock referenda' (Kopp and Portney 1999) or jury-style deliberative approaches would be more reliable (Sagoff 1998). The wide differential in ability to pay both within the industrialized world and between the 'north' and 'south' also makes willingness to pay measurements morally problematic (Attfield 1998). For a fuller discussion see the US NOAA panel report on contingent valuation (Arrow *et al.* 1993).

Ecosystem services

'Ecosystem services' could be generally defined as the nested local, regional and global ecological functions that make life possible. Ecosystem services developed from the 'indirect use' category within total economic value, designed to quantify environmental 'externalities' - the environmental costs and benefits (usually costs) that do not show up on the balance sheets of economic decision-makers. Growing awareness of human impact on species and environment has prompted reconsideration by economists, ecologists and theologians (Costanza *et al.* 1997b; Daily 1997; McFague 2008). Ecosystem services have now overtaken total economic value as

an approach to whole ecosystem valuation. This is likely due to a combination of factors, starting from Costanza and colleagues' (1997b) estimate of global ecosystem services and natural capital of $US 33 trillion, *vs* then global GDP of $US 16 trillion, growing business community interest in the contribution of nature to the economy (Heal 2000; Daily and Ellison 2002; MEA 2005) and a sharp rise in awareness of the impact of climate change on ecosystem services. The concept of ecosystem services has even worked its way in to popular media and public discourse, as seen, by the 3-year BBC World Service TV series *Nature Inc.* (2008).

Typologies of ecosystem services are more extensive than total economic value and do mention spiritual values. In their calculation of global value of $US 33 trillion, Costanza *et al.* (1997a) identify 'Cultural' services including "Aesthetic, artistic, educational, spiritual, and/or scientific values of ecosystems" as the last of 17 categories. Farber *et al.* (2006) identify "Spiritual and historic" as the last of 23 services. de Groot *et al.* (2006, Table 1) present 30[8] categories of ecosystem service for consideration in "planning for sustainable, multi-functional landscapes" where "…The socio-cultural value mainly relates to the information functions".

Ecosystem services of eulachon

The significance of eulachon *includes* information in the wealth of traditional ecological knowledge of ecosystem connection. It goes far *beyond* information to the roots of cultural and social identity. It encompasses physical, mental and spiritual well-being. It carries the hopes and fears of a people for their future. The idea of 'ecosystem services of eulachon' is self-contradictory. Any attempt to identify ecosystem services would have to include the full range of past, present and future human-biotic-land/seascape linkages as understood by the Aboriginal people concerned.

Descriptions of the significance of eulachon to Aboriginal people from spiritual being to determinant of survival and cultural identity, maintenance of social cohesion, food, trade celebration and health indicate two major shortfalls of the ecosystem services approach:

1. The term 'services' suggests that eulachon exist only for the benefit of people. It does not convey the 'covenantal' relationship where "Fish give and people give" (Weinstein 2007);

2. Singling out the eulachon as an 'ecosystem services provider' suggests that eulachon can be separated from and compared with or 'traded off' against other components. This is inconsistent with the seamless connection between people, biota, spiritual beings and the physical environment. It is also inconsistent with an ecosystem approach, as provided for in SARA—one that considers people as part of the bio-geo-chemical world, whether or not a spiritual dimension is explicitly included.

Monetary valuation is even more problematic. Tsimshian participants at a UBC ecosystem modelling and valuation workshop in Prince Rupert strongly objected to putting a dollar value on eulachon (Power *et al.* 2004). This is not to deny that eulachon have economic value, it is just that the monetary metric is inappropriate to represent the 'covenant' that reaches back to the time of creation, unites people to their lands, waters and cultural keystone species today (e.g.,

[8] The additional seven belong to a fifth category of "Carrier functions"…"Providing a suitable substrate or medium for human activities and infrastructure…"

Cranmer 1999; Green 2008) and that can be maintained, through right action, into the deep future. Keeping this covenant is hard, although joyful work informed by stories and enacted and performed between elders, adults and young children. It engages the entire ecosystem from the mountaintops to the deep ocean. Eulachon are central, but inseparable.

Three conclusions can be drawn from the discussion of total economic value and ecosystem services:

1. Total economic value categories are not particularly helpful for cultural keystone species which link past, present and future generations of people to lands and waters;
2. Monetary metrics are problematic in cases of high cultural and spiritual value;
3. Economic and sacred values are not mutually exclusive, i.e., relegating the sacred to a category of ecosystem services is inadequate.

The case of eulachon beautifully illustrates the link between the flourishing of species, culture and landscape. It follows that efforts to represent the cultural and spiritual values of eulachon, salmon, killerwhales, eagles or cedar trees must somehow represent the flourishing of the entire system. This is consistent with the ecosystem approach under SARA, the Oceans Act and other legislation discussed below. It is inconsistent with 'lesser of two evils' or 'palliative' approaches e.g., "Damage Schedules" Chuenpagdee *et al.* (2001), which bases decisions on "predetermined fixed schedules of sanctions, restrictions, damage awards, and other allocative guides and incentives, which are based on community judgments of the relative importance of different environmental resources and particular changes in their availability and quality."

The first essential for policy-makers is to fully understand why the language of grief and despair is as appropriate to the loss of a fish as it is to the loss of a loved one. This means that the process of consultation must go beyond scientific assessment. Scientists may well share the feelings of Aboriginal people at the diminution or loss of species they have dedicated much of their lives to understand and conserve. They may not, on pain of loss of credibility, adopt the rhetoric of Aboriginal people or religion. There are of course exceptions to this restriction, but they extend only to senior scientists whose reputation is made, e.g., those who signed the

One way out of the impasse of 'reconciling' cultural and economic values is to expand the consultation and policy development process to include other perspectives. There is a precedent in the "Just Fish" project (Coward *et al.* 2000) which engaged natural and social scientists, Aboriginal people, theologians, economists, an artist and communities on both coasts of Canada in recasting fisheries issues in terms of justice. A particular strength of this approach is the ability to represent all the values underlying the concern. Artists are uniquely positioned to represent tension between values in a way which speaks to the public whose support is vital to a) the ability to list a species under SARA and b) to support for effort necessary to restore the flourishing of both species and human communities.

The tension between instrumental and intrinsic value

In 1973, the intrinsic value of the snail darter an unknown small fish of no commercial value, halted construction of the Tellico Dam under the US Endangered Species Act after an expenditure of $78 million, of which $53 million would have been unrecoverable (Spiller and Tiller 1996). The issue was resolved by speedy amendment of legislation and the serendipitous

discovery of other populations (Possingham *et al.* 2002). Closer in time and to home, Canada's Environment minister declined to list Cultus Lake and Sakinaw sockeye salmon under SARA, on the grounds that the concomitant curtailment of other fisheries would cause undue social and economic hardship (Canada 2004). The decision was unsuccessfully challenged by the Sierra Club[9] on the basis that the economic analysis was badly flawed, see also Gross et al. (2004), but the problem of decision between an absolute such as intrinsic value and 'instrumental' or use values remains unresolved.

Necessary, but not sufficient

> *"…the dignity of rational nature is often hard to interpret, inherently controversial, in part culturally variable and in no wise subject to the elegant decision procedures which some other ethical theories (such as utilitarianism) think they can provide"* (Wood and O'Neill 1998).

The Millennium Ecosystem Assessment authors note that the utilitarian paradigm has "no notion of intrinsic value", and that "[m]any other factors including notions of intrinsic value…will also feed into the decision framework" but that intrinsic value is the hardest, and the most controversial, to estimate." (MEA 2003a p. 128). In their major study of aquatic ecosystem services, the US National Research Council (2005p. 33) observe that existence value is an "anthropocentric and utilitarian concept of value" measured in willingness to pay, "for the continued existence of a species or landscape". Sagoff (2007) observes that certain values are best characterized by "unwillingness to pay".

In summary, total economic value and ecosystem services are significant advances on the commercial and recreational values which first come to mind when decision-makers weigh environmental health against the cost of treating industrial, domestic and agricultural waste and the revenue from offshore oil and gas, gas hydrates, gravel mining, etc. Both frameworks are helpful in avoiding 'double counting' and exclusion when multiple methods are used (Bishop *et al.* 1987; Randall 1991). Yet, neither framework has any concept of intrinsic value. Implicit in both is the idea that the entire creation exists for the benefit of humans. Major studies identify intrinsic values as 'inputs to decision-making' but there is no guidance on how this might be achieved. The Millennium Ecosystem Assessment makes sporadic references to 'sacred groves'. The only mention of spiritual value in the extensive US National Research Council study of aquatic ecosystems is the caution that, "estimating the existence value and spiritual value of salmon with currently available economic valuation methods is controversial." (NRC 2005 p. 176).

> *Human preferences for all values can, to some extent, be measured with economic valuation methods, but ecological, sociocultural, and intrinsic value concepts have separate metrics and should be used in the decision-making process in their own right.* (MEA 2003a).

Given the careful attention to the development of economic measures by the Millennium Ecosystem Assessment and others, the question is now how to represent cultural and spiritual values in policy and decision-making with the same consistency. The following section uses examples of the extent of landscape and species modification in the 'New World' to challenge

[9] http://www.oag-bvg.gc.ca/internet/English/pet_149_e_28879.html

notions of 'nature' and 'wilderness' that tend to negate the past and present role of Aboriginal people. The extent to which the spiritual value of nature matters to other religious traditions and to British Columbians with no formal religious allegiance suggests that while Aboriginal people are the most eloquent exponents of spiritual value, they are by no means alone.

The spiritual value of nature

Bruno Latour (2004) observes that pre-industrial indigenous societies had no concept of "Nature" set apart from humanity, but shared a "common world" with powerful entities whose physical and spiritual being must be respected. In his discussion of traditional ecological knowledge systems, Fikret Berkes (2008 pp. 11-12) notes that there is "no separation between nature and culture". 'Nature' as we perceive it, is the result of long-term interaction between people, biota and environment (Pollan 2001; 2003; 2006). No-one questions that the landscape of Europe has been profoundly altered by human agency. Most of the hardwood forest that covered Ireland from coast to coast was clearcut by Iron Age farmers (Pilcher and Hall 2001). The British completed their work to build warships and remove a safe haven for Irish insurgents. The extent of landscape modification in N. and S. America prior to colonization is a much more inconvenient truth.

The fiction of *Terra Nullius* (empty land) that was used to justify possession and colonization persists in concepts of 'wilderness' and the 'pristine' (Cronon 1996). The extent of landscape modification in the Americas is becoming apparent (e.g., Denevan 1992; Mann 2005). In the Pacific Northwest, there is a growing body of evidence of cultivation of plants (e.g., Anderson 2005; Deur and Turner 2005; Turner and Berkes 2006), clams (Harper *et al.* 1995; Williams 2006) and salmon (Johnsen 2001; Haggan *et al.* 2006; Trosper 2009)[10].

Today, recognition of the spiritual value of nature is commonly associated with Aboriginal peoples (e.g., Callicott 1994; Basso 1996; Cruikshank 2005; Lucas 2007; Berkes 2008; Lucas 2008), but is found in many if not all religions as evidenced by the substantial output of the Harvard Forum on Religion and Ecology[11]. Theologian Thomas Berry (1991) speaks of species extinction as the "loss of mode of divine presence". According to novelist David James Duncan (2001), Snake River dams that bar salmon passage are, "uncreating the primordial water's response to the touch of the Spirit of God."

The "personhood" of salmon and other species is a difficult concept for western society. Sentient land and seascapes are even more difficult (Povinelli 1995; Basso 1996; Cruikshank 2005; Rose 2007), despite the popularity of books such as *The Songlines* which describes how Aboriginal people in Australia sang the country into being (Chatwin 1988). Povinelli (1992) suggests that Western society finds sentient landscape "preposterous" because it is inconsistent with wholesale exploitation and with some mainstream religious understandings of what is and is not 'sacred'. The conflict between the Apache and the Vatican over construction of an observatory on *Dzil nchaa si an* (Mt Graham) is an example of differing views of where the

[10] This small sample of a growing body of knowledge makes it the more ironic that the existence of sophisticated, self-governing cultures in what is now British Columbia, was rejected by BC Court of Appeal Justice Alan McEachern as recently as 1991. McEachern's judgment quoted Thomas Hobbes' (1651) opinion that life in those days was "Solitary, poore, nasty, brutish and short". His advice to the Gitksan and Wet'suwet'en who brought the suit was to join the 20th Century as soon as possible. This extreme judgment was reversed by the Supreme Court of Canada (1998).

[11] http://fore.research.yale.edu/religion/

sacred is located (Taylor and Geffen 2003).

The spiritual value of nature is important to many with no religious affiliation throughout North America and particularly in the Pacific Northwest (Shibley 2004; Todd 2008). Scientists are not generally comfortable with terms like "spiritual value", but find ways to work around. Ecologist E.O. Wilson called his book *Biophilia* (1984), not Love of Life. Even Richard Dawkins, who spends much of his time extirpating any trace of religion from public life, subscribes to "Einsteinian Religion… a reverence for life and the universe which has nothing to do with anything supernatural" (Gledhill 2007). Maybe it is indeed time to apply the rhetoric or language of love to resource management (Millar and Yoon 2000)

A bridge between instrumental and intrinsic value

> *We use the saying 'everything is one'…we need to be 'respectful' of the skies and streams, what you call the 'environment'. If there is no respect for the things that make life possible, how can we respect ourselves? Hishukish Ts'awalk* [Everything is one] *summarizes a whole understanding of oneness between people and the natural and physical world that means a great deal more than 'biodiversity', 'ecosystem' and the 'environment'* Chief Simon Lucas (2007)

The words of Nuu-chah-nulth Chief Simon Lucas and the Supreme Court of Canada's observation in *Sparrow* that fisheries are essential to "cultural and physical survival" (Canada 1990), go some way to explain the difference between fish as commodity and fish as "gods and kin" (Anderson 1994). This is not the either/or of intrinsic and instrumental value, but a both/and. Salmon were and are spiritual beings *and* vital to food, economic and territorial security (Haggan *et al.* 2006).

The notion of 'unwillingness to pay' (Sagoff 2007) and the idea that sacred values are inconsistent with a monetary metric, even when there is no question of sale; poses problems for decision-making. The 'inseparability' of species such as salmon and eulachon from the ecological-social-spiritual context, as seen in the linkages between eulachon, ancestors, other species and landscape (Cranmer 1999; Green 2008) also invalidate 'lesser of two evils' methods that trade the flourishing of one species or aspect of culture off against another. A first step to inclusion of the spiritual dimension of eulachon in policy and decision-making might be for those leading the consultation to develop their understanding of the sacred. This could involve focussing consultation on the sacred and concomitant aspects of reverence, reciprocity, gift and responsibility. It would require an honest attempt to understand rather than to minimize the depth of grief, loss, anger and despair felt not just by Aboriginal people, but by all Canadians at the loss, diminution or degradation of species and places they love and treasure.

V—CULTURAL AND SPIRITUAL VALUES IN POLICY AND LEGISLATION

This section recapitulates policy from before European contact through the early days of settlement and the establishment of reserves to the present day. Examples of cultural and spiritual values in the international and Canadian context suggest that existing Canadian policy and legislation may need to be re-interpreted in light of growing recognition of the cultural and spiritual values of Canadians in general and Aboriginal people in particular. This requires an exploration of the extent to which cultural and spiritual values not just of Aboriginal people, but of all Canadians, are addressed even by policy and legislation that may at first sight, appear silent on these matters. The inferences for eulachon and other species to which 'mainstream' society attaches little value are discussed.

Aboriginal policy before European contact

As shown, eulachon were vital to the economy and indeed survival of many Aboriginal people before European contact and remain vital to cultural and spiritual survival today. Aboriginal policy regarding eulachon might be characterized as "ecosystem-based", but emerging—or re-emerging—concepts of ecosystem-based management do not capture the seamless connection between people, landscape and biota evidenced in personal accounts of the relationship between Aboriginal people and eulachon (e.g., Robinson 1961; Cranmer 1999; Green 2008) and the Nuu-chah-nulth concept of *Hishukish Ts'awalk* (Atleo 2004; Lucas 2008). Haggan *et al.* (2009) identify three important ways in which pre-contact management differed from emerging ecosystem-based management concepts and "indigenous knowledge and values", to which I now add a fourth:

1. Physical and cultural wealth derived from ecosystems. Modern economies have multiple sources of wealth and demand a faster return on investment than most fish populations;
2. Pre-contact management was based on economic, social and spiritual value. Greed, waste and disrespect could incur punishment from the mistreated beings as well as penalties from social sanctions to death for serious infraction;
3. A much finer spatial scale than current coastwide and international regimes—this is consistent with findings that many marine species have numerous distinct sub-populations (e.g., Cury 1994; Hauser *et al.* 2002; Hutchinson *et al*. 2003; Prince 2003);
4. A temporal scale reaching into the myth or dreamtime and looking well over 100 years into the future (Clarkson *et al.* 1992).

The ability to manage and distribute resources was vital to the rank and status of chiefs, i.e., there was a powerful incentive not just to 'conserve' but to increase the productivity of lands and waters (Haggan *et al.* 2006). Trosper (2009) identifies six principles which contributed to sustainability and support of large populations for at least 3,000 years before European contact:

- *Proprietorship* confers all the qualities of ownership minus the ability to sell;
- *Contingent proprietorship* provides for the removal of Chiefs who failed to produce and distribute wealth;
- A system of *ethics* defined proper use and abuse in terms of reduction of productive potential for future generations;
- *Reciprocity* required that Chiefs be generous with the products of their house territories. This provided insurance against misfortune and reduced incentives to overharvest;

- *Enforcement* of reciprocity rules was totally public;
- *Rules governing the behaviour of Chiefs* provided a system of governance that maintained the first five rules and allowed for modification at need.

Trosper (2009) notes that belief in reincarnation was a powerful incentive to manage for future generations, but does not otherwise address spiritual value. I would add a seventh principle of *Respect* for the personhood of species and *Reverence* for the sacredness/sentience of land and seascapes, although these are not separable. Stó:lō Nation scholar Jo-ann Archibald (2008 p. 18) identifies principles of "respect, reverence, responsibility and reciprocity" that inform stories that convey a proper relationship between people, territory and biota. These principles outline a framework of policy, law and regulation that ensured sustainability for ~3,000 years in the Pacific Northwest (Trosper 2009), and must now be accorded equal weight with written evidence *per* the Supreme Court of Canada in *Delgam'Uukw* (1998). These principles can be seen at work in Cranmer's documentary *T'lina* (Cranmer 1999), and other accounts of eulachon fishing and grease making (Webster 2001; Green 2008; RBCM n.d.b). Even where colonization and relocation of Aboriginal people has obliterated much of the oral history, the archaeological record attests to the sustainable co-existence of large populations and marine resources for at least 8,000 years (Braje *et al.* 2009).

Early BC policy

The preceding sketch of sustainable Aboriginal policy before and at European contact collides head-on with an 1872 description of British Columbia by The Honourable Sir Hector Langevin, Commissioner of Public Works (cited in Harris 2001).:

> *There is no law governing fish in British Columbia. Fishing is carried on throughout the year without any restrictions. This state of things is well-suited to a new and thinly populated*[12] *country. The restrictions of a close season would be very injurious to the Province at present, and for many years to come.*

As indicated in Section III, early BC fishing policy is contradictory:

1866 Judges Cornwall and Planta are astonished by the value of the eulachon fishery and recommend: "*that the enjoyment of it should be confined to our own people."* (cited in Corsiglia 2007);

1875 Settlers are discouraged from fishing as Indians were much better at it and worked for much lower wages (BC 1875);

1881 Reserve Commissioner Peter O'Reilly comments that "*Every inlet is claimed by some one, and were I to include all these, it would virtually declare the whole country a reserve…"* (cited in Harris 2008).

[12] The country was far from *"new"*. Aboriginal creation stories tell that people have lived in what is now BC since the dawn of time. The earliest archaeological evidence of human habitation of the Pacific Northwest dates back some 13,000 years. It was *"thinly populated"*, but that was an artifact of the near-annihilation of some of the highest population densities in North America by European diseases (Boyd 1999). Noted fisheries scientist William Ricker observed that the cyclic abundance of Fraser River sockeye may have been "the shadow of Aboriginal management." (Ricker *et al.* 1954).

Aboriginal title and rights in Canada

Key legislation includes S. 35(1) of the *Constitution Act* (1982), in which existing Aboriginal and treaty rights are "recognized and affirmed"; exploration of the scope and strength of Aboriginal and treaty rights by Supreme Court of Canada in *Sparrow* (1990); recognition of Aboriginal title in *Delgamuukw* (1998) and subsequent legislation on the duty to consult. In *Sparrow,* the Supreme Court of Canada set out:

> *"…to explore for the first time the scope of s. 35(1) of the Constitution Act, 1982, and to indicate its strength as a promise to the aboriginal peoples of Canada."*

And further stated,

> *"When the purposes of the affirmation of aboriginal rights are considered, it is clear that a generous, liberal interpretation of the words in the constitutional provision is demanded."*

The "honour of the Crown" is at stake in all dealings with Aboriginal people Words such as "explore", "strength", "promise", "protective", "generous", "liberal" and "remedial" set the tone for what the court elsewhere described as an "evolving understanding of Aboriginal rights". In a nutshell, scope cannot be defined by previous law, policy or regulation, e.g., the fact that Aboriginal people had been reduced from 100% ownership and jurisdiction to 4% of the salmon fishery (McRae and Pearse 2004) is in no way definitive of the extent of the right to salmon or, for that matter other species. Rights are not frozen in time, but can be exercised in a contemporary manner. Rights are unique to individual First Nations, i.e., it is not acceptable to apply a cookie cutter approach to First Nations in BC or across Canada. More specifically, courts must avoid application of "traditional common law concepts of property[13]" in developing their understanding of the nature of Aboriginal rights. To paraphrase the late Chief Justice Alan Dickson's judgment: "For pity's sake, don't bring these matters before the court. Even if you like what we say, you'll still have to sit down and work out what the judgment means on the ground. These are the things to keep in mind while you're at it."

Subject to these cautions and guidelines, the Supreme Court recognized, but did not define, "food, social and ceremonial" rights. These rights take precedence over commercial and sport fisheries. They are subject to conservation, but government has to show cause for conservation and that steps have been taken to ensure that commercial and recreational fisheries had been curtailed, i.e., Aboriginal rights fisheries could not bear the brunt of conservation costs. The inferences for complex fisheries such as the Fraser River are significant. In any one year, salmon run forecasts are off-target by 40-60%. Most Aboriginal fisheries are upstream of commercial and recreational fisheries. Guaranteeing even a modest *per capita* food, social and ceremonial amount to all upriver people, without in any way defining the rights; would require a significant curtailment of all commercial and recreational fisheries. A "liberal and remedial" interpretation of "food, social and ceremonial" rights would go much further, possibly even beyond the US *Boldt* decision (1974) which interpreted the phrase "to fish in common" in treaties signed by Washington Tribes as 50% of the fishery.

[13] But note that this in no way trivializes or reduces the scope of the right(s). Traditional Aboriginal government conferred all the powers and benefits of a property right minus the ability to misuse or sell Trosper (2009).

The Supreme Court of Canada decision in *Delgamuukw* (1998) recognized the existence of Aboriginal title as pre-existing and a "burden on the Crown". Oral history is to be given equal weight with documentary evidence. It is not necessary to establish an unbroken line of ownership and occupancy to prove title. The closing words, "Let's face it, we're all here to stay," shows that *Delgamuukw* like *Sparrow,* is a plea for honourable negotiations leading to fair settlement.

The duty to consult

> *The Crown's duty to consult and accommodate Aboriginal peoples, even prior to proof of asserted Aboriginal rights and title, is grounded in the principle of the honour of the Crown, which derives from the Crown's assertion of sovereignty in the face of prior Aboriginal occupation. The Crown's honour cannot be interpreted narrowly or technically, but must be given full effect in order to promote the process of reconciliation mandated by s. 35(1) of the Constitution Act, 1982.* (2004b; SCC 2004a)

The guidelines for recognition and affirmation of Aboriginal rights, for treaty negotiations and consultation on the impact of development projects on Aboriginal people are clear. Specific performance may however be lagging or lacking in some cases. The *Wild Salmon Policy*[14] gives equal place to cultural along with social and economic benefits, recognizes "cultural ties", that people rely on wild salmon for "spiritual needs" and that salmon contribute to "our cultural identity". Canada's *New Emerging Fisheries Policy*[15] includes provisions to promote Aboriginal participation in management and co-management and provide economic benefits. This is a positive direction, but it remains to be seen whether the full scope of cultural and spiritual values will be included under 'benefits'. Inclusion of cultural and spiritual values is not straightforward due to the problem of "incommensurability" (Povinelli 2001) of concepts such as the personhood of species and the sentience of land and seascapes with the way mainstream society conceives of land, resources and management. According to Paul Nadasdy (2003 p. 119):

> *"…many of the terms used in relation to the management of land and wildlife, such as "subsistence", "conservation" and "traditional use" have no counterparts in the languages or cultural practices of Aboriginal peoples. As a result, these terms, while seemingly straightforward, are actually contested on a fundamental level. Since all parties assume that the contested terms refer to agreed-upon realities when, in fact, they serve only to mask deep cultural differences, their use can lead to serious misunderstandings and perceptions of bad faith. Their use also has the effect of biasing the discourse in favour of scientific managers*[16] *by restricting the ways in which it is possible to talk (and think) about these issues."*

I suggest that the cultural and spiritual value of eulachon and other species falls into this gap. In

[14] http://www.pac.dfo-mpo.gc.ca/publications/pdfs/wsp-eng.pdf
[15] http://www.dfo-mpo.gc.ca/fm-gp/policies-politiques/efp-pnp-eng.htm
[16] This may sound patronizing, but the same problem exists in the worlds of natural and social science, where people use the same terms with different meaning. The term "goods" in economics includes nuclear weapons, nerve gas and landmines and calculations such as gross domestic product used to calculate economic performance include the cost of pollution cleanup from PCBs to nuclear waste.

a pluralistic society such as Canada, 'culture' is not something we are conscious of on a daily basis. To the extent that we think of culture, the images that come to mind are likely museums and art galleries or ethnic celebrations. Culture is more important to the numerous minorities (ethnic, religious, based on sexual orientation or indeed occupation) that make up Canadian society. But, what is on the one hand a celebration of diversity and the richness of contribution to Canadian culture, can sound like chaos and dissent in matters of resource management and allocation. The articulation of cultural and spiritual values varies dramatically with cultural, spiritual and ecological context. Indeed, most Canadians and 'professionals' such as scientists, economists and resource managers, regard these as matters of private life.

Faced with apparent chaos and dissent, decision-makers tend to default to sophisticated accounting systems such as total economic value and ecosystem services. Such measures, while necessary to quantify economic 'externalities', are not sufficient to represent what it is that makes the whole ecosystem greater than the sum of its parts (Haggan in press). While ecosystem service typologies include "spiritual value", the approach simply cannot address an emergent property such as the sacred. Concentration on 'marginal change' in existing systems does not address the problem of 'baseline shift' studies showing that marine ecosystems are a shadow of their former selves (e.g., Pitcher *et al.* 2005; McClenachan *et al.* 2006; Saenz-Arroyo *et al.* 2006; Worm *et al.* 2006; Lotze and Worm 2009), i.e., do not satisfy a concept of the sacred as the flourishing of people, biota and environment.

Aboriginal people have no hesitation in using the language of spiritual value, mourning and shame (OKNTC 2007). Others may not feel comfortable with these terms, but may feel a sense of connection to nature as they walk in the woods or on the beach. However we express the intangible qualities of the places and species we love and care about, I suggest that the common element is that we are unwilling to sell, trade off or express this spiritual connection/intangible quality in monetary terms. The eulachon in Barb Cranmer's documentary *T'lina* (1999) is not separable from the mountain, the killer whale, seagull, the dances that represent both, the stories and inter-generational transmission of skills, knowledge and values. Paul Nadasdy (2003) identifies a real problem of communication, but also to the deeper understanding of ecosystems and their value that might be gained by an honest and deep exploration of why the eulachon is more than just a little fish and the full scope of tangible and intangible qualities that makes a salmon more than a commodity in the global market.

The duty to consult makes this beneficial exploration mandatory.

Cultural and spiritual values in Canadian policy and legislation

The Canadian Bill of Rights[17] (1960) affirms that "*men* [sic] *and institutions remain free only when freedom is founded upon respect for moral and spiritual values and the rule of law*." More recently, freedom of religion and belief are guaranteed by the Canadian Charter of Rights and Freedoms 1982[18], (S. 2.a&b). This freedom is limited by laws protecting the freedom of the individual and protection of the person. The concern is rooted in historic and current issues, e.g., persecution, torture, colonization and intolerance from the Spanish Inquisition to Northern Ireland, the Sudan, Iraq and Afghanistan; racism and rampant intolerance of gays and lesbians and systematic suppression and marginalization of women.

[17] http://laws.justice.gc.ca/en/showdoc/cs/C-12.3/20090624/en
[18] http://laws.justice.gc.ca/en/charter/1.html

In consequence, Canadian policy and legislation reflects the tension between the right to practice religion and spirituality and the fear of intolerance. The duty to consult and mindfulness of the diversity of Aboriginal cultures, and I would argue the diversity of cultures that make up Canadian society and the insights and contributions which all cultures bring to understanding our relationship with nature; require an exploration of what a "liberal," "remedial," "generous," interpretation of Canadian policy and legislation might look like.

As noted, much of Canadian policy and legislation is silent on spiritual values. The first step in breaking this silence is to identify terms which the reasonable person would interpret as inclusive of spiritual and/or religious beliefs, customs and practices. The main candidates are "culture" and "heritage". The OED defines "culture" as: The distinctive ideas, customs, social behaviour, products, or way of life of a particular society, people, or period. Hence: a society or group characterized by such customs, etc. "Heritage[19]", as distinct from history, is largely a celebration and affirmation of culture (Dr Daniel Vickers, UBC History Department, May 2009). Heritage includes the "cultural" and "spiritual" aspects of human society in all its diversity. This suggests that any convention or instrument that addresses heritage in general and with respect to heritage sites, parks, museums, galleries, radio film, or the encouragement of any aspect of the arts, is likely to include cultural and spiritual values.

A search of the Department of Justice website identified only three acts that include the terms "cultural", "spiritual" and "heritage", the Species At Risk Act; the Mackenzie Valley Resource Management Act and the Geneva Convention. The following discussion focusses on acts with all three terms and fisheries and environmental legislation relevant to eulachon whether these terms are present or not. Legislation that references spiritual values is identified with some brief comments.

Acts that reference "cultural", "spiritual" and "heritage"

The Species at Risk Act (2002) is designed to protect all species from the risk of depletion and extinction. The Preamble is significant in that it brackets an extensive list of values, including spiritual value with references to Canadian and world heritage:

> *"Canada's **natural heritage** is an integral part of our national identity and history, wildlife, in all its forms, has value in and of itself and is valued by Canadians for aesthetic, **cultural, spiritual**, recreational, educational, historical, economic, medical, ecological and scientific reasons,*
>
> *Canadian wildlife species and ecosystems are also part of the world's **heritage** and the Government of Canada has ratified the United Nations Convention on the Conservation of Biological Diversity,"*

[19] 'History' focuses on 'facts', and has tended, at least up to the Supreme Court of Canada decision in *Delgamuukw*; to privilege written sources and material objects. History pays minimal attention to the performative and spiritual aspects of cultures other than mainstream religions. 'History' is a moving target. Creationist history starts with Adam and Eve. Jewish history starts with Abraham. History as traditionally taught in Canadian schools, starts with the English and French. For Aboriginal people it starts at the beginning of time. Archaeologists date human history in the Pacific Northwest from ~13,000 years ago (and counting backwards), though they tend to call it 'prehistory'.

As with other acts relating to conservation and resource management, SARA requires the use of traditional knowledge and protects Aboriginal and treaty rights. SARA also establishes a National Aboriginal Council to advise on species at risk. While a preamble may not have the full force of law, it speaks clearly to the spirit and intent of the legislation and sets a direction for further exploration of the extent to which spiritual and other values should be weighed in decisions relating to the conservation and management of terrestrial and marine species.

SARA provides for an ecosystem-based approach which, read together with Aboriginal rights legislation and the duty to consult requires a full exploration of traditional knowledge and values of eulachon and their ecosystem.

The Mackenzie Valley Resource Management Act[20] S. 73 provides for the use of water for transportation and other activities related to "*wildlife harvesting and for "**traditional heritage, cultural and spiritual purposes***."

Geneva Conventions Act[21] (1985) This act shows equal concern for the physical, spiritual and intellectual well-being of prisoners of war and civilians caught up in hostilities. "War victims" are to be free to practise religion and receive spiritual assistance from persons performing religious functions. It is not permitted to commit any acts of hostility directed against the historic monuments, works of art or places of worship which constitute the cultural or spiritual heritage of peoples or to use them in support of military effort.

Cultural and spiritual values in fisheries and environmental legislation

The Fisheries Act[22] (2009) has no discernible statement of purpose. It is totally silent on spiritual, cultural and heritage. It makes no mention of "benefits" of any kind other than in the sense of persons who benefit from fisheries in some fashion forbidden by the Act (s.79). Somewhat surprisingly it makes no mention of sustainable use for either present or future generations, or for that matter, of ecosystem-based management or the precautionary principle. The only mention of "First Nations" is with respect to the empowerment of Fishery Officers and Guardians to enforce laws made under the Nisga'a and Tsawwassen Final Agreements and that the Act does not impact Aboriginal rights. The only mention of "consultation" is between the Fisheries Minister and the provinces. For greater certainty, there is no mention of consultation on Aboriginal rights.

The Oceans Act[23] is silent on "cultural" or "spiritual" considerations. The Preamble "recognizes that the Arctic, Pacific and Atlantic oceans are the common heritage of all Canadians;" and that a precautionary, ecosystem approach is essential to conserving biodiversity and productivity of the marine environment. "Conserving biodiversity" is problematic as sustaining depleted systems is not a useful goal (Pitcher 2001), i.e., falls into the economists trap of quantifying marginal change in existing systems, but a liberal and remedial interpretation of "productivity" and "heritage" make room for exploration of the sacred as flourishing.

[20] http://laws.justice.gc.ca/en/showdoc/cs/M-0.2/20090624/en
[21] http://laws.justice.gc.ca/en/showdoc/cs/G-3/20090624/en
[22] http://laws.justice.gc.ca/PDF/Statute/F/F-14.pdf
[23] http://laws.justice.gc.ca/PDF/Statute/O/O-2.4.pdf

The National Marine Conservation Areas Act[24] is also silent on spiritual value, but has numerous references to the commitment to create a national network of "representative marine protected areas" that will, "consider ecosystems," "provide opportunities for the people of Canada and of the world to appreciate and enjoy Canada's natural and cultural marine heritage, and recognizes that the marine environment is fundamental to the social, cultural and economic well-being of people living in coastal communities." The Act provides for similarly broad based consultation on establishment of marine protected areas and is silent on Aboriginal matters other than the standard clause that it does not impact S. 35(1) rights.

The Migratory Birds Convention Act, 1994[25]: Article XI commits the US and Canada to: "the long-term conservation of shared species of migratory birds for their nutritional, social, cultural, spiritual, ecological, economic, and aesthetic values…". This article is of general application, i.e., there is no intent to partition spiritual value to Aboriginal people whose rights are specifically protected under other sections. The *Act* does make specific provision for "Use of aboriginal and indigenous knowledge, institutions and practices".

The Canada National Parks Act[26]: S. 4.1 dedicates the National Parks to: "the people of Canada for their benefit, education and enjoyment, subject to this Act and the regulations, and the parks shall be maintained and made use of so as to leave them unimpaired for the enjoyment of future generations. Mention of spiritual value is confined to Aboriginal people in S.15.1(w), which authorizes "the use of park lands, and the use or removal of flora and other natural objects, by aboriginal people for traditional spiritual and ceremonial purposes". A generous reading of "benefit" in 4.1 would include the spiritual benefit of all Canadians.

The Corrections and Conditional Release Act[27] (1992, c. 20) S.75 provides inmates "reasonable opportunities to freely and openly participate in, and express, religion or spirituality." S. 83(1) affirms that "aboriginal spirituality and aboriginal spiritual leaders and elders have the same status as other religions and other religious leaders."

The Specific Claims Tribunal Act[28] (2008) recognizes spiritual value, but in the negative sense that a specific claim under the act is eligible only for monetary compensation to a maximum of $150 million, and shall not compensate for "any harm or loss that is not pecuniary in nature, including loss of a cultural or spiritual nature" (20.1.d(ii)). A liberal and remedial reading would suggest a) that spiritual value exists and b) is not amenable to financial compensation.

International policy directions

Major international conventions and agreements that address cultural and spiritual values include the Earth Charter, the UNESCO Convention on World Cultural and Natural Heritage, and the UN Convention on Intangible Cultural Heritage, the UN Declaration on the Rights of Indigenous People, the UN definition of food security and the UN *Code of Conduct for Responsible Fishing*.

[24] http://laws.justice.gc.ca/PDF/Statute/C/C-7.3.pdf
[25] http://laws.justice.gc.ca/en/showdoc/cs/M-7.01/20090624/en
[26] http://laws.justice.gc.ca/PDF/Statute/N/N-14.01.pdf
[27] http://laws.justice.gc.ca/PDF/Statute/C/C-44.6.pdf
[28] http://laws.justice.gc.ca/en/showdoc/cs/S-15.36/20090624/en

The Earth Charter[29] includes a commitment to: "Recognize and preserve the traditional knowledge and spiritual wisdom in all cultures that contribute to environmental protection and human well-being." (S. 8b, see also 12b).

The UN Convention on Intangible Cultural Heritage is silent on spiritual value, but the categories are inclusive, e.g., S. 1: "…the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith…"; and their expression in *inter alia,* 2(c) "social practices, rituals and festive events";

The UNESCO Convention [on] Protection of the World Cultural and Natural Heritage[30] deals extensively with both natural heritage (Article 1) and cultural heritage A.2). The distinction is problematic from the perspective of Aboriginal people and indeed emerging concepts of "social-ecological" systems and inclusion of humans in "ecosystem-based management". The intent to recognize and protect both is however clear. Note also that this instrument deals exclusively with the *physical* elements of cultural heritage, e.g., buildings, artworks, archaeological sites, and so must be read together with the preceding *Convention on Intangible Cultural Heritage*. Article I does in fact refer to *"…works of man* [sic] *or the combined works of nature and man,* [sic] *and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view."* Note that much of the modification of landscape in North America was achieved by what ethnobotanist Nancy Turner (2004) refers to as the "hand of woman". The role of women and children in food cultivation, preparation and gathering was as significant as it has been under-reported until recently.

The UN Declaration on Indigenous People[31] recognizes spiritual tradition as formative of indigenous rights. Other clauses affirm:

- "religious and spiritual property (II.2);
- "the right to manifest, practice, develop and teach their spiritual and religious traditions, customs and ceremonies (S12.1);
- consultation and measures to "protect indigenous children from economic exploitation and…[work that might be] …harmful to the child's health or physical, mental, spiritual, moral or social development (S.17.2);
- the right to "maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas… and to uphold their responsibilities to future generations in this regard" (S. 25);
- protection and redress for any activities with "adverse environmental, economic, social, cultural or spiritual impact." (S. 32);
- the right to "to promote, develop and maintain their institutional structures and their distinctive customs, spirituality, traditions, procedures, practices and, in the cases where they exist, juridical systems" (S. 34);
- the right for "Indigenous peoples, in particular those divided by international borders…to maintain and develop contacts, relations and cooperation, including activities for spiritual, cultural, political, economic and social purposes, with their own members as well as other peoples across borders. " (S.36).

[29] http://www.earthcharterinaction.org/content/pages/Read-the-Charter.html.
[30] http://whc.unesco.org/archive/convention-en.pdf
[31] http://www.un.org/esa/socdev/unpfii/en/drip.html

Canada has yet to sign the Declaration on Indigenous Rights, but it is noteworthy that Canadian Aboriginal people played a lead role in drafting the text and that the objections do not relate to the recognition and protection of cultural and spiritual values.

The UN Code of Conduct for Responsible Fishing[32] which Canada was also instrumental in developing (and has signed) provides as follows:

1. "recognises the nutritional, economic, social, environmental and cultural importance of fisheries,…" (Introduction);
2. "Conservation and management decisions for fisheries should be based on the best scientific evidence available, also taking into account traditional knowledge of the resources and their habitat…" (6.4);
3. States (e.g., Canada) to, "appropriately protect the rights of fishers and fishworkers, particularly those engaged in subsistence, small-scale and artisanal fisheries, to a secure and just livelihood, as well as preferential access, where appropriate, to traditional fishing grounds and resources in the waters under their national jurisdiction" (S. 6.18);
4. That in decisions on: "the use, conservation and management of fisheries resources, due recognition should be given, as appropriate, in accordance with national laws and regulations, to the traditional practices, needs and interests of indigenous people and local fishing communities which are highly dependent on fishery resources for their livelihood." (S. 7.6.6);
5. "In order to assist decision-making on the allocation and use of coastal resources, States should promote the assessment of their respective value taking into account economic, social and cultural factors." (10.2.2)
6. "States should investigate and document traditional fisheries knowledge and technologies, in particular those applied to small-scale fisheries, in order to assess their application to sustainable fisheries conservation, management and development." (12.12)

The Rome declaration on world food security[33] develops the theme of "nutritional importance" of fisheries in the introduction to the *FAO Code of Conduct*:

> *Food security exists when all people, at all times, have physical and economic access to sufficient, safe, nutritious and culturally appropriate food to meet their dietary needs and food preferences for an active and healthy life* (World Food Summit 1996).

The issue of food security, and of the cultural and spiritual connection which food provides between people, biota and the physical environment was significantly developed in the context of the impacts of overfishing on coastal communities on Canada's east and west coasts (Parrish *et al.* 2008), leading to the following revision:

> *Food security exists when all people, at all times, have access to enough, nutritious, safe, personally acceptable and culturally appropriate foods, produced in ways that are sustainable and that protect domestic food production.* (Parrish *et al.* 2007).

[32] http://www.fao.org/docrep/005/v9878e/v9878e00.htm
[33] http://www.fao.org/docrep/003/w3613e/w3613e00.htm

As used here, "sustainable" includes the concepts of ecological justice and "personally acceptable" and "domestic food production" addresses concerns including, but not limited to GM foods and the need to protect traditional practices.

The Marine Stewardship Council (MSC) is an international initiative to evaluate the sustainability of fisheries. MSC criteria[34] are based on the FAO *Code of Conduct (FAO 1995)* and a lengthy international consultation process. Bob Johannes, a pioneer of the importance of indigenous and small-scale fisheries (e.g., Johannes 1981; 2007) worked in the formative stages to ensure that these considerations were included. While his suggestions were somewhat watered down (Tony Pitcher, UBC Fisheries Centre *pers. comm.* 2009), they remain central to the management system criteria which:

> *"shall…be appropriate to the cultural context, scale and intensity of the fishery…* [and]*…observe the legal and customary rights and long term interests of people dependent on fishing for food and livelihood, in a manner consistent with ecological sustainability…"*

Towards a liberal and remedial approach to cultural and spiritual values

This review of in international and Canadian policy and legislation shows that cultural and spiritual values are covered under the rubric of 'heritage' where not explicitly stated. While it might seem a 'reach' to look to the Corrections and Geneva Convention Acts, it is notable that, when life comes down to basics, that "physical, spiritual and intellectual' considerations get equal weight. The requirement to consult with all sectors of society under newer legislation such as the Oceans Act and SARA and the duty to consult with Aboriginal people sets the stage for exploration of what these values mean to Canadians and what they might contribute to ecosystem-based policy and decision-making.

[34] http://www.msc.org/documents/msc-standards/MSC_environmental_standard_for_sustainable_fishing.pdf

VI—CONCLUSIONS AND RECOMMENDATIONS

The dismal failure of fisheries management based primarily on discounted utilitarianism points to an urgent need for extended valuation of the qualities that sustained some of the richest societies on the planet for 1,000s of years and why, for example, 51% of the US population lives within 100 km of the coast and accounts for 57% of the economy (Rappaport and Sachs 2003).

No matter how sophisticated, calculations of total economic value and/or ecosystem services do not represent the spiritual value of nature, whether as Richard Dawkins' "reverence for life and the universe" (Gledhill 2007), Einstein's "cosmic Religious consciousness" (Einstein 1954) or E.O. Wilson's '*Biophilia*' (Wilson 1984).

It has been suggested that economics should speak to means, not to ends (Ludwig 2000). Senior economists have concluded that cost benefit analysis is "neither necessary nor sufficient" to guide public policy in environmental health and safety (Arrow *et al.* 1996). Similarly, I conclude that total economic value and ecosystem services are 'necessary, but not sufficient' for full ecosystem evaluation. They do not address Michael Toman's "serious underestimate of infinity" (Toman 1998) or the zero or infinite values provided in willingness to pay surveys. Nor do they address the fact that most people are unwilling to set a price on cultural and spiritual values.

The tension between the 'willingness to pay' metric and what may well be recognition of a spiritual value, hints at the potential usefulness of spiritual value as a 'bridge' between the polar opposites of intrinsic and instrumental value. In summary:

- Interactions between people, biota and landscape in the Pacific Northwest proved sustainable over 1,000s of years (Braje *et al.* 2009; Trosper 2009; Campbell and Butler 2010);

- Resource management systems reflected the interpenetration of human, physical, biological and spiritual elements that continue in the transformation themes in Aboriginal art and dance;

- Transformation of species into market commodities and privileging of the economic motive has depleted fisheries and compromised ecosystem structure;

- Extended valuation frameworks such as total economic value and ecosystem services are necessary, but not sufficient to describe the emergent qualities of coastal ecosystems that shaped some of the richest cultures on the planet or to sustain them into the deep future;

- Concerns about incorporation of spiritual values based on the intrusion of individual religions in civil society are adequately addressed by the Charter of Rights and Freedoms;

- Principles of religious freedom and multiculturalism set a context to explore the insights, knowledge and approaches that the cultural and spiritual values of Aboriginal people and other religions and belief system bring to our understand of social-ecological systems;

- Increasing recognition of cultural and spiritual values in the international and Canadian context requires that ways be developed to incorporate these considerations into policy and legislation on a consistent basis for all Canadians;

- The role of fisheries as vital to the "cultural and physical survival" of Aboriginal people and the duties of "liberal and remedial" interpretation and consultation put Aboriginal people in a strong position to lead incorporation of cultural and spiritual values in the national Oceans Strategy, integrated management, ecosystem-based management and other matters;

- Legislation such as the *Fisheries Act* that is silent on cultural and spiritual values must be re-interpreted in the light of increasing recognition of cultural and spiritual values for Canadians in general and duties to Aboriginal people;

- SARA must be read in the larger context of evolving understand of cultural and spiritual values, generous interpretation, consultation and precautionary, ecosystem-based management.

Implications for eulachon

The remaining Aboriginal fisheries on eulachon are not deemed to be a major or even significant contributor to decline. Any curtailment under external constraint such as SARA would have a devastating effect on culture and the inter-generational transfer of knowledge. It is in any case likely that Aboriginal people will self-regulate;

The tables, graphs and scholarly descriptions of decline in scientific assessments must not be separated from the language of love, grief, loss and despair (which may well reflect the personal feelings of the scientific authors);

A survey of the web of connections and scope of the values surrounding eulachon is indicated. A start might be made by co-authored papers, but raising public awareness requires collaboration between natural and social scientists, artists and spiritual leaders;

A 'deliberative democracy' project, along the lines that have explored public response to cloning the salmon genome, but with the explicit addition of the cultural and spiritual values dimension might prove productive.

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