

Kolarctic CBC – Project KO4178; Conserving our Atlantic salmon as a sustainable resource for people in the North; fisheries and conservation in the context of growing threats and a changing environment.

## **REPORT VIII. Mean annual and seasonal weights of salmon in four salmon districts and in municipalities of Finnmark for bag net and bend net fisheries; examples from the size selective fishery between fishing methods**

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<p>REPORT VIII. Mean annual and seasonal weights of salmon in four salmon districts and in municipalities of Finnmark for bag net and bend net fisheries; examples from the size selective fishery between fishing methods</p> <p>Niemelä <sup>1,2</sup>, E., Hassinen<sup>1,2</sup>, E., Høstmark, M.S., Kalske<sup>3</sup>, T.H</p> <p><i><sup>1)</sup> Biodiversity Unit, University of Turku; Turku, Finland</i>  <sup>2)</sup> <i>Firm Olli van der Meer; Oulu; Finland</i>  <sup>3)</sup> <i>County Governor of Troms and Finnmark; Vadsø, Norway</i></p>	
<p><b>Abstract</b></p> <p>The mesh size (distance between knot to knot) of the bend nets is usually 64-75 mm while the mesh size of bag nets is between 58-60 mm. Minimum mesh size in fishery for anadromous fish is 58 mm for both fishing gears. Bend net is a fishing gear where salmon is caught in a capturing net. In bag nets, larger salmon usually stays alive in the catching part of the bag but smaller 1.5-2 kg salmon is caught in the capturing net of the bag. Some fishermen use bend nets with larger mesh sizes early in the summer in order to catch large sized salmon. Later in the summer they use smaller mesh sizes in order to catch smaller salmon. Smaller mesh sized bend nets do not catch large salmon effectively. During the last 15-20 years, the mean size of small salmon (&lt;3 kg) has been larger in bend net fishery than in bag net fishery, in all salmon districts. This indicates selective size dependent fishery between the two salmon fishing methods. The mean sizes of larger salmon are approx. the same over the years in bag net and bend net fisheries in all salmon districts. Mean size of salmon caught weekly, combining bag net and bend net catches, indicate that the size of salmon is declining towards the end of the fishing season. This decline in the mean weight of salmon can be explained by the fact that early in the fishing season, the largest salmon are the targeted, followed by medium size salmon and finally the smallest salmon later in summer. Therefore, the mean size of salmon is declining in the catches and can be observed in all salmon districts and separately in municipalities. Annual and weekly median sizes of salmon have been the largest in Alta municipality.</p>	
<p><b>Key words:</b>  Salmon weight, salmon district, Atlantic salmon, <i>Salmo salar</i>, Finnmark, sea salmon fishery, bag net, bend net</p>	
<p><b>Front page photo:</b>  Eero Niemelä</p>	

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## 1. Annual mean weights of salmon (<3kg, 3-7kg, >7kg) in bag net and bend net catches in Finnmark salmon districts

The mesh size (distance between knot to knot) of the bend nets is usually 64-75 mm while the mesh size of bag nets is between 58-60 mm. Minimum mesh size in fishery for anadromous fish is 58 mm in both fishing gears. Bend net is a fishing gear where salmon is caught in a capturing net. In bag nets, salmon usually stays alive in the catching part of the bag.

Some fishermen use bend nets with larger mesh sizes early in the summer in order to obtain large sized salmon. Later in the summer they use smaller mesh sizes in order to catch smaller salmon. Smaller mesh sized bend nets do not catch large salmon effectively.

Figure 1 indicates that during the last 15-20 years, the mean size of small salmon (<3 kg) has been larger in bend net fishery than in bag net fishery, in all salmon districts. This indicates selective size dependent fishery between the two salmon fishing methods. The mean sizes of larger salmon are approx. the same over the years in bag net and bend net fisheries in all salmon districts.

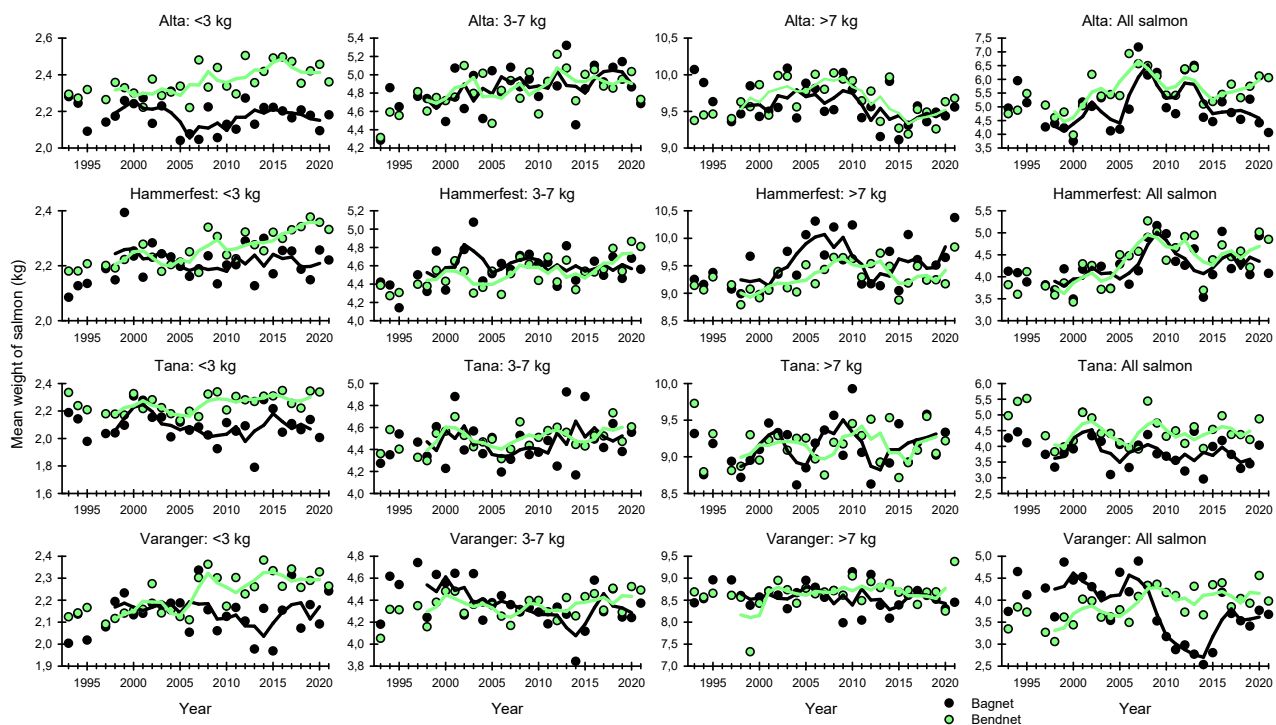


Figure 1. Variations in the long-term annual mean weights of small, medium and large salmon caught in bag net and bend net fisheries in four salmon districts in Finnmark. Source; SSB.

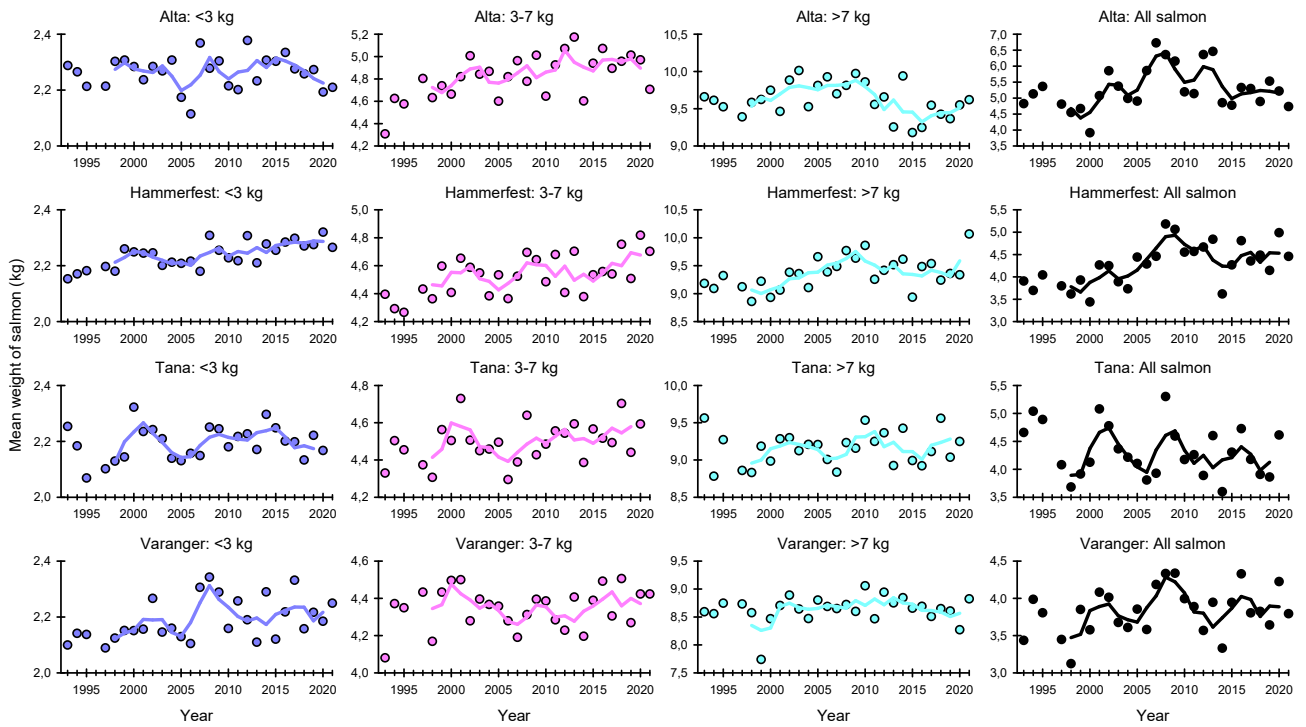


Figure 2. Variations in the long-term annual mean weights of small, medium and large salmon caught in four salmon districts in Finnmark (bag net and bend net catches combined). Source; SSB.

## 2. Weekly mean weights of salmon in bag net and bend net catches in Alta salmon district

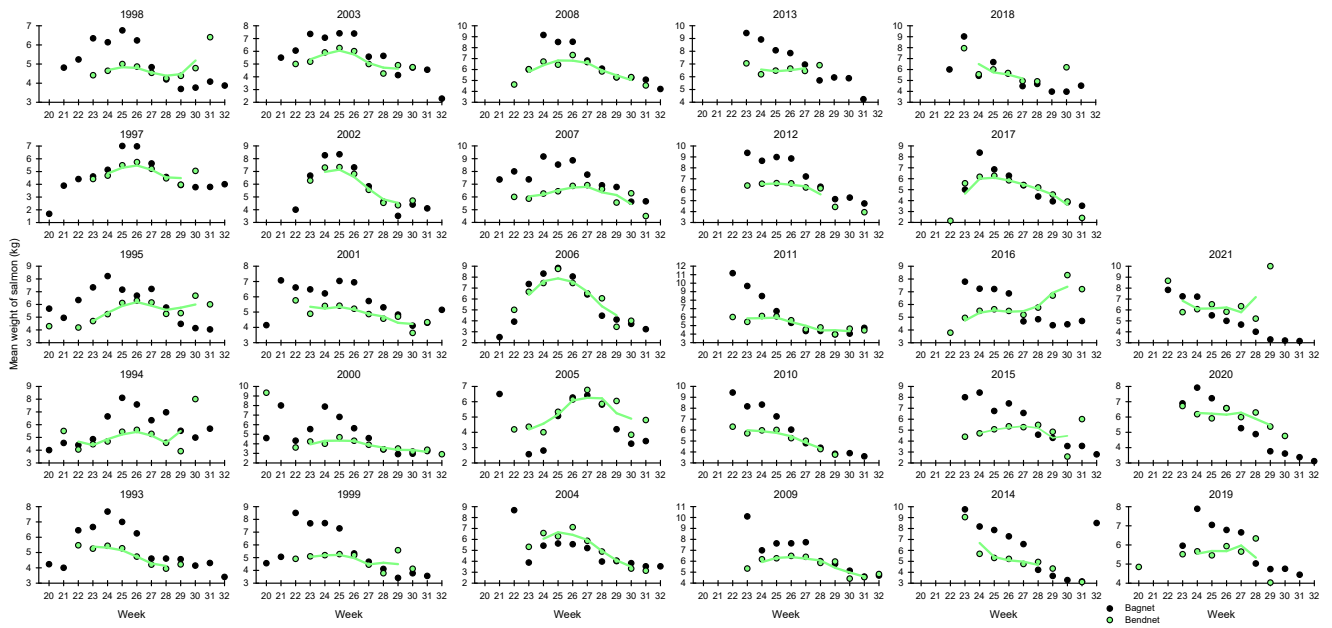


Figure 3. Variations in the weekly mean weights of salmon caught in bag net and bend net fisheries in Alta salmon district in Finnmark. Source; SSB.

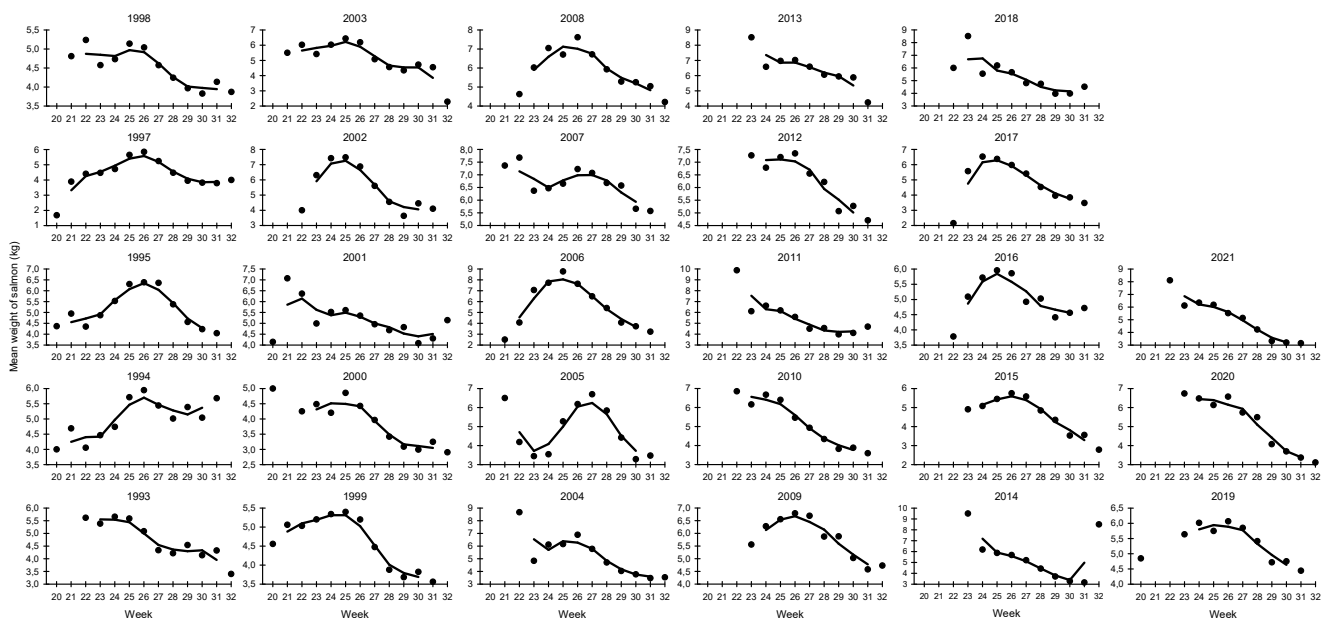


Figure 4. Variations in the weekly mean weights of salmon caught in Alta salmon district in Finnmark (bagnet and bendnet catches combined). Source; SSB.

### 3. Weekly mean weights of salmon in bag net and bend net catches in Hammerfest salmon district

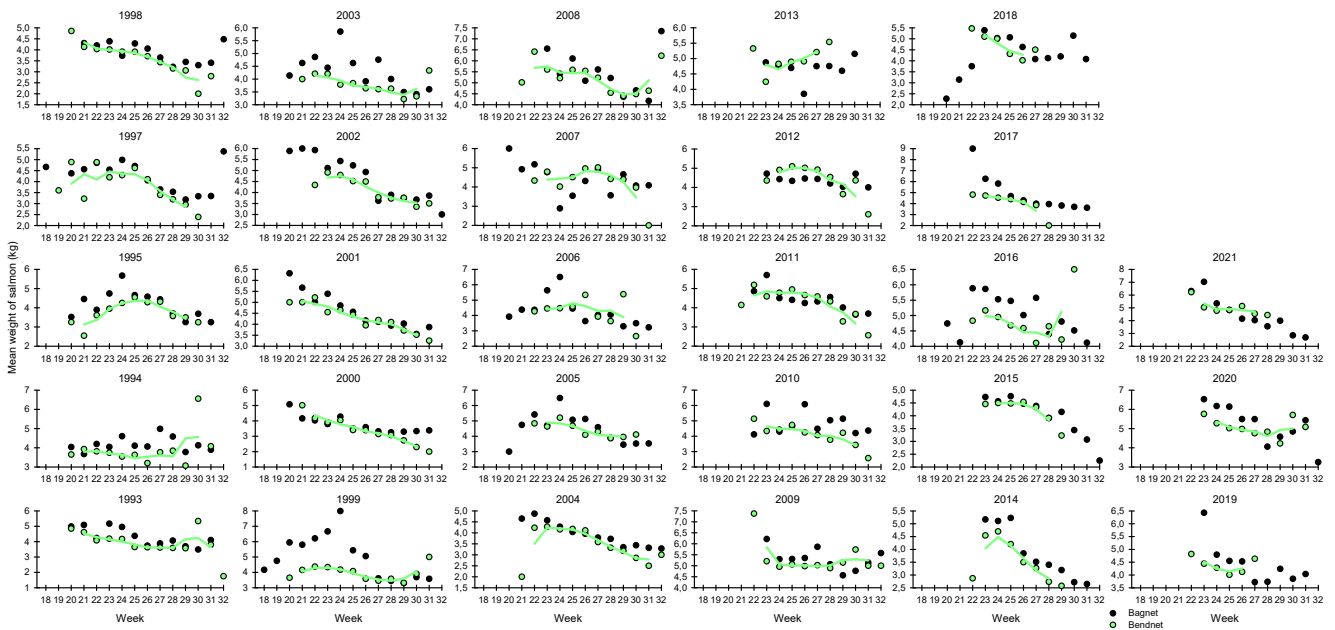


Figure 5. Variations in the weekly mean weights of salmon caught in bagnet and bendnet fisheries in Hammerfest salmon district in Finnmark. Source; SSB.

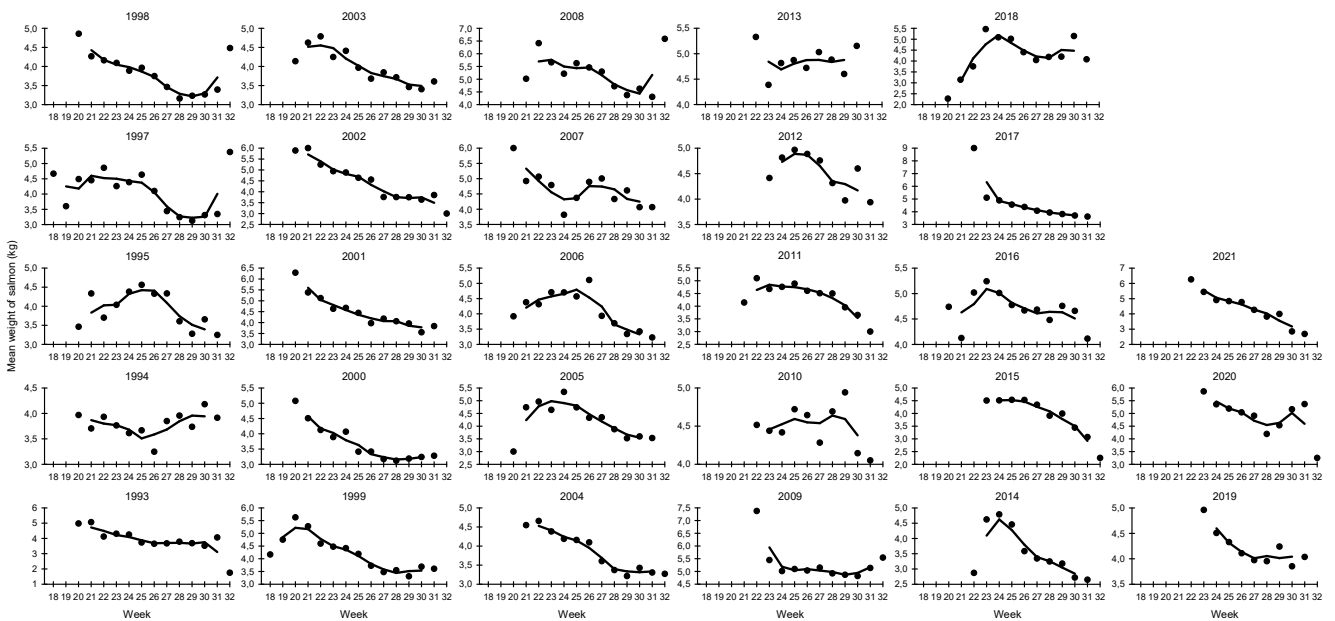


Figure 6. Variations in the weekly mean weights of salmon caught in Hammerfest salmon district in Finnmark (bagnet and bendnet catches combined). Source; SSB

## 4. Weekly mean weights of salmon in bag net and bend net catches in Tana salmon district

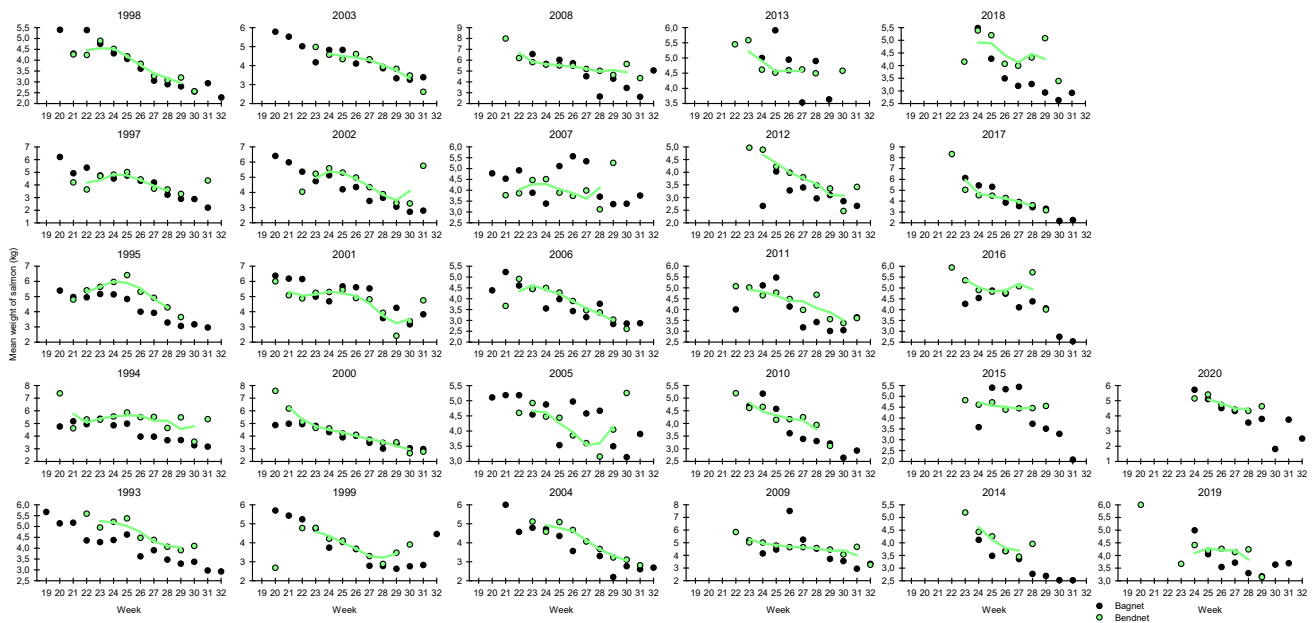


Figure 7. Variations in the weekly mean weights of salmon caught in bagnet and bendnet fisheries in Tana salmon district in Finnmark. Source; SSB.

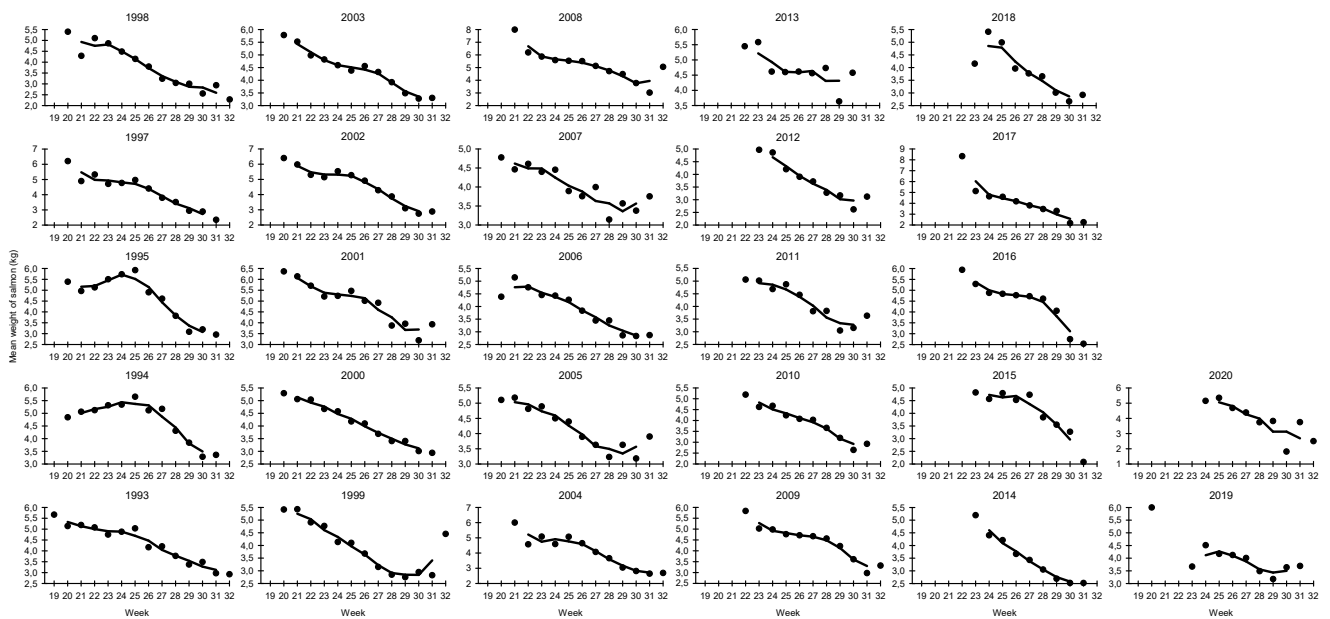


Figure 8. Variations in the weekly mean weights of salmon caught in Tana salmon district in Finnmark (bagnet and bendnet catches combined). Source; SSB.



## 5. Weekly mean weights of salmon in bag net and bend net catches in Varanger salmon district

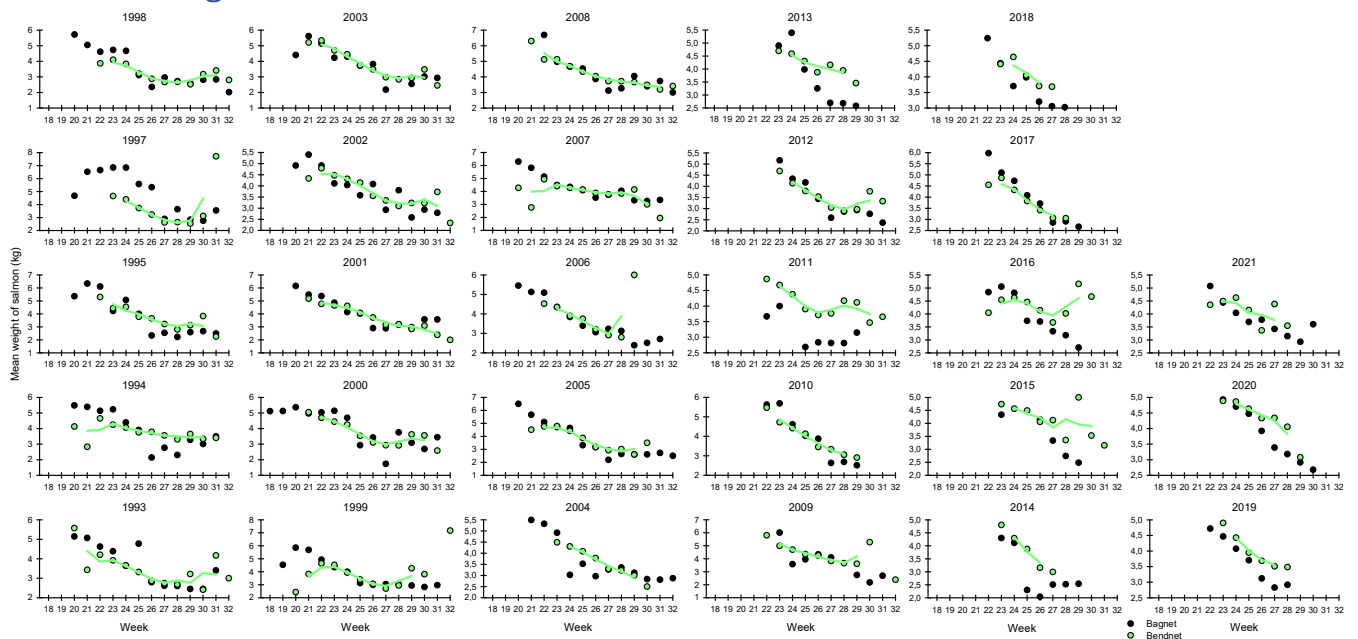


Figure 9. Variations in the weekly mean weights of salmon caught in bagnet and bendnet fisheries in Varanger salmon district in Finnmark. Source; SSB.

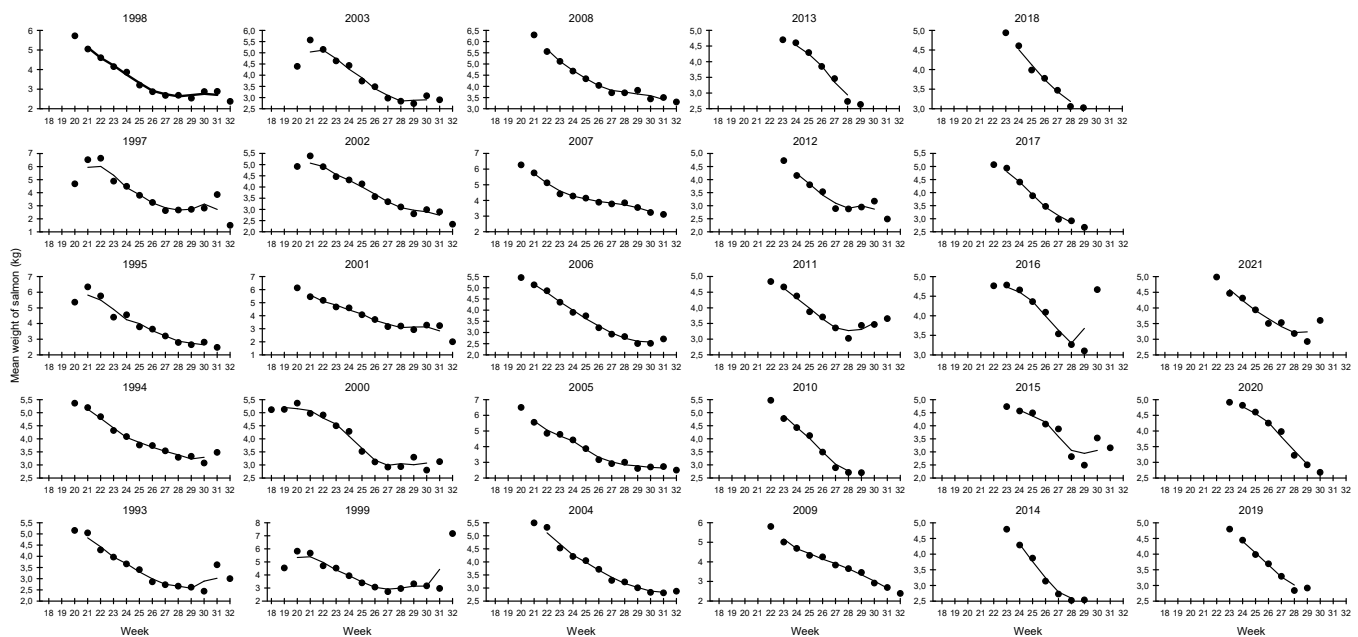


Figure 10. Variations in the weekly mean weights of salmon caught in Varanger salmon district in Finnmark (bagnet and bendnet catches combined). Source; SSB.

## 6. Long-term variations in the mean weights of salmon in the municipalities in Finnmark

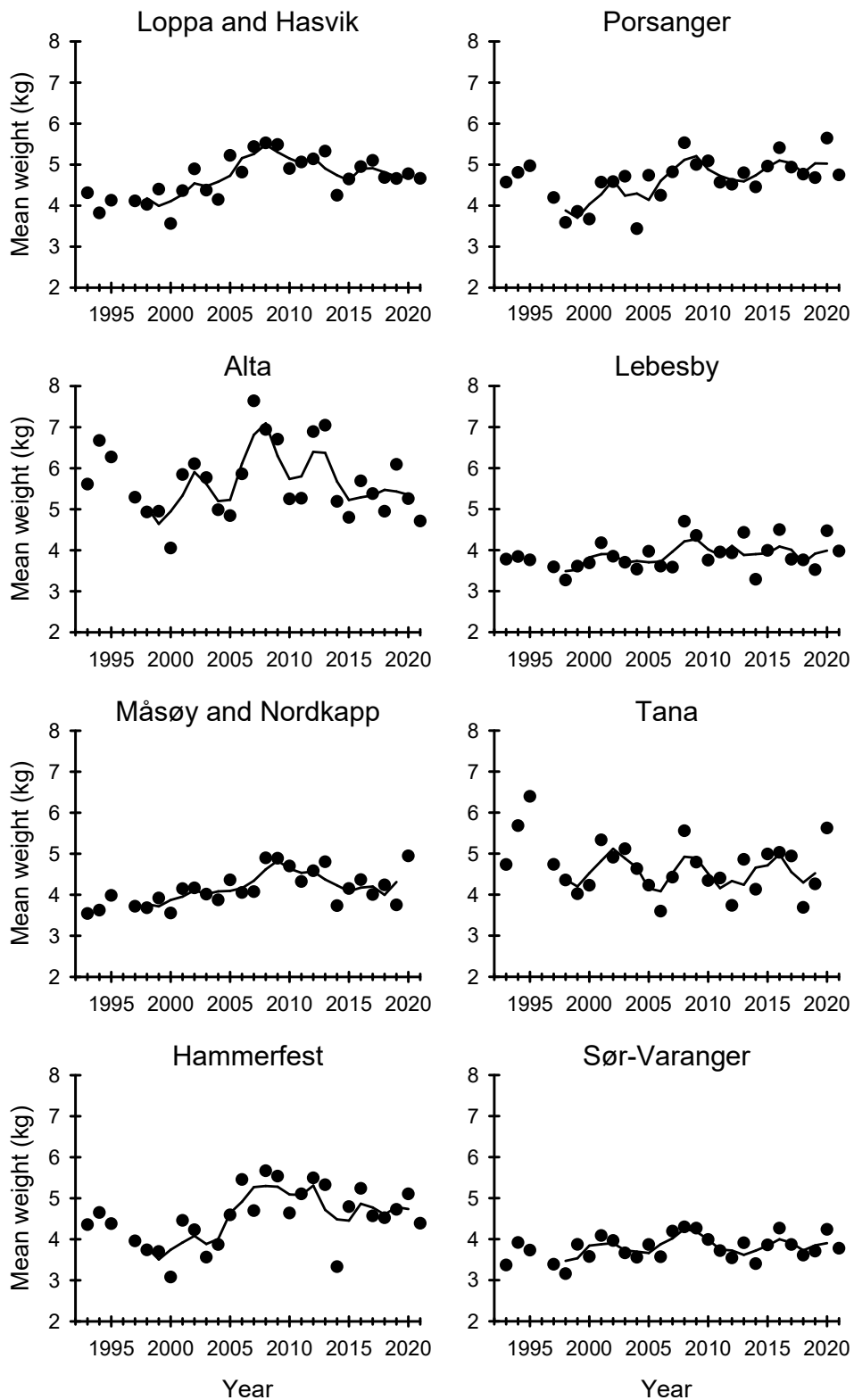


Figure 11. Variations in the long-term annual mean weights of salmon caught in the municipalities in Finnmark in the years 1993-2021 (bag net and bend net catches combined). Source; SSB.

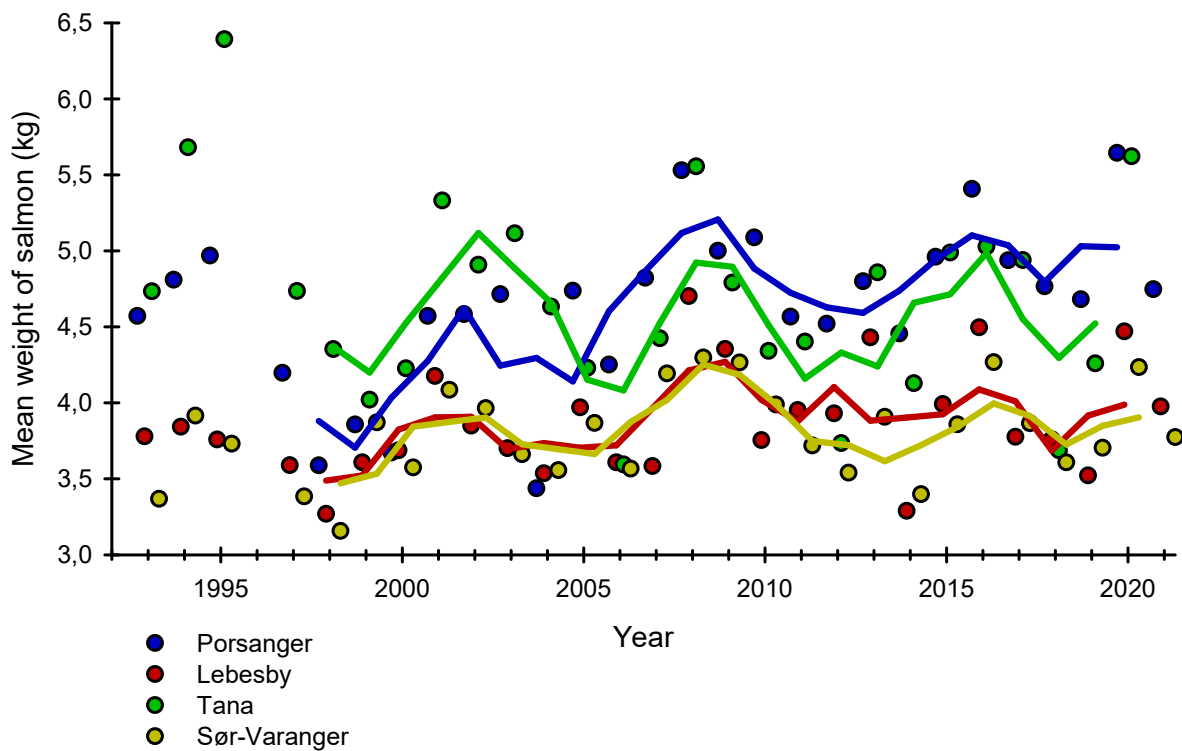
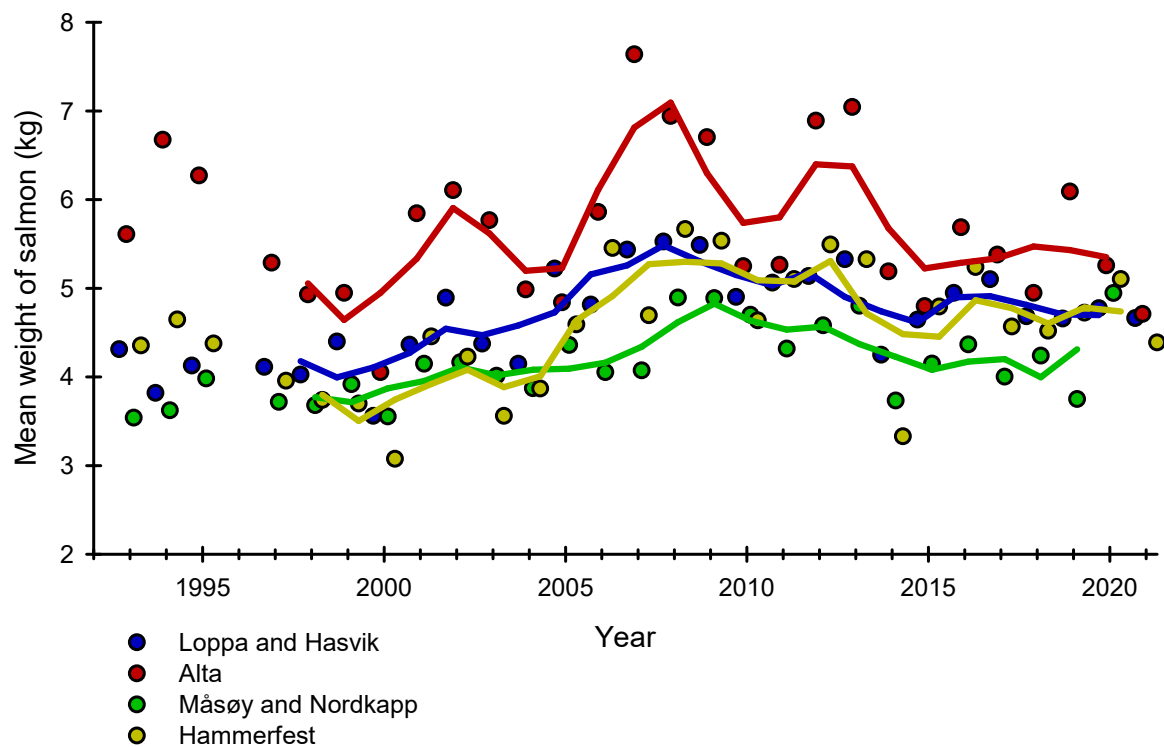


Figure 12. Variations in the long-term annual mean weights of salmon caught in West Finnmark municipalities (upper figure) and in East Finnmark municipalities (lower figure) in the years 1993-2021 (bag net and bend net catches combined). Source; SSB.

## 7. Long-term weekly mean weights of salmon caught in the municipalities in West and East Finnmark

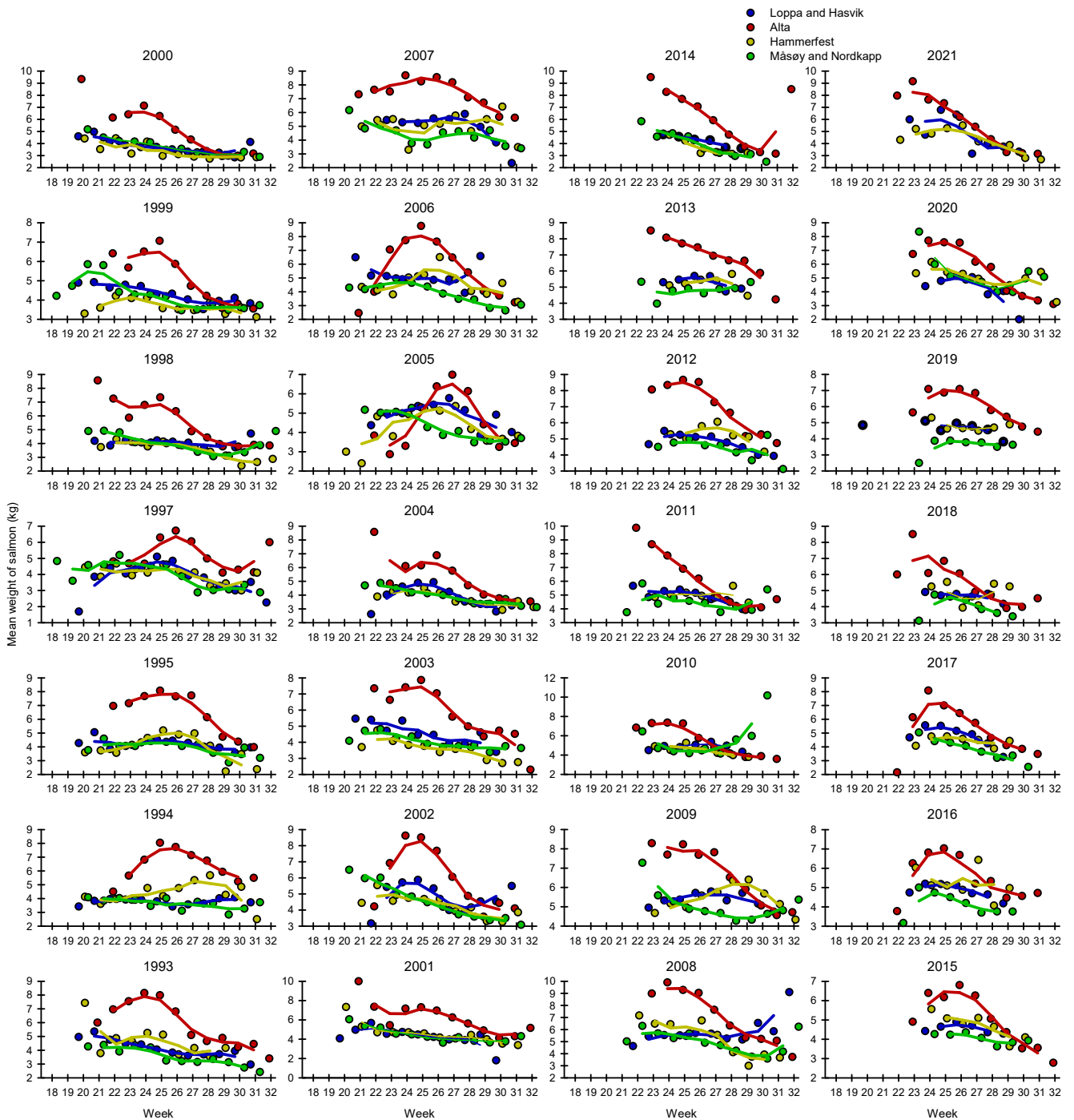


Figure 13. Variations in the weekly mean weights of salmon caught in West Finnmark municipalities (bag net and bend net catches combined). Source; SSB.

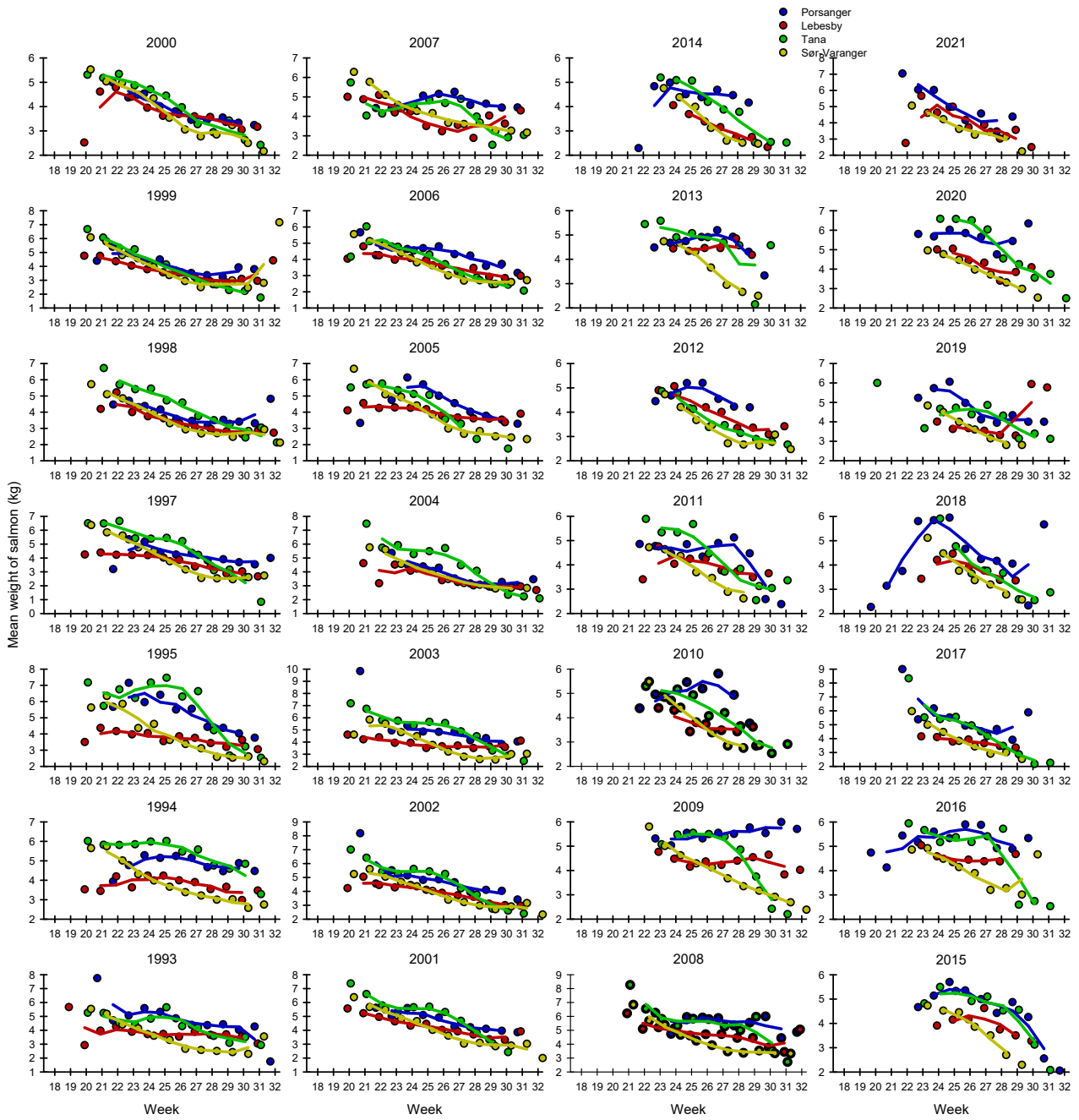


Figure 14. Variations in the weekly mean weights of salmon caught in East Finnmark municipalities (bag net and bend net catches combined). Source; SSB.