ABSTRACT

> *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).

The preamble to Canada's Species at risk Act (SARA) sets the stage for exploration of the extent to which one little fish should influence Pacific Northwest fisheries policy and decision-making. The fish in question, the eulachon, *Thaleichthys pacificus*, was the fifth in market value in British Columbia in 1912 (Scott and Crossman 1973). Eulachon are currently of no commercial value. Eulachon were and are important to the culture and economy of coastal Aboriginal peoples. They are also of significant importance to many marine and terrestrial species and may even be a keystone species (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 SARA (Pickard and Marmorek 2007) and a request to list the southern eulachon population under the US *Endangered Species Act* (NOAA 2010). Listing would 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). It may also interfere with Aboriginal harvest in areas where runs are still strong or adequate.

There is no doubt about the cultural and spiritual value of eulachon and other species to Aboriginal people. The over-arching question is not 'commercial value', but how much cultural and spiritual values matter to the rest of society whether they are accommodated under existing policy and legislation. This broad context is essential to lift the debate above the balancing of economic interests and to entertain non-monetary approaches to incorporation of spiritual values in policy and decision-making. For this reason, I examine international and Canadian legislation to determine where such values are covered and where existing legislation may need to be reinterpreted.

> *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. Emergent properties as indicated in the above, Millennium Ecosystem Assessment quote, are not only greater, but profoundly different than the sum of the parts. This means that the qualities of species, people or places that we value most cannot be properly represented by even the most sophisticated ecosystem services framework.

Expressions of the sacred will inevitably vary with the particular characteristics of lands, waters and species. What Garibaldi and Turner {{285 Garibaldi, A. 2004/a;}} refer to as "cultural keystone species" are thus nodes within a spatial and temporal web of ecological and social relationships. This notion would extend the concept of social-ecological systems (Berkes *et al.* 1998; Berkes *et al.* 2003) to include a spiritual dimension. This concept of the sacred is inextricably linked to the flourishing of species, environment and human communities.

On a personal level, a sense of the sacred may be felt as a powerful connection to other lifeforms and the environment, whether walking in the woods, on the beach or out on the water. Almost anything, from the first spring flower to a killer whale jumping beside your boat, can trigger this sense of 'belonging'. We love the world we live in. We fight to protect things because we love them and we'd miss them desperately if they were gone. How can we 'measure' the spiritual value of nature as referenced in the preamble to the "Species at Risk Act', 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).

Conclusions

The dismal failure of single-species fisheries management 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, 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 determine public policy in environmental health and safety (Arrow *et al.* 1996). Similarly, 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. 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);

- Traditional Aboriginal societies 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;

- 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 to reflect the values of 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 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.