

# STATE OF THE SALMON

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## CRAFTING SOCIO-ECONOMIC INDICATORS (SEI) FOR SALMON SUSTAINABILITY

### Workshop Report

A State of the Salmon Workshop  
October 11 & 12, 2005  
Portland, Oregon

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*“It is possible to create socio-economic indicators— indeed many are used already— for salmon sustainability that are measurable and show important trends in the fishery sector. The challenge is that there is no common language, no common usage, and no agreement on what such indicators mean or what they are intended to do... What we need is a socio-economic State of the Salmon to provide these common metrics.”*

*- Dr. Gunnar Knapp*

*University of Alaska- Institute of Social and Economic Research*

## **INTRODUCTION**

This report is the initial proceedings from the State of the Salmon (SoS) Consortium’s workshop “Crafting Socio-economic Indicators of Salmon Sustainability,” which was held in Portland, Oregon from October 11-12, 2005. The workshop emerged from State of the Salmon’s effort to monitor the biological status and trends of Pacific salmon (*Oncorhynchus species*) across the North Pacific and our realization that there is presently no similar, coordinated effort to track the social and economic conditions of salmon dependent fishing communities.

In recent years, measurements of progress towards commercial fishery sustainability have become an increasingly important policy objective, and the use of environmental indicators is now widespread in many countries. However, little attention has been paid to the development of socio-economic indicators that serve to assess progress on other aspects of sustainable development (OECD 2003).

Humans directly or indirectly affect almost all aquatic systems. Therefore, we cannot understand, nor ensure, sustainability of salmon fisheries without examining the interdependencies between species, habitat, and human communities. Indeed, information for managing watershed and marine ecosystems is incomplete without consideration of human institutions (Lee 1992).

In attendance at our two-day workshop were a variety of salmon specialists representing a diverse set of experiences including experts in fisheries economics, sociology, rural development , commercial fishers, and representatives from both native groups and existing sustainability certification systems. The goal of the workshop was to assess the feasibility of creating socio-economic indicators of salmon fisheries sustainability. We intended to build on the various, disparate third party certification and sustainability systems available today. Workshop participants articulated a vision, goal and suite of objectives to guide this proposed effort:

**Vision:** To support sustainable salmon fisheries and healthy salmon-dependent fisheries communities by strengthening fishery certification processes and leveraging improved standards and best management practices across the Pacific Rim.

**Goal:** Conduct independent State of the Salmon research that informs and improves socio-economic evaluation of salmon fisheries and salmon dependent community sustainability.

### **Project Objectives:**

- A. Define core values of socio-economic salmon sustainability and crucial benchmarks for measuring progress towards these goals
- B. Identify a suite of socio-economic indicators (SEIs) that measure socio-economic sustainability of salmon fisheries and salmon-dependent fishing communities
- C. Design a research project to comparatively tests SEIs on one or more salmon communities and results in a peer reviewed, published paper and/or targeted report for public consumption
- D. Identify several academic researchers to collaborate on an ongoing research project
- E. Above all, ensure that our identified values and indicators maintain real world applicability

## **THE ROLE OF THE STATE OF THE SALMON CONSORTIUM**

The State of the Salmon Consortium (SoS), a joint program of Ecotrust and the Wild Salmon Center, is a cooperatively organized, integrated source of information and knowledge of the status and trends of Pacific salmon. SoS is dedicated to improving understanding of salmon status and trends across the North Pacific-- and building a knowledge network that can inform salmon conservation and management decisions in the future. A main objective is to develop a coordinated, international monitoring and assessment strategy that will advance the knowledge of the status and trends of North Pacific salmon. Our breadth of geographic and disciplinary expertise and our experience working collaboratively with salmon stakeholders (fishing communities, agencies, tribes, academic institutions) across the Pacific makes us uniquely placed to design this monitoring strategy. In order to complete the picture of salmon ecosystem health, or lack thereof, across the North Pacific, we are scoping the practicability of developing socio-economic indicators of salmon sustainability.

## RESEARCH FRAMEWORK

The North Pacific is a vast ecosystem with widely divergent commercial salmon fisheries (seine, troll, hook and line, drift net, gill net, etc). Likewise, the human communities that depend on salmon come in all shapes, sizes, and degrees of organization (towns, cities, cooperative fisheries, artisanal fisheries, etc). This variety implies that any system of socio-economic indicators we develop be sufficiently flexible so as to deal with different scales of fisheries and communities while at the same time allowing for inter-jurisdictional comparison of common measurements. We proposed at the workshop a two-tiered approach to creating and analyzing socio-economic conditions across the Pacific.

- **Tier 1** would provide data at a national or regional scale allowing for comparisons across nations.
- **Tier 2** would provide higher-grain data at the fishing community level.

The tiered approach would allow for a scaled level of resolution but would still be consistent with existing data collection methods and units (generally national, statewide, municipal level, individual fishery level).

We identified the following framework to guide our proposed research:

- **Scope:** Commercial salmon (*Oncorhynchus species*) fisheries
- **Stratification:** Level II and Level III Salmon Ecoregions
- **Spatial Extent:** North Pacific Rim
- **Spatial Units:** **Tier 1-** National, state or regional level  
**Tier 2-** Fishing community level

Finally, workshop participants suggested developing a pilot project or case study for our initial scoping phase to test the workability of proposed indicators. Suggestions included a Pan-pacific comparison of socio-economic conditions at the national or regional level (Tier 1) such as Japan vs. the Russian Far East alongside a more detailed analysis of a discrete region (Tier 2) such as coastal BC or the Arctic-Kuskokwim-Yukon region of Western Alaska.

## WORKSHOP PARTICIPANTS

In attendance at the workshop was an interdisciplinary group of experts representing a breadth of experiences from across the spectrum of salmon issues. We modeled the organization of our workshop after the guidelines for developing standards laid out by the Marine Stewardship Council and the ISEAL Alliance.<sup>1</sup> These guidelines encourage that stakeholder workshops be as interdisciplinary and representative as possible in order to build credibility in our exercise and decrease likelihood of substantive and procedural objections. Workshop participants included:

1. Mr. Edward Backus, State of the Salmon
2. Mr. Brian Caouette, State of the Salmon
3. Ms. Barbara Emley, Commercial California Chinook salmon fisher
4. Ms. Dana Foley, State of the Salmon
5. Mr. Jim Humphreys, Marine Stewardship Council
6. Ms. Nadja Kasperczyk, Institute for Rural Development Research
7. Dr. Gunnar Knapp, University of Alaska Institute of Social and Economic Research
8. Dr. Sarah Kruse, Ecotrust
9. Mr. Will Novy-Hildesly, Peregrine Consulting
10. Mr. Henry Oyoumick, Unalakleet Native Corporation
11. Mr. Olaf Paulsen, Fair Trade Labeling consultant
12. Dr. Evelyn Pinkerton, Simon Fraser University
13. Mr. Greg Robillard, State of the Salmon
14. Dr. Astrid Scholz, Ecotrust
15. Mr. Eric Enno Tam, Ecotrust Canada

### **SELECT PRESENTATIONS**

Olaf Paulsen- Mr. Paulsen, an expert consultant on Fair Trade labeling, presented on the process for creating indicators and used his experience with developing Fairtrade standards for the European Union to inform our exercise and provide important lessons. For example, Mr. Paulsen offered a conceptual framework for the standards development process. This included:

- Vision- Standard
- Core Objectives- Principle
- Requirement to be met- Criterion
- Concrete performance reference for criterion- Indicator
- Reference values to provide context- Benchmarks

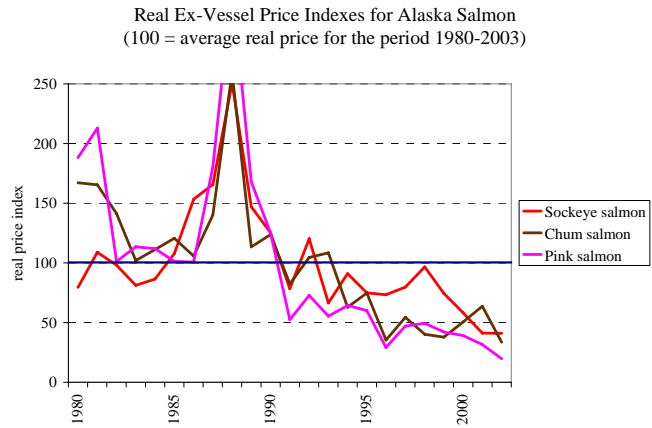
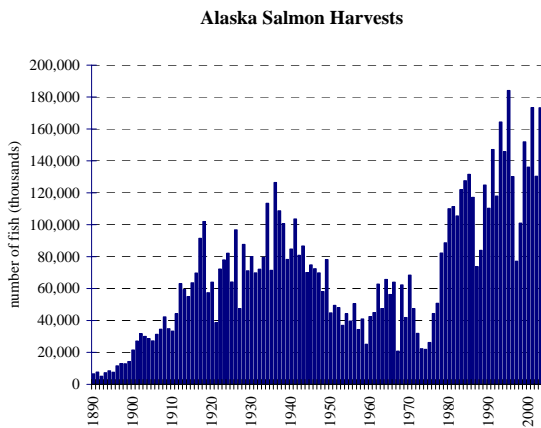
Mr. Paulsen also provided us with key steps to develop indicators, which included:

1. Transparent Process- ISEAL Code
2. Inclusive Process- all stakeholders involved in the process
3. Participatory process- equal representation at all levels

Gunnar Knapp- Dr. Knapp gave a presentation about available indicators for use in socio-economic analysis of salmon fisheries. He provided two important insights: first, that there are many different techniques to measure sustainability in the socio-economic realm and the indicator that one utilizes can paint different pictures of these conditions. For example, note the following two graphs about the “success” of Alaska’s salmon management.

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<sup>1</sup> International Social and Environmental Accreditation and Labeling Alliance (ISEAL Alliance). *Stakeholder Consultation Practices in Standards Development*. September, 2005.  
Marine Stewardship Council. *Guidance for Certification Bodies on Stakeholder Consultation in Fishery Assessments*. V. 2. December, 2004.



On the left, we see a graph of annual salmon harvests that ADFG commonly uses to show the “success” of Alaska state salmon management. On the right—the ex-vessel value (price paid at port) of Alaska’s salmon fisheries—denotes a dramatic loss of value. The graphs’ juxtaposition reveals that high catches do not necessarily mean that the Alaska salmon fishery is doing well economically. In other words, a biologically sustainable fishery is not necessarily an economically or socially sustainable fishery.

His second insight was about the process for creating indicators. According to Dr. Knapp, the first step in this process is to understand and identify the socio-economic values that define our objectives. Defining such values can be an arduous task and difficult to achieve consensus on, but identifying indicators is not possible without it.

## A REVIEW OF SUSTAINABILITY INDICATORS

Sustainability indicators are pointers, which, through monitoring, can reveal the conditions and trends in a fishery sector. They allow us to “measure” the sustainability of the fishery sector, fishery policy, and management performance in relation to the various components of the fishery system. Indicators can be a quantitative or qualitative variable, which are measurable and demonstrate trends. In essence, indicators can tell us if we are meeting the goals of sustainability and can direct policy makers to components of a fisheries system in need of improvement. If well made, they can facilitate informed decision-making.

There are many challenges in creating sustainability indicators. First, there needs to be an agreed upon value system and overarching goals of the system that indicators measure progress towards. Issue of scale, values and indicator type all require decision making on the part of researchers. See the section entitled “Research Challenges” for more information.

-García, S. *Indicators for Sustainable Development of Fisheries*. Paper presented at FAO’s 2<sup>nd</sup> World Fisheries Congress. 1996.

## INDICATOR CATEGORIES

This workshop identified three major domains of salmon sustainability as the basic reporting unit to define the condition of salmon and human ecosystem health:

1. Social capital
2. Economic capital
3. Natural capital

Under each domain, there are myriad values or criteria that we identified as important elements. Within each of these values, there may be multiple indicators or metrics that evaluate progress towards such value goals. The following section briefly lists the values we ascribed to and the corresponding indicators.

## IDENTIFIED VALUES

Although we had hoped to reach the indicator identification stage during this first workshop, we discovered that we would more effectively initiate this exercise by defining the underlying values or criteria. We decided to spend the remainder of our time discussing and selecting the core values of socio-economic salmon sustainability— assuming that indicators would flow from there.

Note: draft values are identified below under the rubric of “criteria” and “subcriteria” while draft indicators are in parenthesis.

### Theme 1- Social Capital

Criteria: Equitable Access

Subcriteria

- Principle of Adjacency- access rights provided to individuals who live closest to the fishery
- Historical Dependency
- Tribal access
- Affordable access to fishery (existence of loan program, access to capital, cost per entry/ value of quota)
- Owner-operator Principle
- Fair access for “communities of interest”

Criteria: Cultural Wellbeing

Subcriteria

- Cultural continuity within fishery/ Succession rate
- High social status of fishing community
- Maintenance of traditional knowledge, expertise, technology
- Balanced capital investment and technology
- First nation right to ceremonial use of salmon; institutions exist to support this use
- Native right within the commercial fishery
- Salmon recognized as totem species, keystone species, indicator species, etc

Criteria: Community Wellbeing

Subcriteria

- Healthy civil society in fishing community
- Healthy people (health index vs. salmon consumption)
- Diversified fisheries and job opportunities; economic diversification
- Right kind of government support (buy-back, retraining programs, etc)
- Community compliance with fisheries regulations
- Maintaining youthful fishery (median age of fishers)
- Crew safety

Criteria: Effective management regime

Subcriteria

- Management Accountability
- Representative and equitability (Multi-stakeholder forum involved in setting management policy)
- Adaptive management

Criteria: Stewardship

Subcriteria

- Effective habitat protection; stewardship
- Community participation in conservation initiatives

- Level of volunteerism
- Identity of personal wellbeing connected to resource wellbeing
- Watershed councils and salmon conservation constituency

## **Theme 2- Economic Capital**

### Criteria: Trade and Market

#### Subcriteria

- Access to international markets (infrastructure, distribution network)
- Fair Price
- Degree of embedded-ness in global industry
- Contribution of fish to household economy
- Economic contribution of sport fishing
- High quality product
- Investment in post-harvest production
- Regional marketing and value added
- Level of entrepreneurship, institutional support for entrepreneurship
- Community based fisheries management
- Value added in the community; processing plant in local community
- Fair and equitable access to fishery
- Infrastructure availability, transportation and costs; potential to ship to market; Working water fronts;
- Competition and innovation (number of processors/operators in industry)
- Vertical integration- harvesting rights, cold storage, processing
- Income disparity- living wage?, Crew, captain, owner relationship
- Fishermen's share of wholesale value
- Access to local, efficient processing
- Existence of collective bargaining, workers compensation

### Criteria: Asset and Investment

#### Subcriteria

- Existence of government support (vessel buy-back, unemployment insurance, low interest loans, tax breaks, "social safety net")
- Off-season employment; Access to capital
- Overcapitalization? (Horse power growth in fishery instead of just boat size)
- Level of indebtedness (Ownership vs. indebtedness; market value of harvesting privileges vs. actual revenue)
- Latent quota (Level of unused fishing permits)
- Investment in right type of vessel and technology
- Rate of return on investment( profitability per investment in technology or boats or licenses)
- Financial indicators (earnings, costs, profits, rate of returns, financial health of fishing industry)...

## **RESEARCH CHALLENGES**

There will be many challenges as we move ahead into the indicator development phase. Some are ubiquitous to all indicator development projects, while others are unique to socio-economic salmon sustainability. We need to be constantly assessing our methods with these challenges in mind. The following bullet points summarize the challenges identified at our workshop:

- **How does one define a salmon-dependent fishing community?** In terms of our immediate workshop participants, we had two salmon fishers, Barbara Emley from San Francisco Bay Chinook fishery and Henry Oyoumick from Unalakleet, Western Alaska. Can we say that both came from salmon dependent fishing communities? How do we delineate these units? By the fisheries contribution to local GDP? Alternatively, simply by any community that is involved in the catch, processing, distribution of a salmon fishery?
- **Data challenges and scale-** Data availability and their quality and quantity vary greatly between fisheries and countries. Generally, more data is available on biological and environmental components than on socio-economic ones. The indicators chosen at the global and regional levels must have data requirements that can be broadly met across countries, and from small-scale to industrial fisheries. We need to agree on a common minimum set of information to be collected if the objective is to assess socio-economic conditions at a regional or global scale.
- **Communication and reporting findings-** If there is one evaluation criterion that must reign supreme in selecting our indicators, it is that all potential indicators must have policy relevance. They should enable a reader to assess the level of progress as well as usefulness of the indicator system. They should be simple to read, and written in language understandable by all stakeholders.
- How to establish **causal linkage** between socio-economic conditions of a given community and salmon management. For example, if we identify level of education as an important indicator of community well-being how do we demonstrate that management decisions impacted that? It may be difficult to tease apart indicators and impact. Further, indicators may give us mixed messages— for example, one indicator that seems positive in socio-economic realm (increase in value of fish) may actually indicate a problem in natural capital (resource scarcity).
- What is the **connection between healthy human communities and healthy environment?** We must ensure that whatever indicators we use get to the core issue of sustainability— that the resource is harvested at a level that guarantees continued use for future generations.

## CONCLUSION

While several third party certifications and standards that evaluate salmon fisheries sustainability today do incorporate minimum socio-economic standards of salmon fisheries sustainability, their level of detail and emphasis is much less than those used for biological indicators. Furthermore, there is no consensus on what and/or how to measure these components. The State of the Salmon Consortium and our partners intend to build on existing socio-economic measurements and facilitate standardized socio-economic data that can allow for detailed evaluation and comparison of socio-economic sustainability across the North Pacific. Ultimately, our goal is to facilitate informed decision making in salmon fisheries management.

## NEXT STEPS

Objectives	Completed By
1. Identify research partners	Dec. 2005
2. Identify funding opportunities and complete grant proposal	Dec. 2005
3. Refine indicators and benchmarks	Spring 2006
4. 2nd SoS workshop to assess progress and strategize future work	Spring 2006
5. Initiate case study and pilot project at two scales	Summer 2006
6. Test and Validate research with peer review	Fall 2006
7. Publish findings in scholarly journal	Winter 2006