

Salmon Aquaculture Dialogue
 Draft Principles and Criteria for environmentally, socially, and economically responsible salmon farming

This document contains the draft principles and rough draft criteria developed by the Salmon Aquaculture Dialogue as of October 2008. Draft principles were presented and discussed at a Dialogue meeting in January 2008, and edited based on feedback from that meeting and further Steering Committee discussion. The draft principles were posted on the website for public comment for a 60-day period ending October 15, 2008. Rough draft criteria were developed by the steering committee and are being presented for discussion and revision at the November 2008 meeting of the salmon Dialogue. This document incorporates many ideas from these individuals and there may be overlap among the criteria among principles. Ultimately, we want to identify priority criteria, eliminate redundancies and minimize the number of criteria per principle. The relevant areas of impact, from the seven key impact areas identified in the salmon Dialogue, are listed for each principle.

Background and Definitions

The Salmon Aquaculture Dialogue is a science-based forum initiated by World Wildlife Fund (WWF) in 2004. The goal of the Dialogue is to credibly develop measurable, performance-based standards that minimize or eliminate the key environmental and social impacts of salmon farming, while permitting the industry to remain economically viable. The standards can be the basis for an aquaculture certification program. They also can be used to benchmark other standards; incorporated into existing certification programs; adopted for government programs; and, potentially, be the foundation for buyer and investment screens. More information on the Dialogue, including details on the multi-stakeholder Steering Committee, is available at <http://www.worldwildlife.org/salmondialogue>.

The Dialogue is iterative, participatory, process that began with identifying the key environmental and social impacts of salmon production. Next, agreement will be reached on principles, criteria, indicators and standards, with each phase building on the previous phase. These terms are defined in the table below.

	<i>Definition</i>	<i>Non-aquaculture example</i>	<i>Aquaculture example</i>
<i>Impact</i>	The problem we want to minimize	Overweight	Water pollution
<i>Principle</i>	The guiding principle for addressing the impact	Maintain a healthy weight	Conserve and protect water resources
<i>Criteria</i>	The area to focus on to address the impact	Food consumption *	Effluents*
<i>Indicator</i>	What to measure in order to determine the extent of the impact	Calories	Nitrogen concentration in the effluent
<i>Standard</i>	The number and/or performance level that must be reached to determine if the impact is being minimized **	< 10 calories/pound of body weight/day	4 mg/L total nitrogen in effluent

*For this example, only one criteria is listed, even though there often are several criteria for each principle, as well as several indicators for each criteria.

**A number is not necessary when an indicator cannot be measured (e.g., the indicator for the principle “obey the law,” which might be “documentation of compliance with national and local regulations”).

One example of principle, criteria, indicator, and standard that could be considered in the Salmon Dialogue is as follows:

Principle: Manage disease and parasites in an environmentally responsible manner (draft principle 5 below)
Criteria: Survival farmed fish (this would be one of several criteria falling under this principle)
Indicator: Percent mortalities annually
Standard: X% mortalities

Draft Principles and Criteria

The principles serve as a platform to minimize the social and environmental impacts of salmon aquaculture while permitting the salmon farming industry to remain economically viable. These principles, along with the corresponding criteria, indicators and standards which are in development, are applicable at the farm level. Achieving the suite of principles to standards will entail farms having a high level of transparency and regular monitoring of a number of key indicators. Although these are farm-level standards, they are intended to help protect and maintain ecosystem function and ecosystem services in salmon producing areas, with the recognition that aquaculture operations are not solely responsible for total ecosystem health. The standards are intended to be revisited and updated periodically (e.g. every 3 years) to ensure that the standards are based on best available scientific knowledge and management practices and to encourage continuous improvement.

Principle 1: Obey all applicable international and national laws, and comply with local regulations.

CRITERIA

- 1.1 Compliance with relevant local, national, and international legal requirements and regulations

Principle 2: Conserve natural habitat and local biodiversity [and ecosystem services]

Relevant impacts: benthic, nutrient loading, escapes, disease/parasites, siting, chemical inputs

CRITERIA

- 2.1 Benthic biodiversity and benthic effects
- 2.2 Eutrophication/Water quality
- 2.3 Discharge of effluents/Nutrient Release
- 2.4 Escapes
- 2.5 Incidence of disease & parasites on farms and in the environment
- 2.6 Impact of farm operations on ecosystem service provision (clean water, nutrient recycling, food chain structure, etc)
- 2.7 Proximity to critical or highly sensitive habitats
- 2.8 Local biodiversity (wildlife) and predators

Principle 3: Protect the health and genetic integrity of wild populations

Relevant impacts: disease/parasites, escapes, chemicals, siting

CRITERIA

- 3.1 Introduced or amplified parasites and pathogens
- 3.2 Introduced exotic or GMO species
- 3.3 Escapes
- 3.4 Chemical use
- 3.5 Proximity to wild salmon populations/runs
- 3.6 Health and genetic integrity of local wild stocks of Atlantic and Pacific salmon

Principle 4: Use resources in an environmentally efficient and responsible manner

Relevant impacts: feed, chemical inputs

CRITERIA

- 4.1 Use of wild fish for feed (dependency on marine protein and lipid sources)
- 4.2 Source of marine raw materials (i.e. origin of fish used in feeds)
- 4.3 Fishmeal and/or fish oil produced
- 4.4 Chemical inputs
- 4.5 Carbon footprint for feed sources
- 4.6 Energy use
- 4.7 Waste from production (other than biological waste)
- 4.8 Nutrient utilization efficiency
- 4.9 Environmental policy of feed producer
- 4.10 Source of vegetable raw materials in feed

Principle 5: Manage disease and parasites in an environmentally responsible manner

Relevant impacts: disease/parasites, chemical

CRITERIA

- 5.1 Survival and health of farmed fish
- 5.2 Contamination levels in other local organisms
- 5.3 Use of vaccines, chemicals, and antibiotics
- 5.4 Prevention over chemical treatment
- 5.5 The development of disease/parasite resistance to chemical options
- 5.6 Origin of fish species used in salmon feed and use of non-processed fish
- 5.7 Effluents from slaughter process

Principle 6: Develop and operate farms in a socially responsible manner

Relevant impacts: social impacts

CRITERIA

- 6.1 Freedom of Association and Collective bargaining
- 6.2 Child Labor
- 6.3 Forced, Bonded, or Compulsory Labor
- 6.4 Discrimination

- 6.5 Health and Safety
- 6.6 Wages
- 6.7 Contracts/subcontracting
- 6.8 Conflict resolution, complaint procedures, and whistle-blower protection

Principle 7: Be a good neighbor and conscientious citizen

Relevant impacts: social impacts

CRITERIA

- 7.1 Community involvement (*needs definition*)
- 7.2 Farm siting
- 7.3 Respect for aboriginal cultures and traditional territories