Project information

Project title

Impact of harbour seal predation on Tana salmon (SEALSAL)

Year

2013/2014

Project leader

Martin Svenning, NINA

Participants

- **NINA**: Martin-A. Svenning, Morten Falkegård
- **NIKU**: Einar Eythórsson
- **IMR**: Kjell T. Nilssen, Virginie Ramasco, Jofrid Skardhamar
- **TF** (Tanavassdragets Fiskeforvaltning/Tana River Fish Management): Narve Johansen
- **FMFI** (County governor of Finnmark): Eero Niemelä, Harald Muladal
- **Miljødirektoratet** (The Norwegian Environment Agency): Kjell Magne Johnsen (project adviser)

Flagship

Fjord and coast, Theme: Physical-biological coupling: Oceanography and habitat use by predators and their prey

Funding Source

Fram Centre

Summary of Results

The number of harbor seals observed at the haul-out sites in the Tana estuary/fjord in June, July and August 2013 varied between 92 and 108 (**Figure 1**).

Due to problems trying to capture harbor seals in the Tana estuary/fjord in 2013, the planned GPS-phone tagging, which was the main goal in 2013, had to be cancelled (see report from Kjell T. Nilssen, IMR). As a consequence, we have prioritized to spend our resources to WP3 (Temporal and spatial migration of Tana salmon).

Much of the knowledge we have about temporal and spatial migration and exploitation patterns in Tana comes from scales samples collected by local fishermen, both Norwegians and Fins, in all parts of the Tana main stem. In 2013, a total of 2 804 scale samples have been taken from salmon caught by Norwegian fishermen. These are currently being aged at the Utsjoki research station. Results are expected by January 2014.

The scale samples form an important function as it allows a detailed monitoring of the stock and life history diversity in an area of intensive mixed-stock fishery (see Error! Reference source not found. and **Figure 3** for two examples). The early run salmon are large virgin multi sea-winter (MSW) salmon and previous spawners, while the smaller, one sea-winter (1SW) salmon, dominates the salmon catches later in the season (early July and onwards).

There is considerable variation in run timing among the different salmon stocks in Tana. The earliest run timing is found for some of the tributaries, especially the two major Norwegian tributaries, Iesjohka and Karasjohka, located in the uppermost part of Tana river. In contrast, the salmon belonging to the Tana main stem and the third main tributary, Anarjohka, are entering later (**Figure 3**).

We have counted upstream and downstream migrating salmon with video in two tributaries: Utsjoki and Laksjohka. The Utsjoki monitoring has been going on since 2002, while the Laksjoha monitoring started in 2009. Both video sites were operated also in 2013. Video tapes are currently being processed (they must be counted manually), and results are expected in November/December 2013 for Laksjohka and early 2014 for Utsjoki.

Video data from 2009 to 2012 (**4**) show a considerable variation in total numbers of both migrating adults and smolts, while the run timing is fairly consistent from year to year.

The video data from the monitored rivers can be compared with catch data of the same stocks from the Tana main stem. One such example is **Figure** where the catch of Laksjohka-salmon in the lower and middle part of the main stem is shown. In both areas, most of the catch is taken in June. The main stem catch dates correspond well to the run timing shown in the video counts. Unfortunately, we currently only have available genetic stock identified data from 2006-2008. Data from 2011 are expected to be available by the end of 2013, while 2012 data hopefully will be ready in mid-2014.

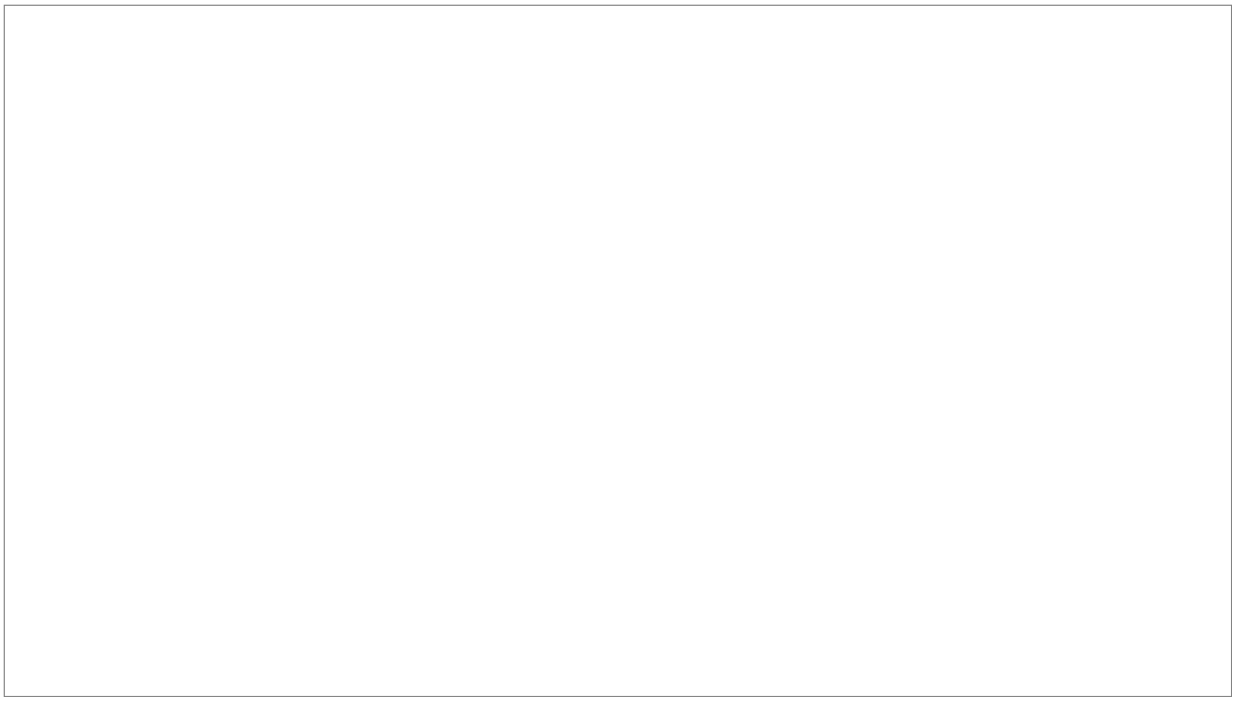

***Figure 1**. Harbour seals at one of the haul-out sites in Tana estuary/fjord (Lavonjarga)*

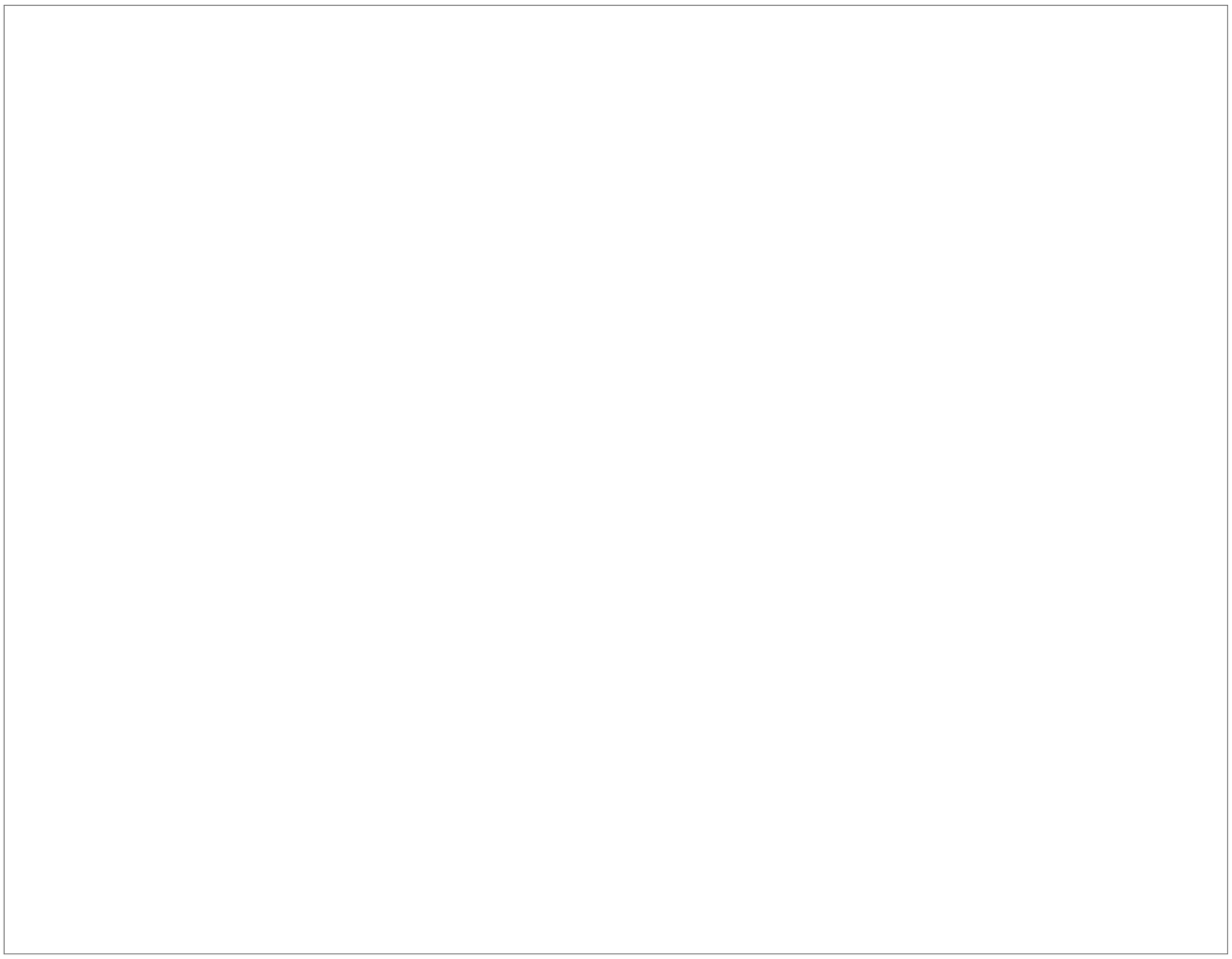

***Figure 2**. Weekly distribution of salmon of different life history groups in the lowermost Norwegian part of the Tana main stem (based on data from 2006-2008 to correspond with genetic data below).*

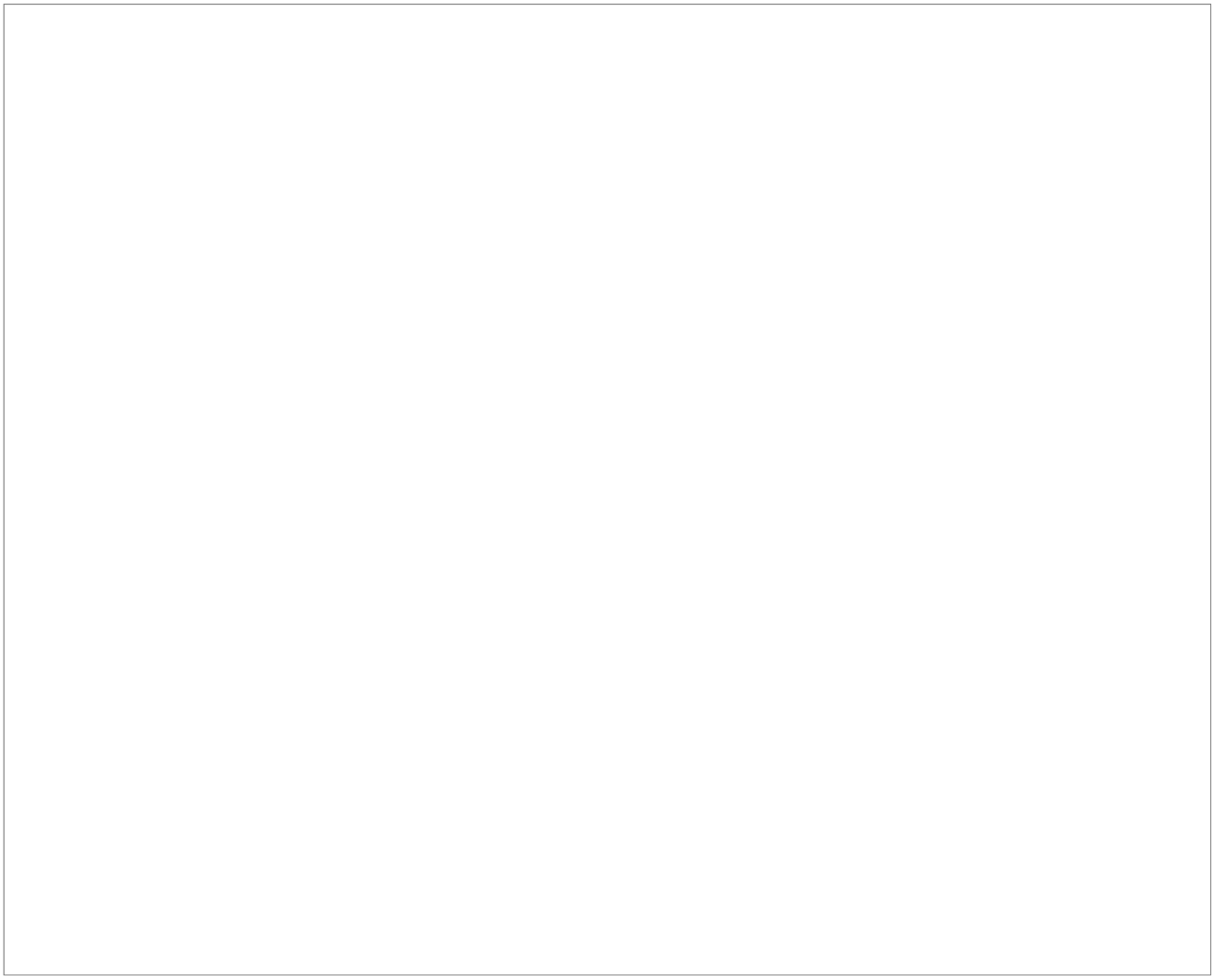

***Figure 3**. Catch samples from the lower Norwegian main stem, identified to the different main stocks in the river system using genetic stock assignment. Data from 2006-2008.*

***Figure 4**. Video counts of upstream migrating adult salmon (upper panel) and downstream migrating smolt (lower panel) in the Laksjohka video counting. Data shown are the years 2009-2012.*

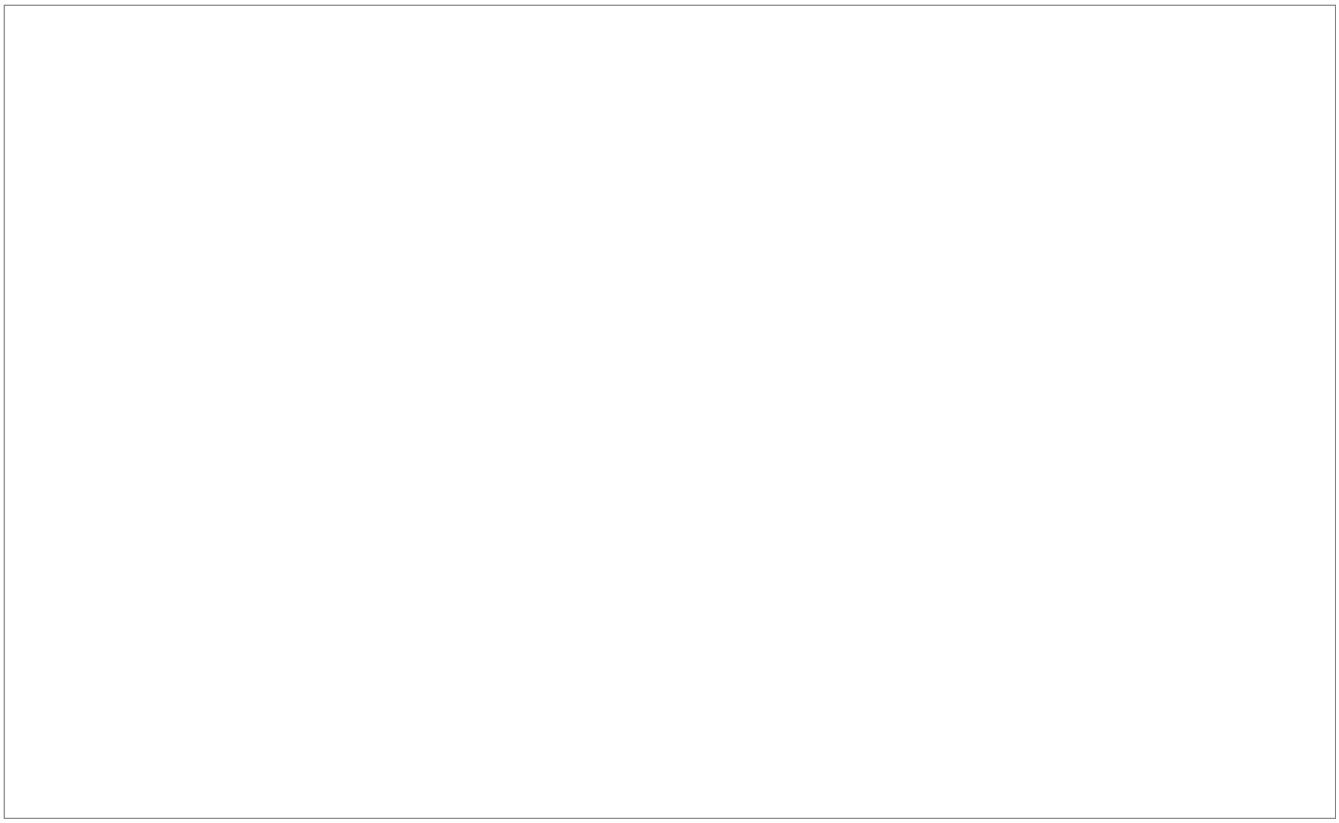

Figure 5*. Catch of Laksjohka-salmon in the lower Tana main stem (blue line) and the middle Tana main stem (red line). Data from 2006-2008.*

Some highlights;

- The number of harbor seals observed at the haul-out sites in the Tana estuary/fjord in June, July and August 2013 varied between 92 and 108.
- Salmon from the two largest and uppermost tributaries in Tana river, Karasjohka and Iesjohka, are ascending the Tana estuary very early, while salmon belonging to Tana mainstem are entering much later in the season
- *The smolt run timing seem to be fairly consistent among year*

For the Management

Timing of salmon smolt descendence and adult salmon ascendence through the Tana estuary/fjord, define temporal periods for potential impact of seal predation on Tana salmon.

Published Results/Planned Publications

-

Communicated Results

-

Interdisciplinary Cooperation

-

Budget in accordance to results

See above

Could results from the project be subject for any commercial utilization

No

Conclusions

See above