NASCO Guidelines for the Management of Salmon Fisheries

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C O N T E N T S

		Page
Preface		**(i)**
NASCO Guidelines for the Management of Salmon Fisheries		**1**
1.	Introduction	1
2.	Key elements of management	2
2.1	Decision-making process	2
2.2	Description of fisheries and the stocks exploited	2
2.3	Powers to control exploitation	2
2.4	Reference points (conservation limits or other measures of abundance and diversity)	3
2.5	Achievement of the reference points or other measures of abundance and diversity	3
2.6	Other factors influencing the stock(s)	4
2.7	Management actions to control harvest	4
2.8	Mixed-stock fisheries (MSFs)	4
2.9	Socio-economic factors	5
2.10	Effectiveness of management measures	5
Annex 1	Guiding Definitions of Terms used in Salmon Fisheries Management	**6**

Preface

The need to regulate exploitation of Atlantic salmon in order to conserve this valuable resource has long been recognized with early management measures dating back to the middle ages. A wide variety of management approaches has been employed. Of course, today there is much more scientific and statistical data to inform management decisions. Even in relatively recent times, in the twenty-five years since NASCO's establishment, there have been major changes in the management of salmon fisheries all around the North Atlantic in response to the scientific advice. These measures were introduced both for domestic reasons and in recognition of international obligations under the NASCO Convention. They have included major reductions in quotas and effort, closure of some fisheries either with or without compensation payments, and increasing use of catch and release recreational fishing. Adapting the management regimes to the reduced abundance of salmon has been a considerable challenge involving sacrifices in commercial, recreational and subsistence fisheries. However, in spite of all these efforts abundance remains low, and in some areas critically low, with many stocks well below their conservation limits (CLs). Further details of the measures taken are available at www.nasco.int/fisheries.html.

In response to this situation, NASCO and its Parties agreed to adopt and apply a Precautionary Approach to the conservation, management and exploitation of salmon in order to protect the resource and preserve the environments in which it lives (see www.nasco.int/pa.html). The objective of NASCO and its Parties for the management of salmon fisheries is "to promote and protect the diversity and abundance of salmon stocks". NASCO also seeks fairness and balance in the management of homewater and distant-water fisheries.

To assist in applying the Precautionary Approach to the management of salmon fisheries, NASCO developed a Decision Structure (see www.nasco.int/fisheries.html) to provide a more consistent approach to the management of exploitation throughout the North Atlantic. The Decision Structure proposes the use of reference points, such as conservation limits and management targets, or other indicators of stock status, to trigger management actions to address any failure in abundance or diversity. NASCO has also adopted Guidelines for Incorporating Social and Economic Factors in Decisions under the Precautionary Approach (see www.nasco.int/socioeconomics.html).

Having reviewed the different approaches to salmon management in each jurisdiction, the guidelines in this brochure were developed with the aims of clarifying the interpretation of NASCO's agreements relating to the management of salmon fisheries, assisting the jurisdictions in making further progress in implementing these agreements, and identifying what further actions are needed.

We believe that widespread implementation of these internationally agreed guidelines will be a further step in ensuring that this valuable resource is well managed and that exploitation is at levels that protect the diversity and abundance of the resource.

Árni Ísaksson, President of NASCO

Dr Malcolm Windsor, Secretary of NASCO

NASCO Guidelines for the Management of Salmon Fisheries

CNL(09)43

1. Introduction

NASCO and its Parties have agreed to adopt and apply a Precautionary Approach to the conservation, management and exploitation of salmon in order to protect the resource and preserve the environments in which it lives. Accordingly, their objective for the management of salmon fisheries is **to promote and protect the diversity and abundance of salmon stocks**, and in support of this, they have developed the following guidelines and agreements:

- The Agreement on Adoption of a Precautionary Approach, CNL(98)46;
- The Decision Structure to Aid the Council and Commissions of NASCO and the relevant authorities in Implementing the Precautionary Approach to Management of North Atlantic Salmon Fisheries, CNL31.332;
- The Minimum Standard for Catch Statistics, CNL(93)51.

NASCO has also agreed 'Guiding Definitions of Terms used in Salmon Fisheries Management', SCPA(00)11, which are contained in Annex 1, and has developed the following guidelines which are also relevant to the management of salmon fisheries:

- Guidelines for Incorporating Social and Economic Factors in Decisions Under the Precautionary Approach, CNL (04)57;
- Guidelines on the Use of Stock Rebuilding Programmes in the Context of the Precautionary Management of Salmon Stocks, CNL(04)55.

The intention in developing these guidelines is:

- to assist the jurisdictions in making further progress in implementing these agreements and guidelines;
- to provide a basis for, and an exchange of information on, more consistent approaches to the management of fisheries around the North Atlantic;
- to assist jurisdictions in the preparation of future Focus Area Reports (FARs) on Fisheries Management as well as the process for reviewing the FARs; and
- to assist in the identification of what additional actions may be required. NASCO is also seeking to improve fairness and balance in the management of homewater and distant-water fisheries.

These guidelines are intended to serve as guidance to the NASCO Parties for the management of wild salmon fisheries subject to their national legislation.

2. Key elements of management

It is recognised that the size of salmon stocks, the management responsibilities and approaches, and the resources available for fishery management vary considerably among countries. The mixed-stock distant-water salmon fisheries at West Greenland and the Faroes are subject to regulatory measures or decisions agreed within NASCO, but NASCO cannot be prescriptive about the specific approaches that are used to manage homewater salmon fisheries. Nonetheless, to protect the abundance and diversity of salmon stocks, the following elements of the agreements and guidelines should be being applied in all jurisdictions or there should be a clear timescale for achieving this.

2.1 Decision-making process

a. Consistent with the application of the Precautionary Approach, there should be clear descriptions available to all stakeholders of the process by which management decisions will be taken, together with an indication of the types of decisions that might be expected under different stock conditions; this could take the form of a flow diagram or decision structure.

2.2 Description of the fisheries and the stocks exploited

a. A range of information should be collected on a routine basis through reporting and monitoring programmes, time series should be maintained, and reports should be published. This information should be collected for recreational, commercial, subsistence and scientific fisheries and include:

   – records of fishing activity (e.g. licence numbers, gear type, effort, location and timing);

   – catch statistics (e.g. number, size, age and river of origin of fish caught (both retained and released)); and

   – estimates of the level of unreported catches and other mortalities associated with the fishery.

b. Information should be sought on the by-catch of salmon in fisheries for other species and efforts made to identify their river of origin.

2.3 Powers to control exploitation

a. Managers should have the capability to close fisheries and regulate fishing effort and/or harvests through controls on the numbers of fish caught or the amount and type of fishing gear used so as to maintain the abundance and diversity of all river stocks;

b. Managers should be able to respond with appropriate speed to

changes in individual stock status and, ideally, be able to implement pre-agreed measures to adjust harvest levels or fishing effort in-season to take account of actual run sizes or environmental conditions;

c. Managers should be able to enforce the measures that are in place to regulate fishing activity and to minimise the level of unreported catches.

2.4 Reference points (conservation limits or other measures of abundance and diversity)

a. Conservation limits (CLs) should be established to define adequate levels of abundance for all river stocks of salmon; these should be established for separate sea age components (i.e. one-sea-winter (1SW) and multi-sea-winter (MSW) salmon);

b. Ideally, these river specific CLs should be established based on data derived from each river;

c. For many river systems, however, information on the stock will be limited, in which case the CLs should be set on the basis of information derived from other rivers;

d. Where CLs have not been established, alternative measures should be used as reference points and should be shown to be effective and appropriate in defining adequate stock levels;

e. Management targets (MTs) should also be established at a level above the CL to assist fishery managers in ensuring that there is a high probability of stocks exceeding their CLs, or alternative reference point; this probability level should be defined by managers;

f. Information should also be collected on the diversity of stocks (e.g. run-timing, age, size etc) to provide a basis for management.

2.5 Achievement of the reference points or other measures of abundance and diversity

a. It should be normal practice to evaluate the extent to which stock levels have met the management objectives with regard to stock abundance and diversity each year;

b. Ideally, stock levels should also be forecast for one or more years ahead to provide some predictions of future expected achievement of management objectives under current (or modified) management measures;

c. Assessments of stock abundance and diversity based on catches involve considerable uncertainty, so other sources of information should be used to confirm the status of stocks (e.g. juvenile surveys, counter and trap data);

d. The management measures introduced should take into account the uncertainties in the data used;

e. Assessing the status of the stock and determining the need for management action should take account of the duration and degree of any failure to achieve the reference point, and the trend in stock abundance;

f. Where there is insufficient information on any failure to achieve the reference point, greater caution should be exercised and further research should be undertaken to understand the reason for the failure.

2.6 Other factors influencing the stock(s)

a. While the short-term response to a stock failing to exceed its reference point may be to reduce or eliminate exploitation in salmon fisheries, other factors may be driving abundance, and actions should also be taken to identify and address these problems.[1]

2.7 Management actions to control harvest

a. In managing salmon fisheries, priority should be given to conserving the productive capacity of all individual salmon river stocks;

b. Managers should demonstrate that they are being more cautious when information is uncertain, unreliable or inadequate, and the absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures;

c. Ideally, forecasts of stock abundance for all stocks contributing to the fishery would be used to determine the harvestable surplus or appropriate level of fishing effort, with in-season adjustments being made to reflect actual returns;

d. Where forecasts of abundance are not available, harvest levels could be based on historical data to assess if there is likely to be a harvestable surplus;

e. Fishing on stocks that are below CLs should not be permitted. If a decision is made to allow fishing on a stock that is below its CL, on the basis of overriding socio-economic factors, fishing should clearly be limited to a level that will still permit stock recovery within a stated timeframe.

2.8 Mixed-stock fisheries (MSFs)

NASCO has defined MSFs as fisheries exploiting a significant number of salmon from two or more river stocks; NASCO has also agreed that management of homewater fisheries should be based on the status of

[1] In preparation of the FARs on Fishery Management, this information could be cross-referenced from other FARs

individual river stocks and management of distant-water fisheries on the status of the stock complexes defined by managers.

ICES has advised that the management of all fisheries should be based upon assessments of the status of individual stocks. Fisheries on mixed-stocks, particularly in coastal waters or on the high seas, pose particular difficulties for management, as they cannot target only stocks that are at full reproductive capacity if there are stocks below CL within the mixed-stock being fished. Conservation would be best achieved if fisheries target stocks that have been demonstrated to be at full reproductive capacity. Fisheries in estuaries and especially rivers are more likely to meet this requirement.

In addition to the guidance in 2.7, the following actions should therefore apply to MSFs:

a. Rational management of a MSF requires knowledge of the stocks that contribute to the fishery and the status of each of those stocks;

b. Where such fisheries operate, managers should have a clear policy for their management that takes account of the additional risks attributable to, among other things, the number of stocks being exploited and their size and productivity;

c. Management actions should aim to protect the weakest of the contributing stocks;

d. Consideration should also been given as to whether the above guidelines for MSFs apply to certain fisheries operating within larger rivers or estuaries.

2.9 Socio-economic factors

a. In evaluating management options conservation of the salmon resource should take precedence; and

b. Transparent policies and processes should be in place to take account of socio-economic factors in making management decisions and for consulting stakeholders.

2.10 Effectiveness of management measures

a. Managers should assess the expected effects of management actions and the timescale in which they will occur prior to their implementation;

b. Managers should also monitor the outcomes of the management actions to determine whether they have achieved the desired aims.

SCPA(00)11

Guiding Definitions of Terms Used in Salmon Fisheries Management

Distant-water fisheries: Fisheries in areas outside the jurisdiction of the country of origin. With respect to the NASCO Convention this specifically refers to fisheries under the jurisdiction of the Faroe Islands and Greenland.

Homewater fisheries: Fisheries within the jurisdiction of the countries of origin (within 12 miles).

Population: A group of salmon, members of which breed freely with each other, but not with others outside the group. The smallest group that can be usefully managed.

Stock: A management unit comprising one or more salmon populations. This would be established by managers, in part, for the purpose of regulating fisheries. (The term may be used to describe those salmon either originating from or occurring in a particular area. Thus, for example, salmon from separate rivers are referred to as "river stocks" and salmon occurring at West Greenland may be referred to as the "West Greenland stock").

Mixed-stock fishery: A fishery exploiting a significant number of salmon from two or more river stocks.

Conservation: The process of ensuring that the abundance of salmon in a stock is maintained at or above a satisfactory level (i.e. above the conservation limit with an agreed probability) and that natural diversity is maintained.

Conservation Limits (CL): CLs demarcate the undesirable spawning stock level at which recruitment would begin to decline significantly. The level cannot be used in management without also defining the acceptable probability (e.g. proportion of years) when the stock may be permitted to fall below the CL.

Currently NASCO and ICES define the CL as the spawning stock level that produces maximum sustainable yield. Formerly referred to as Minimum Biologically Acceptable Level (MBAL) or a Spawning Target.

Management Target (MT): The MT is the stock level employed by managers/scientists to aim at in order to achieve the objective of exceeding the CL for the desired proportion of years and for achieving other management objectives. The MT will therefore be greater than the CL with the margin between them at least reflecting the risks, decided by managers, of stocks falling below the CL.

Stock Rebuilding Programme (SRP): An SRP is an array of management measures, including possibly habitat improvement, exploitation control and stocking, designed to restore a stock above its conservation limit. An SRP could be a part of setting routine management plans.

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