Agenda Item 6.2
For Information

Council

CNL(14)45

The management approach to salmon fisheries in Norway

(Tabled by Norway)

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Norwegian Environmental Agency May 2014

1. Background

Estimates based on studies indicate that there are approximately 100 000 - 110 000 anglers fishing for anadromous salmonids in Norwegian rivers. The number of active fishermen at sea has been reduced from 3600 in 1993 to 900 in 2013. According to the Norwegian official catch records (Statistics Norway), approximately 50 % of the catch by fixed gear along the coast is caught in Finnmark County.

The proportion of released fish is growing and in 2013 the number of reported released salmon was about 15 % of the total reported river catch. In the beginning of 1980s the proportion of the salmon catch in weight between sea and river was approximately 80-20, respectively (**Figure 1**). Today the sea salmon catch accounts for approximately 40 %, while the river catch accounts for 60 %.

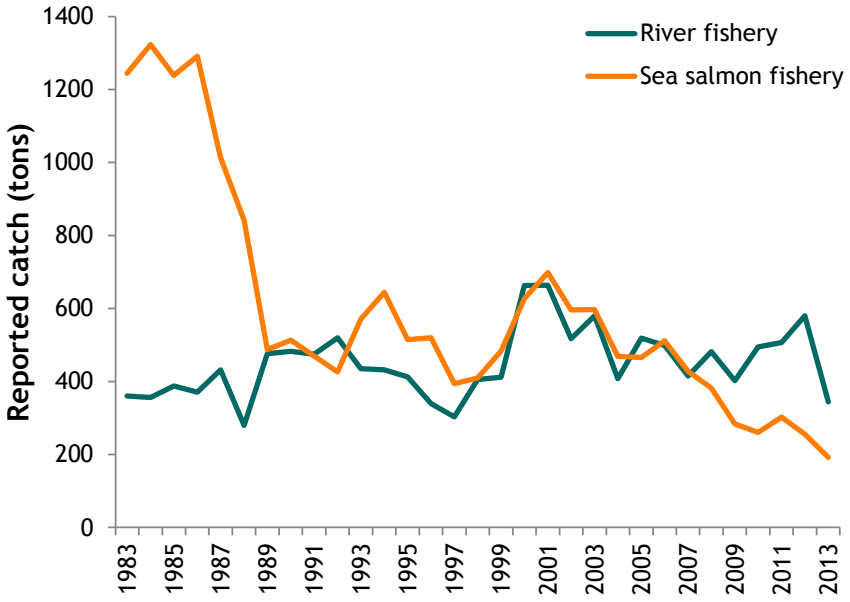

Figure 1. Total reported salmon catches in rivers (green colored line) and sea fisheries (orange colored line) in 1983 – 2013. Note that the river catches from 2009 include killed and released salmon.

The rights to both sea and river salmon fisheries are related to land ownership. In North-Troms and Finnmark the authorities in addition have to pay special attention to indigenous people's historical rights concerning the use of local nature resources.

The Norwegian Environment Agency is responsible for managing salmon fisheries in Norway. Management of the mixed stock fisheries along the coast is the most challenging part, and will have the main focus in this presentation.

2. Conservation limits for salmon stocks

Implementation of spawning targets and management targets in salmon management from 2008 has proven to be a success in meeting the goal of increasing the number of the stocks that are at their maximum reproductive capacity. Spawning targets are calculated for 439 rivers, and are now a key basis for fisheries management.

Previously the Norwegian Environmental Agency defined the management targets for each stock as reaching the spawning target in at least three out of four years. The Norwegian Scientific Advisory Committee for Atlantic Salmon Management (Scientific Committee) has operationalized this target by defining a threshold at 75% average probability of attaining the spawning target over a four year period (Forseth et al., 2013).

The number of stocks that reached their spawning target increased substantially after the introduction of spawning targets and subsequent new regulations addressing these targets, even if the number of returning salmon remained at historical low levels. The improvement could largely be attributed to reduced exploitation rates, due to new and stricter regulations in coastal as well as river fisheries (Forseth et al., 2013).

Management according to spawning target also had other positive effects. It has boosted stakeholder involvement in the form of local data acquisition in an increasing number of rivers. This involvement has also lead to improved river catch statistics (Forseth et al., 2013).

3. Assessment and advice

The Scientific Committee assesses management target attainment for 201 rivers which represent 98 % of the total river catch in weight. Advice on exploitation is given in five categories depending on the assessed probability of reaching the spawning target over the last four seasons in any given stock; the advice ranges from no harvestable surplus to possibility for increased exploitation, given that marine survival remains at current levels. The catch advice addresses all fishing on the stocks, in the river, fjord or along the coast.

A system has been developed for aggregated assessment and advice for the mixed-stock fisheries in the fjords and along the coast. Sea salmon fisheries are divided into 23 fjord and coastal regions, which form the basis for assessment and advice. The extension of the regions is mainly based on mark-recapture studies which were conducted along the coast of Norway in the period 1935-1982.

4. Management of mixed-stock fisheries

Bag nets and bend nets are the only allowed gears in the sea (bend nets only in Finnmark). In addition to restrictions on fishing gear, the primary regulatory measures are length of fishing season and the number of fishing days per week.

The sea fisheries regulations are based upon the estimated spawning target attainment of the stocks being exploited in the actual coastal or fjord region. Implemented regulations reflect the gap of meeting the management target, so that the regulatory measures get stricter the greater the gap. In areas where target attainment is especially low, the fisheries in rivers and sea regions are closed or reduced significantly. Due to low target attainment, fishing is not permitted in 90 rivers, as well as in several coastal and fjord regions associated with these rivers.

5. The decision-making process for regulating salmon fisheries

The Norwegian Environment Agency provides national guidelines based on scientific advice and political instructions from the Ministry for Climate and Environment. The process of fisheries regulations is resource intensive for all involved parties. Main revisions are normally conducted every 4th or 5th year. In the event of unforeseen changes in stock status, for instance a sudden significant drop in pre-fishery abundance, annually adjustments in fishery regulations are considered, as well as in-season restrictions.

Regulatory processes involve many organizations and agencies locally, regionally and nationally, including Sami interests. Local management bodies in salmon rivers have been given considerably responsibility, especially local river-by-river organizations of fishing right holders. In order to facilitate participation and influence from all stakeholders a national salmon management advisory board and a number of local and regional councils have been established.

County Governors initiate the local and regional processes, and based on guidelines given by Norwegian Environment Agency, scientific advice, and input from stakeholders, they propose new fisheries regulations for each county. The national salmon advisory board meets and assesses guidelines and proposed regulations, while at the same time the Norwegian Environment Agency performs a national hearing on its proposals.

If regulatory measures are proposed in Finnmark, formal consultations are held with the Sami Parliament before regulations are adopted by the Norwegian Environment Agency. As part of the consultations concerning the current fisheries regulations, which came in force in 2012, a working group with participation from most of the stakeholders in the area was established and proposed coastal and river regulations.

Russia and EU are consulted at pre-agreed stages throughout the processes regarding fisheries which intercept stocks originating in their rivers.

6. Mixed-stock Fisheries in Finnmark

6.1 Background

As stated earlier approximately 50 % of the total catch with bag nets and bend nets in coastal areas of Norway is caught in Finnmark County. Bag nets and bend nets are the allowed gears. Furthermore, the relations to other countries (Russia and Finland), and to indigenous Sami people implies that these fisheries have to be especially carefully considered.

From 1998 to 2010 the number of fixed gear in Finnmark was reduced from about 1200 to about 600, and the number of fishermen was reduced from slightly above 600 to less than 400 (**Figure 2**). From the beginning of 1980s the reported catch was reduced from about 300 tons to about 100 tons in 2013, due to lower PFA, reduced effort and new regulations (**Figure 2**).

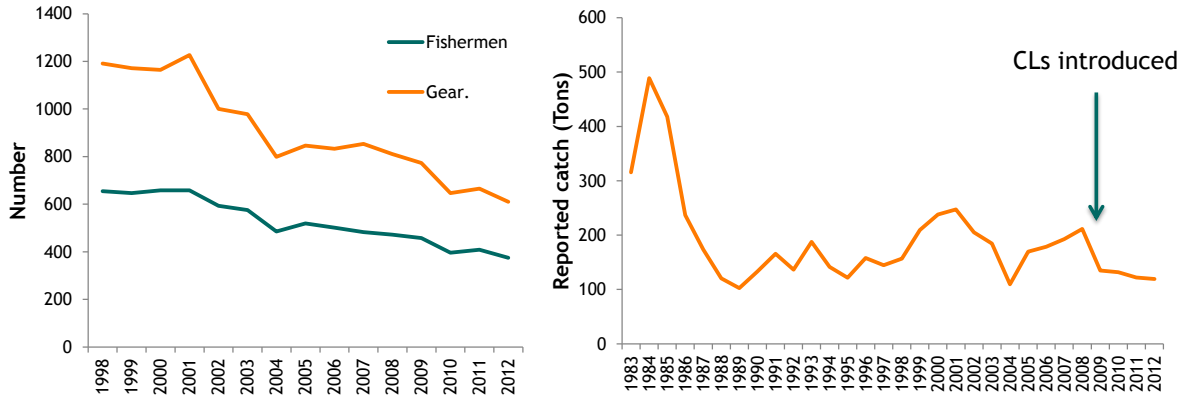

Figure 2. The number of active fishermen and the number of fixed gear in sea salmon fisheries in Finnmark from 1998 – 2012 (left figure), and reported catch in sea salmon fisheries in Finnmark from 1983 – 2012 (right figure).

The coast of Finnmark is currently divided into 5 salmon management regions.

6.2 Estimated management target attainment in 2012 - Finnmark County

Management target attainment has improved for a number of stocks in later years. This has occurred in spite of poor survival at sea, and historically low number of returning salmon (**Figure 3**). The improvement could largely be attributed to reduced exploitation rates due to new restrictions in both the coastal and river fisheries (Forseth et al., 2013).

The exploitation rate is assessed to be low or very low for populations still not attaining the management targets, with the exception of Tana salmon stocks, where exploitation is found to be high. Preliminary results from the Kolarctic salmon project indicate that estimated exploitation rates of the Tana pre-fishery abundance at sea were relatively low (13 % in 2011 and 9 % in 2012).

New modelling tools and datasets accumulated during the Kolarctic salmon project (2008-2012) provide important knowledge for a more precise regulation of both mixed-stock and riverine salmon fisheries. The Kolarctic Salmon project is a trilateral cooperation (Norway, Finland and Russia) aiming at merging modern science with traditional salmon fishing knowledge to create a future sustainable, long-term and knowledge-based salmon management of the common Atlantic salmon stocks in the Barents region.

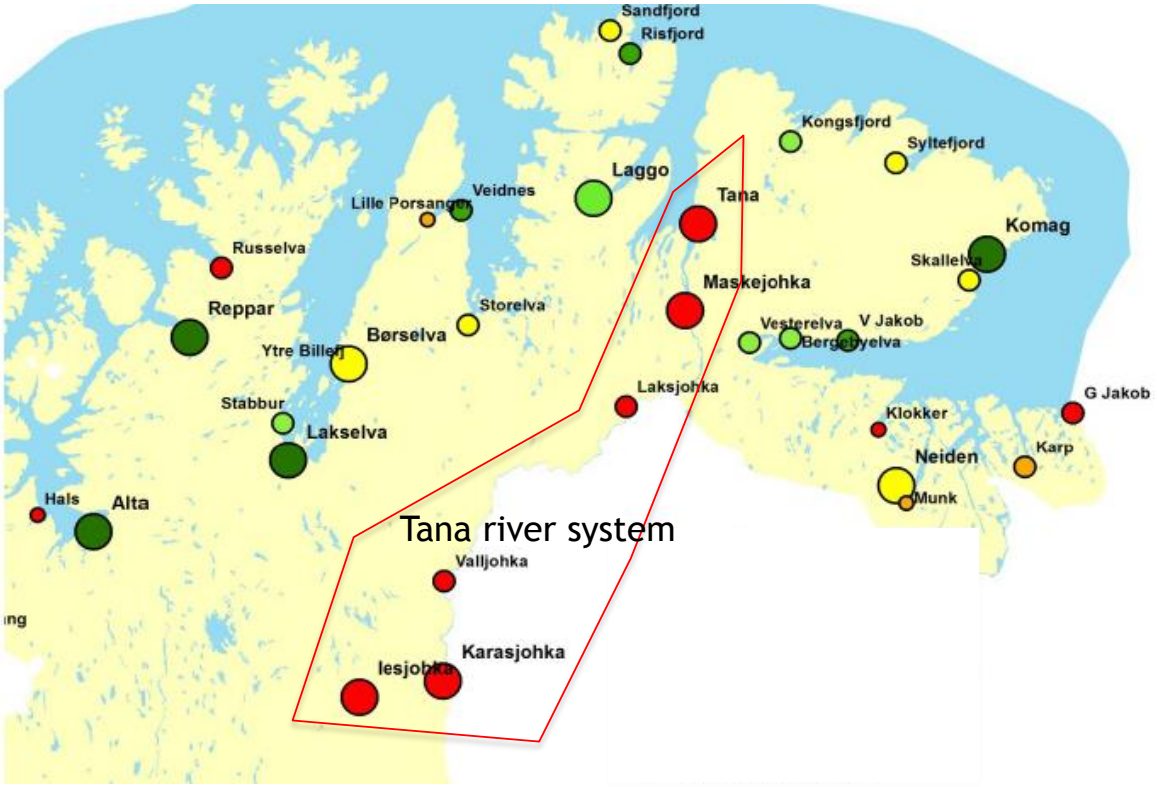

Figure 3. The map indicates management target attainment in Finnmark. Color indicates: Green: spawning stock above management target, light green: management target attained, yellow: at risk of not attaining management target, orange: management target probably not attained, red: far from attaining management target. Size of the circle indicates size of the spawning target (kg female salmon): Small – egg deposition corresponding to less than 200 kg, medium – egg deposition corresponding between 200-2000 kg, large – egg deposition corresponding more than 2000 kg. Source: The Norwegian Scientific Advisory Committee for Atlantic Salmon Management

6.3 The situation in Tana

The subarctic River Tana (Deatnu in Sami and Teno in Finnish) is a border river between Norway and Finland, about 70 % of the catchment area is in Norway. The Tana salmon stock complex actually consists of 20-30 unique stocks (Vähä et al., 2007). Consequently, all fisheries in the Tana main stem (including the lower Norwegian part and the border stretch between Norway and Finland) are mixed-stock fisheries.

There has been a long-term negative trend in large MSW salmon, and stock status is not found satisfactory in tributaries where spawning target attainments are accessed (Anon., 2012). Average spawning target attainment for the entire stock complex for 2009 to 2012 was estimated to 54 %, and spawning target attainment in five Norwegian tributaries is estimated to vary between 15 % and 50 %. The situation is most alarming in upper parts of the Tana system.

Accumulated (coastal + fjord + main river + tributary fisheries) fishing mortality on Tana salmon stocks results in a situation which is not sustainable. The total exploitation pressure can only be substantially reduced by reducing the efficiency of all fisheries in the sequence.

As a part of negotiating a new treaty on Tana fisheries, Norway and Finland have been working with new regulations aiming at a recovery plan and stricter regulations of the fisheries. Furthermore, the

regulations shall be designed to ensure that fish resources are fairly distributed between the countries, and aimed at a fair and balanced burden-sharing between the user groups.

6.4 Exploitation of salmon originating in Russian rivers

Results from the Kolarctic salmon project gives an overview over when and where salmon from Russian rivers migrate through Norwegian waters and are subject to harvest. The occurrence of salmon originating from Russian rivers was high in the municipality of Sør-Varanger, and relatively low along the remaining coast of Finnmark.

6.5 Plans for new regulations of salmon fisheries

- Main revision of regulations will be considered for all salmon fisheries in Norway from 2016
- Phasing out bend nets in Finnmark county in 2018
- Possible new regulations in Varangerfjord area from 2015 on are for the time being under consideration

6.6 Social, economic and cultural factors

Bag net fishing along the coast of Finnmark is a 150 year old tradition and is important for subsistence and culture for the coastal populations, especially in small Sami communities which have a lifestyle of multiple incomes from small scale pastoral agriculture and fisheries. And historically the salmon resource of the Tana River system was one of the main reasons for settlements in the river valley. Salmon and salmon fisheries are vital for Sami culture. This is expressed by name of places, legends, and traditional religion (Pedersen et al., 2010).

Bend net and bag net fisheries on the coast still play a role for subsistence and provide some economic impact. However these fisheries are of considerably less economic importance today than before 1980 (Pedersen et al., 2010). The in-river fishery in Tana has significant economic implications, mostly due to tourist fishing on the Finnish side of the border

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