

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 VI. Salmon fishery at sea in Finnmark within four salmon districts; annual and seasonal catch distributions between bag nets and bend nets for small, medium and large salmon in the years 1993-2021

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<p>REPORT VI. Salmon fishery at sea in Finnmark within four salmon districts; annual and seasonal catch distributions between bag nets and bend nets for small, medium and large salmon in the years 1993-2021</p> <p>Niemelä ^{1,2}, E., Hassinen^{1,2}, E., Høstmark³, M.S., Kalske³, T.H</p> <p><i>¹⁾ Biodiversity Unit, University of Turku; Turku, Finland</i> ²⁾ <i>Firm Olli van der Meer; Oulu; Finland</i> ³⁾ <i>County Governor of Troms and Finnmark; Vadsø, Norway</i></p>	
<p>The proportions of total salmon catches, all size groups combined, in terms of numbers and weight has been quite stable between the four salmon districts (Alta, Hammerfest, Tana, Varanger) in Finnmark over the last 30 years. Salmon catches in numbers and weights, however, indicate three peaks during the three decades, namely in the years 1999-2001, 2005-2008 and 2017-2018. There have been three clear peaks in the total catches and during these periods, catch distributions have been more or less the same between the salmon districts. This indicates that catches have increased and decreased simultaneously between salmon districts.</p> <p>Catch fluctuations are the most prominent for salmon in the size group 3-7 kg fish. A remarkable conclusion is that catches in the peak periods are clearly declining towards the latest years. Catches in all size groups have declined simultaneously since the first peak catches in the years 1999-2001. In 2021, coastal salmon fishery was prohibited in a large area close to Tanafjord.</p> <p>Long-term data with catch distribution data between four salmon districts, that span over almost 60 years, indicate that the proportions have increased in Varanger and in Alta, declined in Tana and been quite stable in Hammerfest. The proportion of salmon caught in Hammerfest salmon district increased remarkably in the period 1979-1988, due to effective drift net fishery in the area west of Nordkapp.</p> <p>Drift net fishery was prohibited from the year 1989 onwards and in the year 1989, the proportion of salmon caught in Hammerfest clearly declined and, remained stable until present days.</p> <p>Bag net as a salmon fishing method was used for the first time in Norway in the middle of the 1800's. Bend net and the way it has been used in Finnmark during the last 60-70 years, became more efficient in the end of 1960's and in the beginning of 1970's after the fishers started to use new materials in their nets. Bend nets were prohibited in salmon fishery in the year 2022.</p> <p>The majority of the bag nets used in Finnmark were used in Tana salmon district in the municipalities Lebesby, Gamvik, Tana, Berlevåg. The proportion of bag nets used in Tana salmon district has declined compared to other salmon districts. Conversely to that, the proportion of bag nets has increased in the Alta salmon district.</p>	

In Finnmark, most of the salmon caught at sea has been caught with bend nets. From the year 2010 onwards, the proportions from the total catch taken with bag net has increased regularly from around 20% to 55% in the year 2021. The development has been the same for all three size groups and the most remarkable increase has been in the 3 kg salmon catches, where bag nets has taken 75% from the catches.

Bend net has been the most important salmon fishing method in Varanger, Tana and Hammerfest salmon districts making majority in the catches. However, in Varanger and Tana salmon districts catches caught with bend nets have clearly declined since the year 2015. This decline is most probably due to the fishing time being shorter than it was before. In the Alta salmon district, 50% from the total catch was taken with bend nets.

The proportion of salmon caught with bag nets has increased for the 3 kg size group, and especially in the Varanger and Tana salmon districts. In Varanger salmon district, the proportion of salmon caught with bag nets has clearly increased also for the 3-7 kg size group and the size group larger than 7 kg.

Key words:

Sea salmon fishery, Atlantic salmon, *Salmo salar*, Finnmark, catch distribution, bag net, bend net

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Eero Niemelä

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1. Introduction

Sea salmon fishery, and especially in the coastal areas, has long traditions in Norway. In this report we use graphs to describe the salmon catches in Finnmark county from bag nets and bend nets during the last 30 years. Catch statistics are combined by Norwegian SSB. Salmon fishers have reported their daily catch information, divided into three size groups (below 3 kg, between 3-7 kg, above 7 kg fish). Salmon catch reporting has been mandatory for all sea salmon fishers since the year 1993.

In this salmon catch report we have been using catches separately for four salmon districts: Alta salmon district (including the municipalities Alta and Loppa), Hammerfest salmon district (including the municipalities Hasvik, Hammerfest, Kvalsund, Måsøy, Nordkapp and Porsanger), Tana salmon district (including the municipalities Lebesby, Gamvik, Tana and Berlevåg), Varanger salmon district, (including the municipalities Båtsfjord, Vardø, Vadsø, Nesseby and Sør-Varanger)

2. Long-term annual salmon catches for three size groups between four salmon districts in Finnmark

The proportions of total salmon catches, all size groups combined, in terms of numbers and weight has been quite stable between the four salmon districts over the 30 years (Figure 1). Salmon catches in numbers and weights, however, indicate three peaks during the three decades, namely in the years 1999-2001, 2005-2008 and 2017-2018. There have been three clear peaks in the total catches and during these periods, catch distributions have been more or less the same between the salmon districts. This indicates that catches have increased and decreased simultaneously between salmon districts.

Catch fluctuations are the most prominent for salmon in the size group 3-7 kg fish. A remarkable conclusion from the figure 1 is that catches in the peak periods are clearly declining towards the latest years. Catches in all size groups have declined simultaneously since the first peak catches in the years 1999-2001. In 2021, coastal salmon fishery was prohibited in a large area close to Tanafjord. Therefore, there is only a small catch in Lebesby municipality that belongs to the Tana salmon district.

Long-term data with catch distribution data between four salmon districts, that span over almost 60 years, indicates the following; the proportions have increased in Varanger and in Alta, declined in Tana and been quite stable in Hammerfest (Figure 2). The proportion of salmon caught in Hammerfest salmon district increased remarkably in the period 1979-1988, due to effective drift net fishery in the area west of Nordkapp.

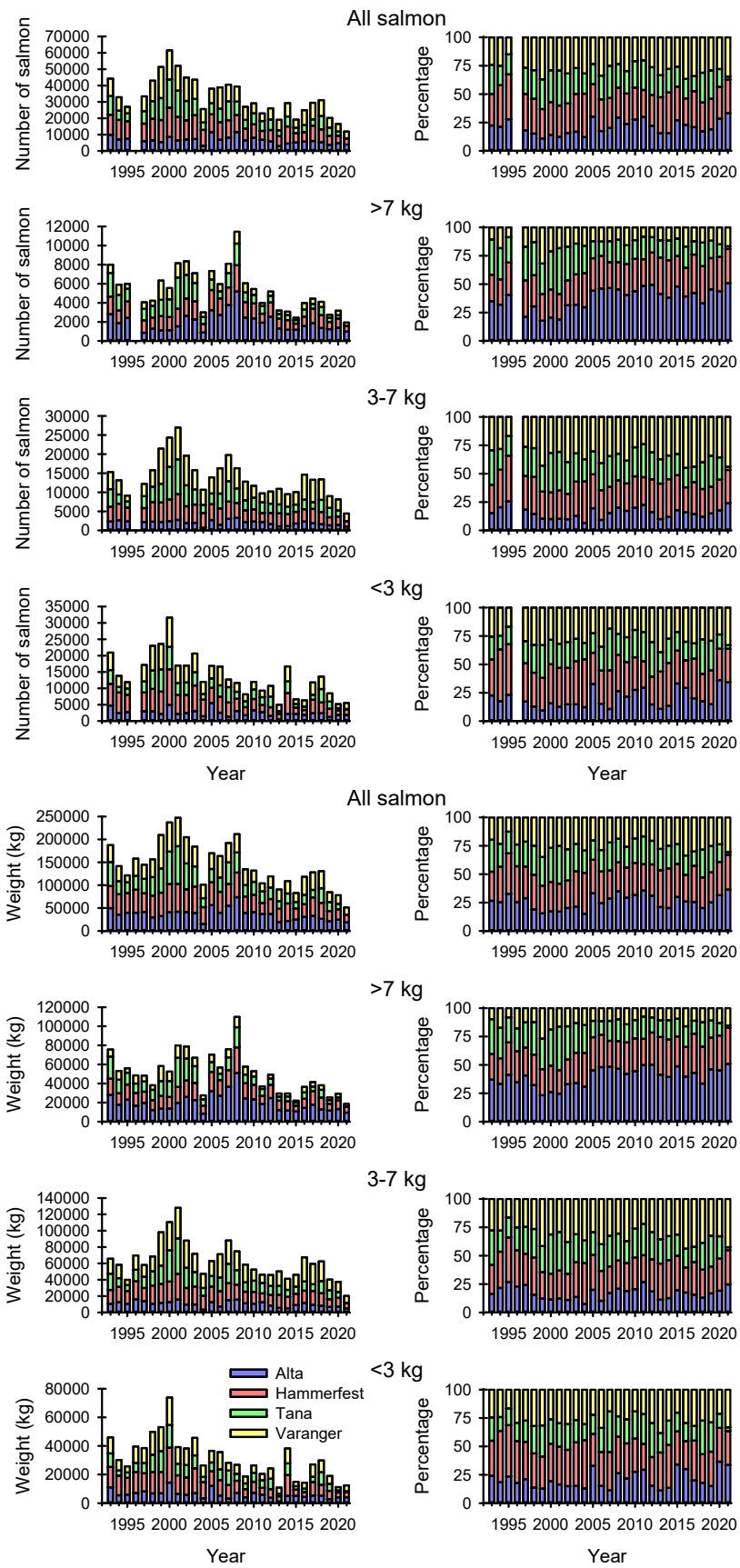


Figure 1. Long-term annual salmon catches for three size groups (numbers and weights) and proportions between the four salmon districts in Finnmark; Alta, Hammerfest, Tana and Varanger. Source; SSB.

Drift net fishery was prohibited from the year 1989 onwards and in the year 1989 the proportion of salmon caught in Hammerfest clearly declined and, remained stable until present days.

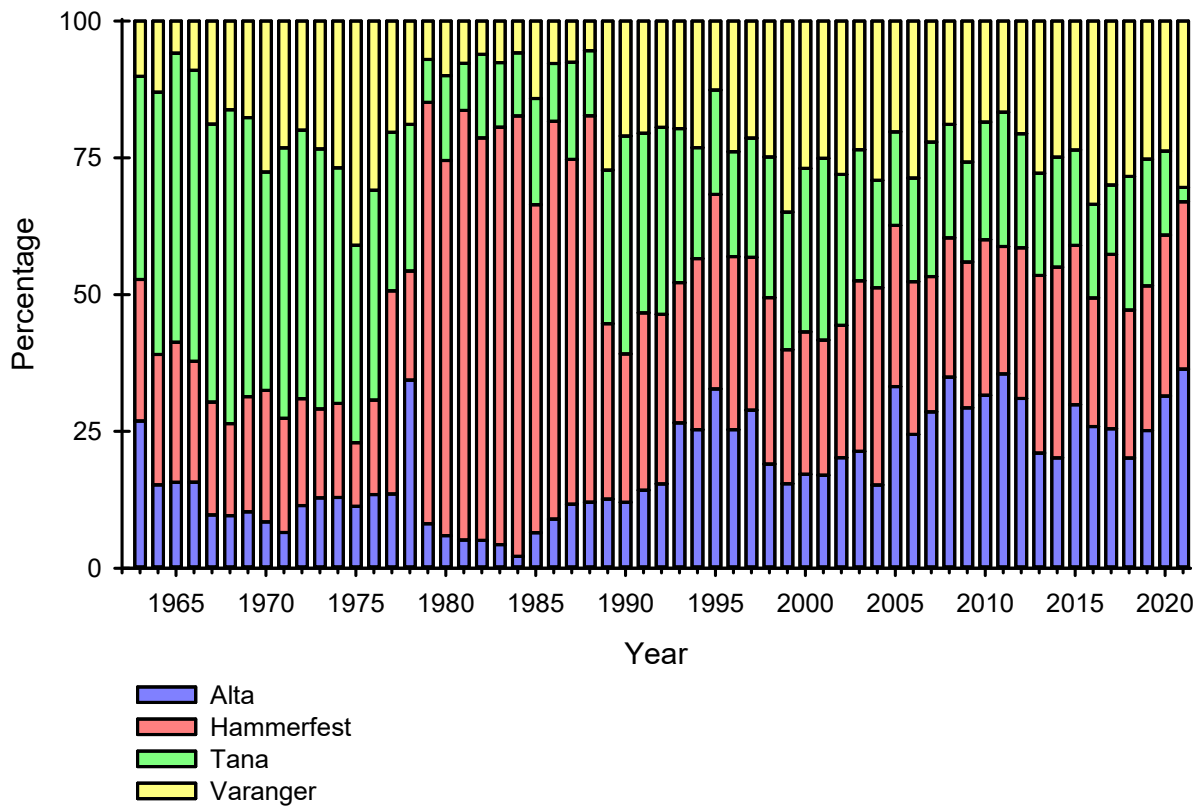


Figure 2. Differences in the annual proportions of salmon catches (in weights) caught with driftnets, bag nets and bend nets in Finnmark between the four salmon districts. Source; SSB.

Bag net as a salmon fishing method was used for the first time in Norway in the middle of the 1800's. Bend net, the way it has been used in Finnmark during the last 60-70 years, became more efficient in the end of 1960's and in the beginning of 1970's after the fishers started to use new materials in their nets. Bend nets were prohibited in salmon fishery in the year 2022.

The majority of the bag nets used in Finnmark were used in Tana salmon district in the municipalities Lebesby, Gamvik, Tana, Berlevåg (Figure 3). The proportion of bag nets used in Tana salmon district has declined compared to other salmon districts. Conversely to that, the proportion of bag nets has increased in the Alta salmon district.

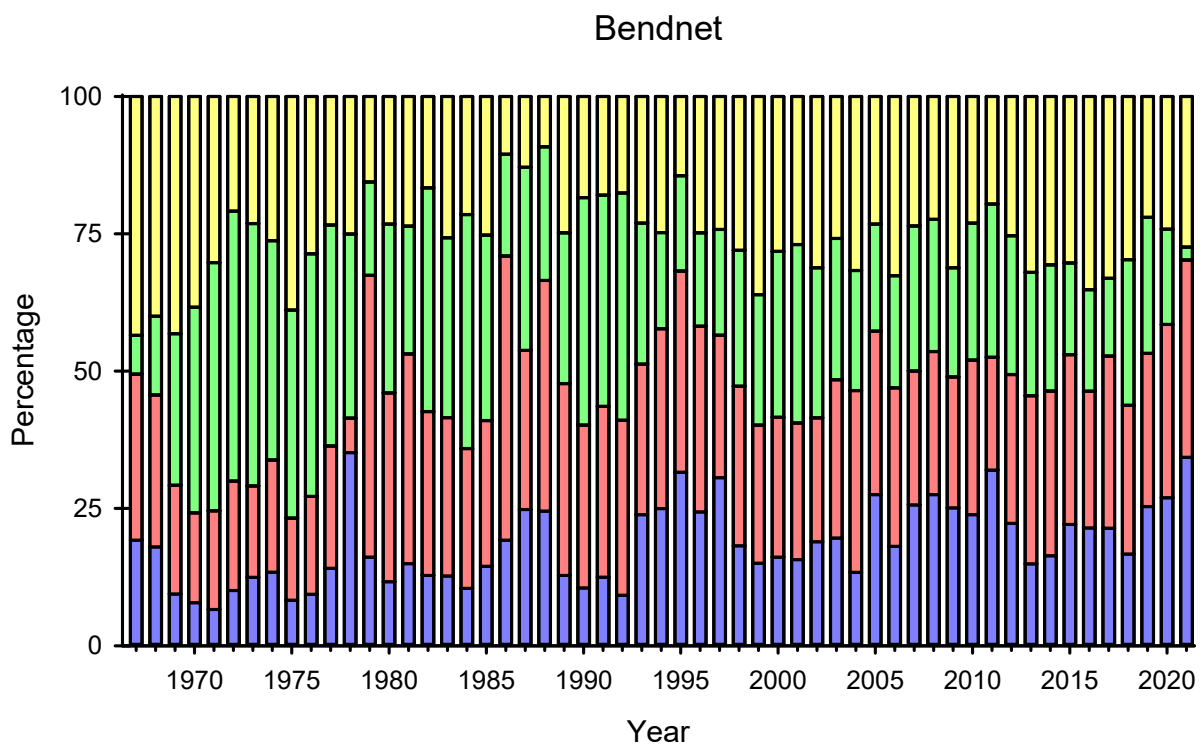
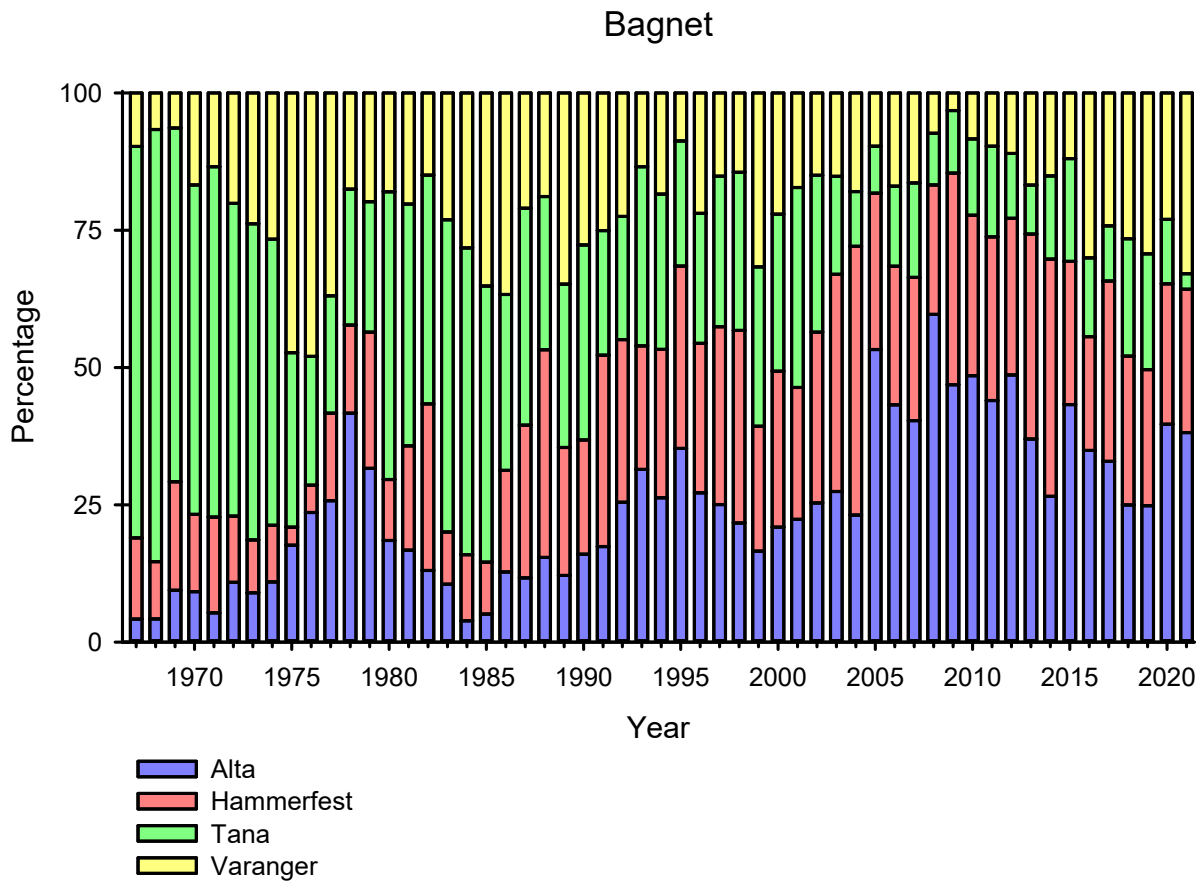


Figure 3. Annual proportions of salmon catches (in weights) with bag nets and bend nets between four salmon districts in Finnmark. Source; SSB.

3. Annual salmon catches from bag net and bend net fisheries in the four salmon districts, divided into three size groups

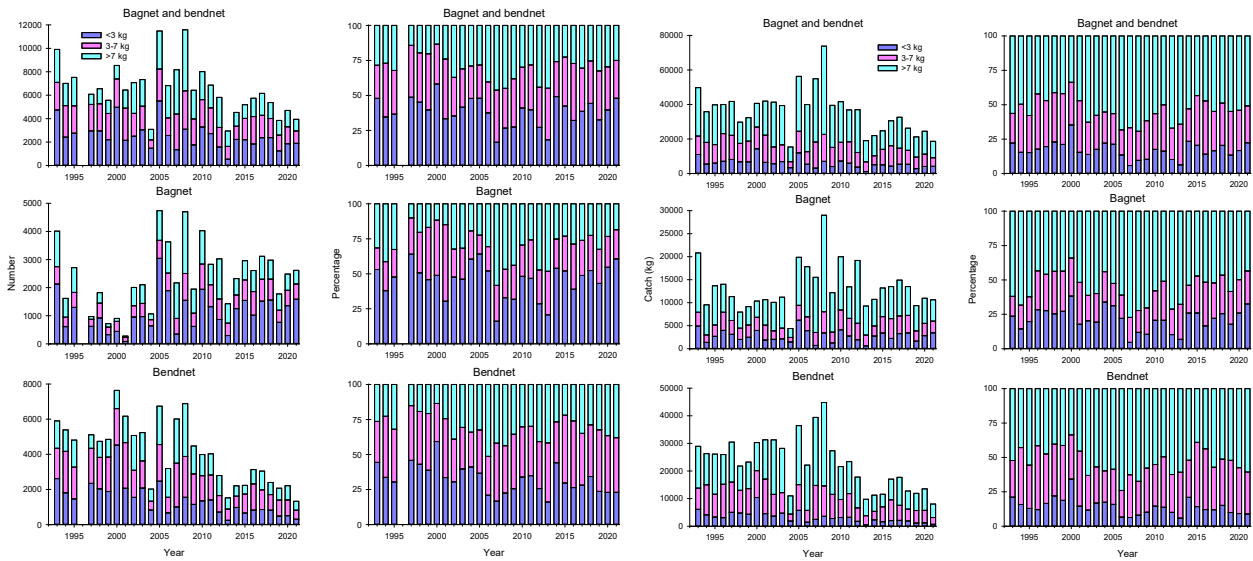


Figure 4. Small, medium and large salmon catches in numbers, weights and proportions caught in Alta salmon district with bag nets and bend nets. Source; SSB.

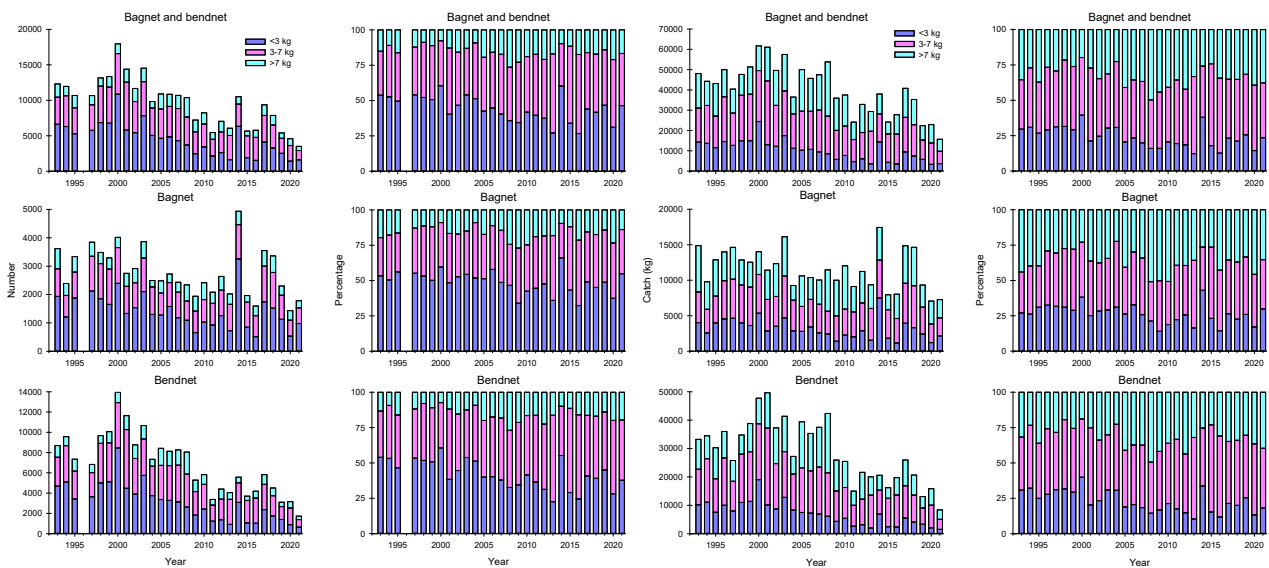


Figure 5. Small, medium and large salmon catches in numbers, weights and proportions caught in Hammerfest salmon district with bag nets and bend nets. Source; SSB.

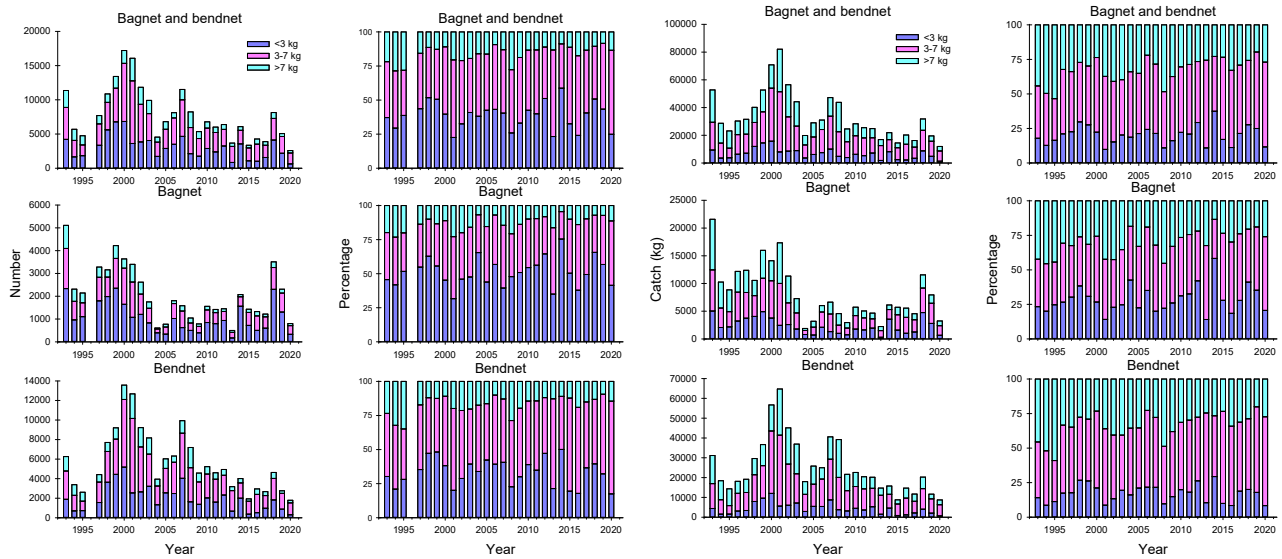


Figure 6. Small, medium and large salmon catches in numbers, weights and proportions caught in Tana salmon district with bag nets and bend nets. Source; SSB.

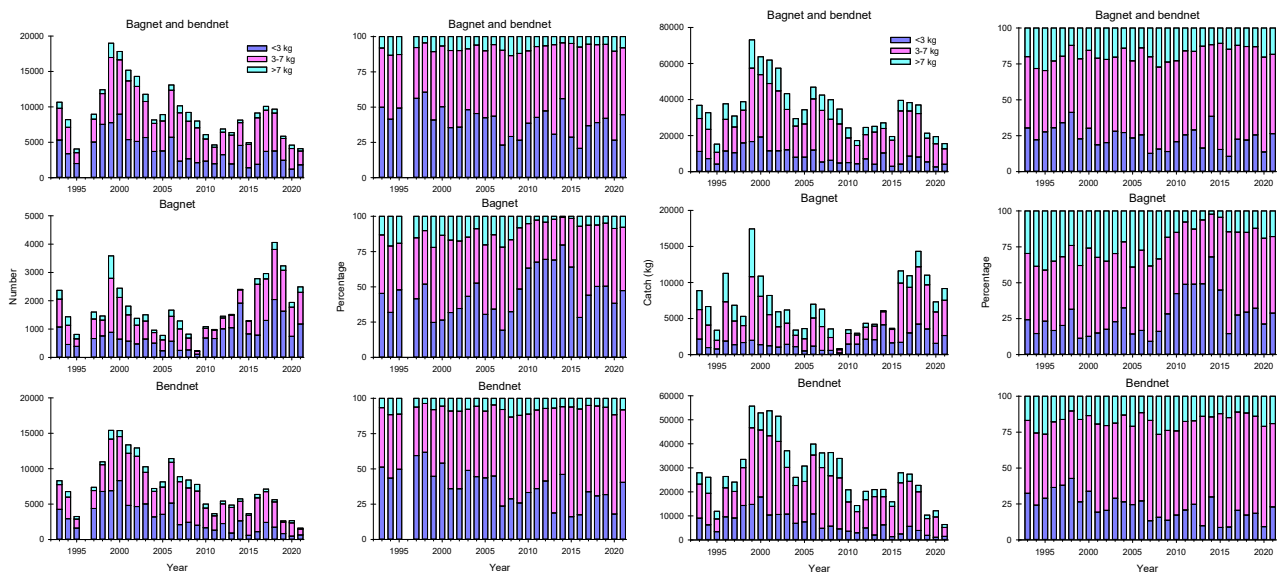


Figure 7. Small, medium and large salmon catches in numbers, weights and proportions caught in Varanger salmon district with bag nets and bend nets. Source; SSB.

4. Annual salmon catches caught with bag nets and bend nets in Finnmark and in salmon districts

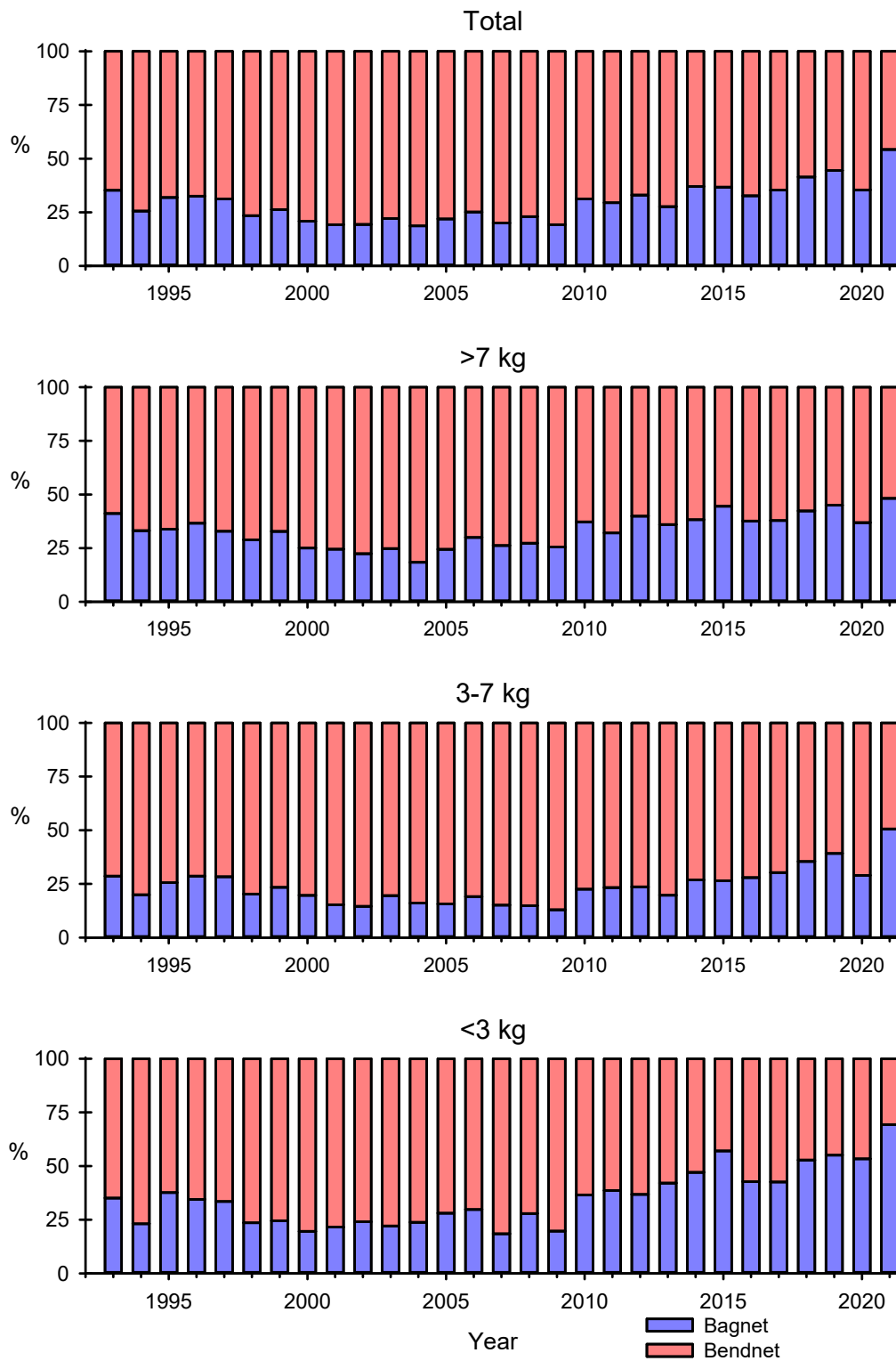


Figure 8. Annual salmon catch (in weight) distributions between bag nets and bend nets from the four salmon districts, divided into three size groups in Finnmark (Alta, Hammerfest, Tana, Varanger combined). Source; SSB.

In Finnmark, most of the salmon caught at sea has been caught with bend nets (Figure 8). From the year 2010 onwards the proportions from the total catch taken with bag net has increased regularly from around 20% to 55% in the year 2021. The development has been the same for all three size groups the most remarkable increase has been in the 3 kg salmon catches, where bag nets has taken 75% from the catches.

Bend net has been the most important salmon fishing method in Varanger, Tana and Hammerfest salmon districts making up the majority in the catches. However, in Varanger and Tana salmon districts catches caught with bend nets have clearly declined since the year 2015 (Figure 9). This decline is most probably due to the fishing time being shorter than it was before. In the Alta salmon district 50% from the total catch was taken with bend nets.

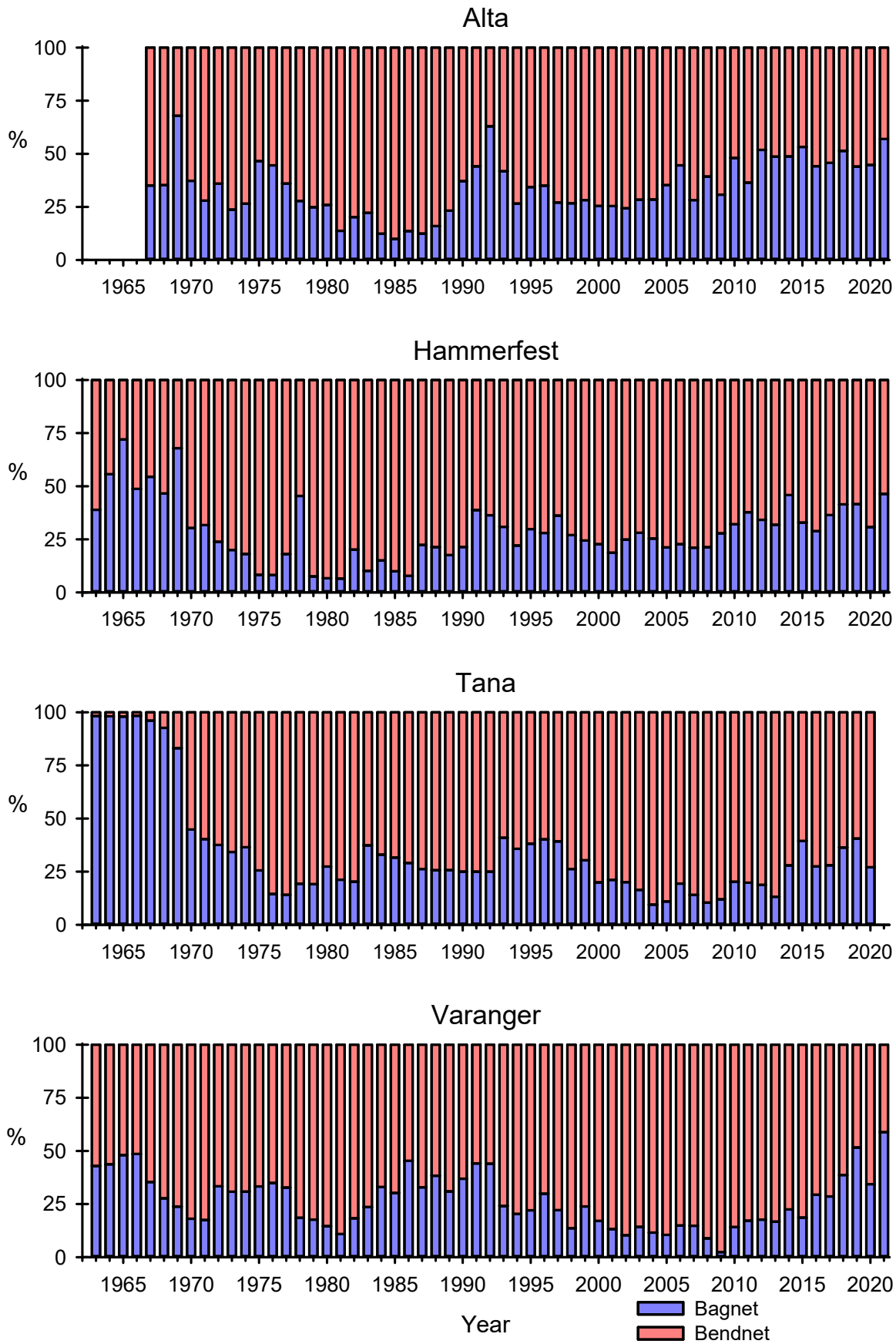


Figure 9. Salmon catch (in weight) distributions in the sea fishery between bag net and bend net in Finnmark. All size groups and catches within each salmon districts have been combined. Source; SSB.

5. Detailed salmon catches caught with bag net and bend net in four salmon districts; catches for small, medium and large size salmon in numbers and kilos

Figures 10-13 indicates the development in the small, medium and large size salmon and their proportions of salmon caught with bend net and bag net.

The proportion of salmon caught with bag nets has increased for the 3 kg size group, and especially in the Varanger and Tana salmon districts. In Varanger salmon district the proportion of salmon caught with bag nets has clearly increased also for the 3-7 kg size group and the size group larger than 7 kg.

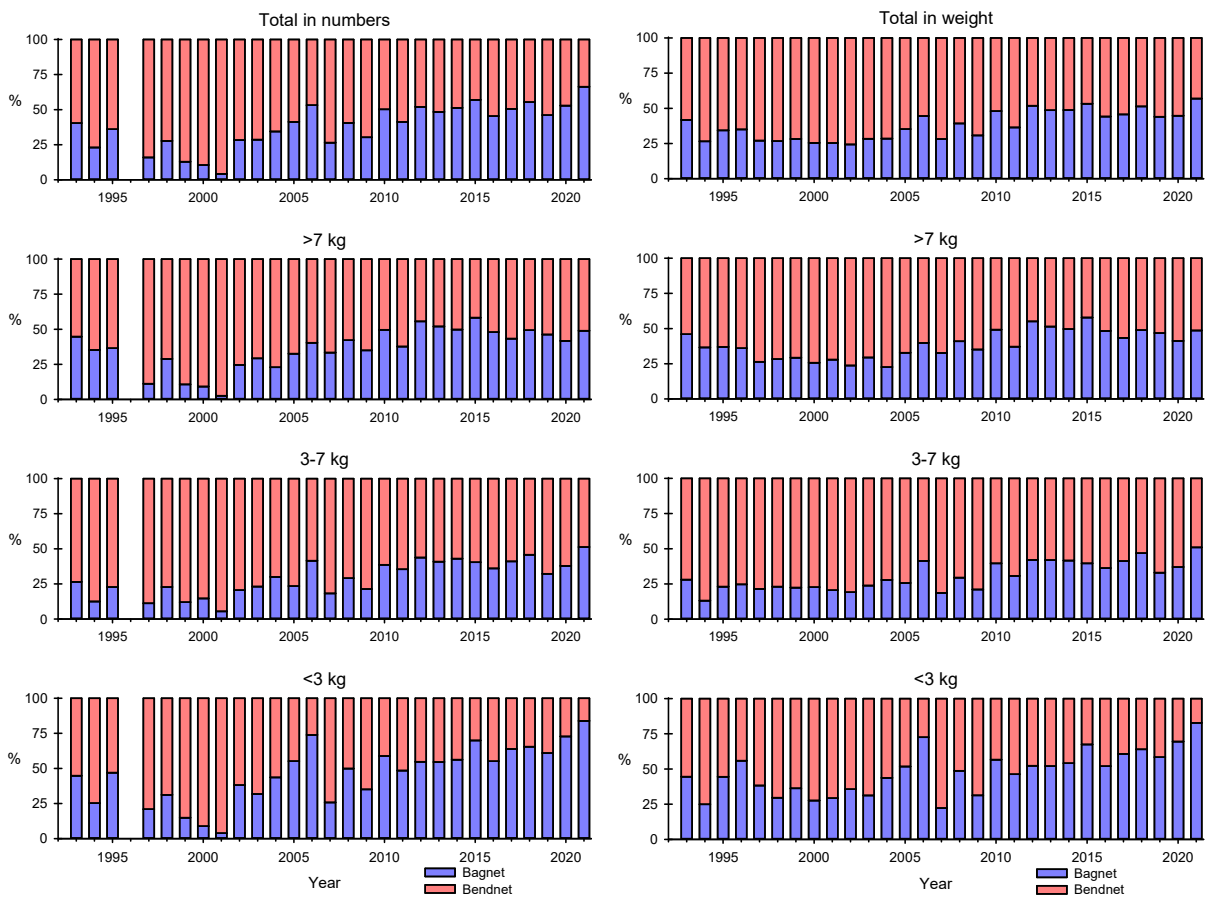


Figure 10. Annual salmon catch distributions between bag nets and bend nets for three size groups in numbers (figure on the left) and in weight (figure on the right) in Alta salmon district. Source; SSB.

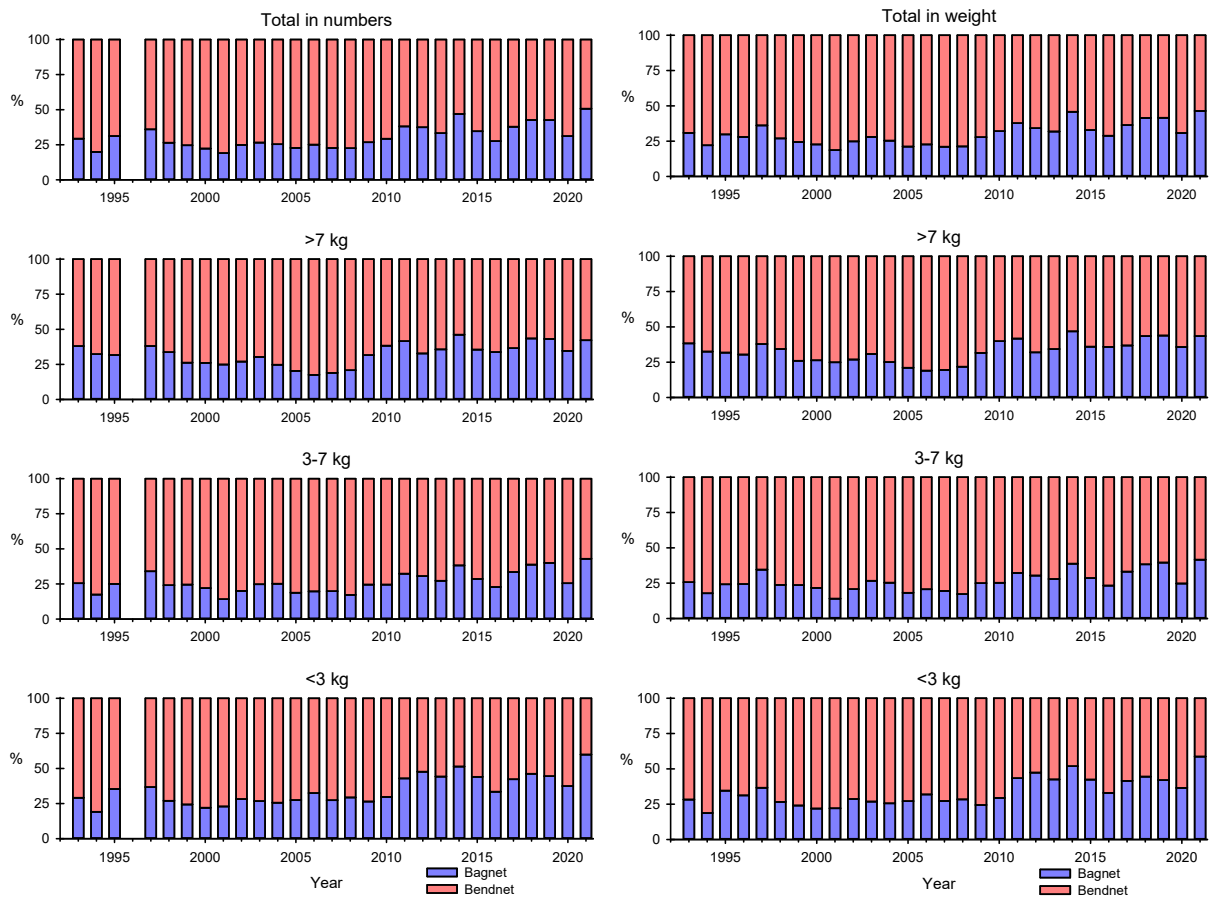


Figure 11. Annual salmon catch distributions between bag nets and bend nets for three size groups in numbers (figure on the left) and in weight (figure on the right) in Hammerfest salmon district. Source; SSB.

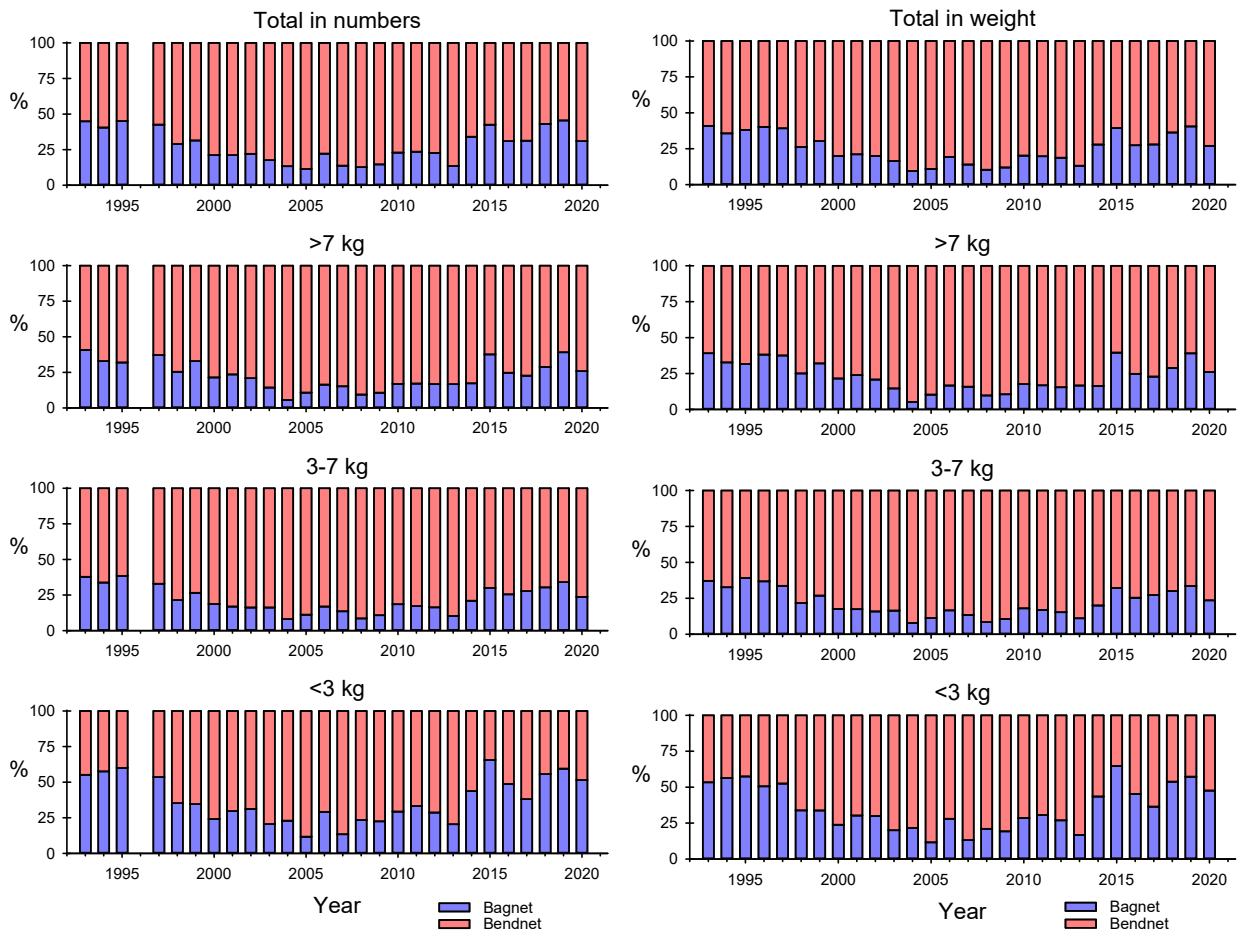


Figure 12. Annual salmon catch distributions between bag nets and bend nets for three size groups in numbers (figure on the left) and in weight (figure on the right) in Tana salmon district. Source; SSB.

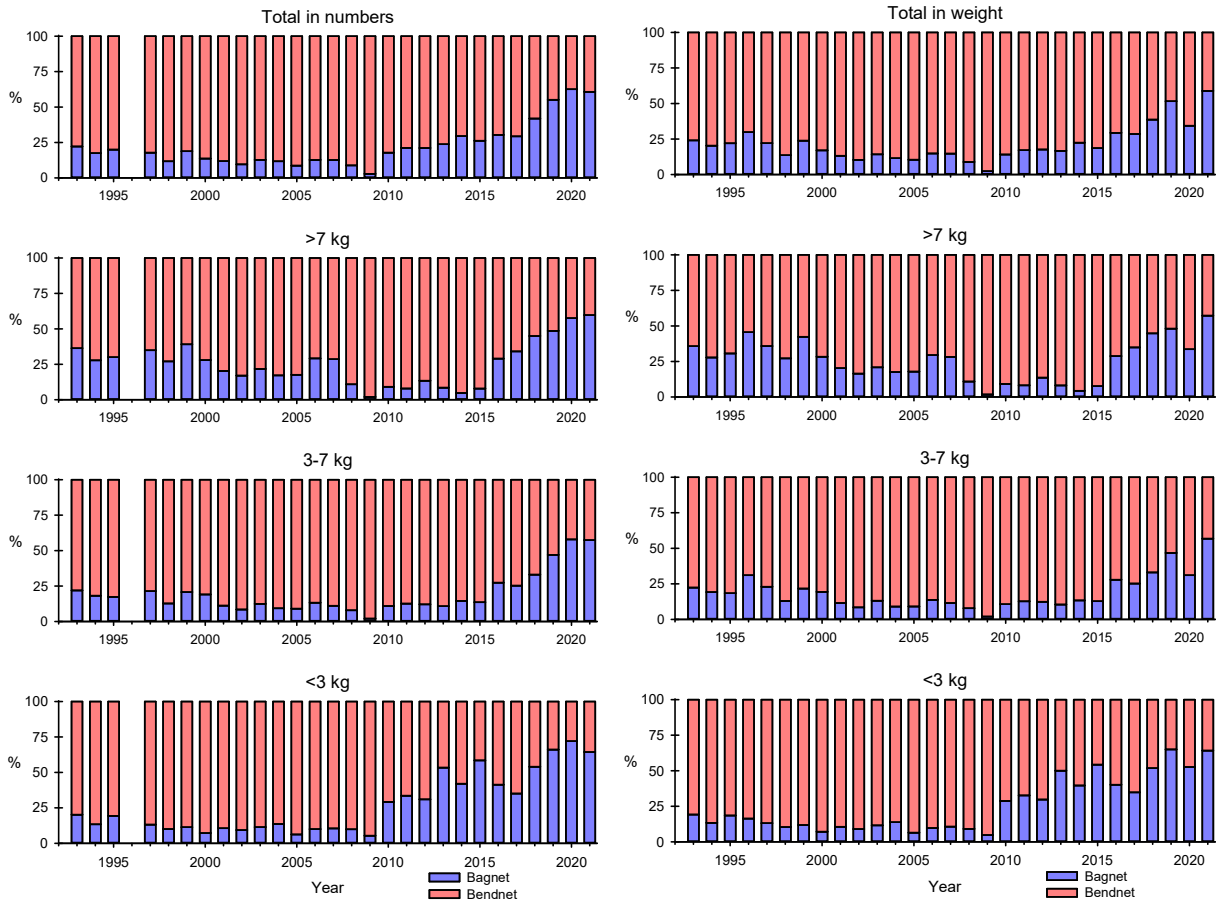


Figure 13. Annual salmon catch distributions between bag nets and bend nets for three size groups in numbers (figure on the left) and in weight (figure on the right) in Varanger salmon district. Source; SSB.

6. Weekly numbers and proportions of salmon in the catches, divided between bag net fishery and bend net fishery in four salmon districts; for all size groups combined, for small salmon, for medium salmon and, for large salmon

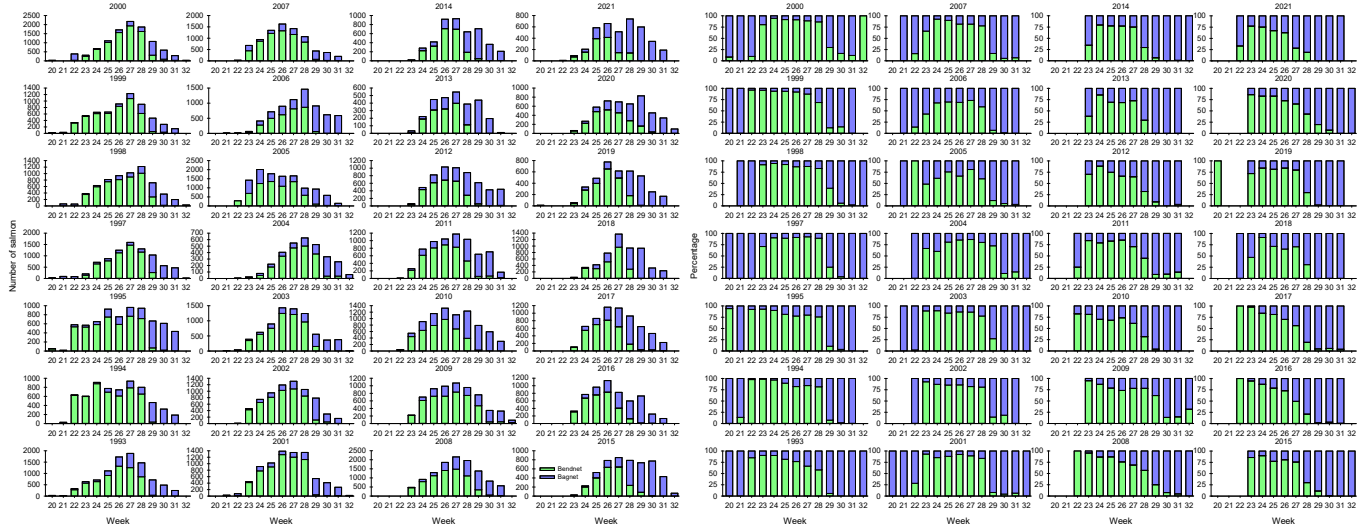


Figure 14. Weekly numbers and proportions of salmon caught with bag nets and bend nets in all size groups combined in Alta salmon district. Source; SSB.

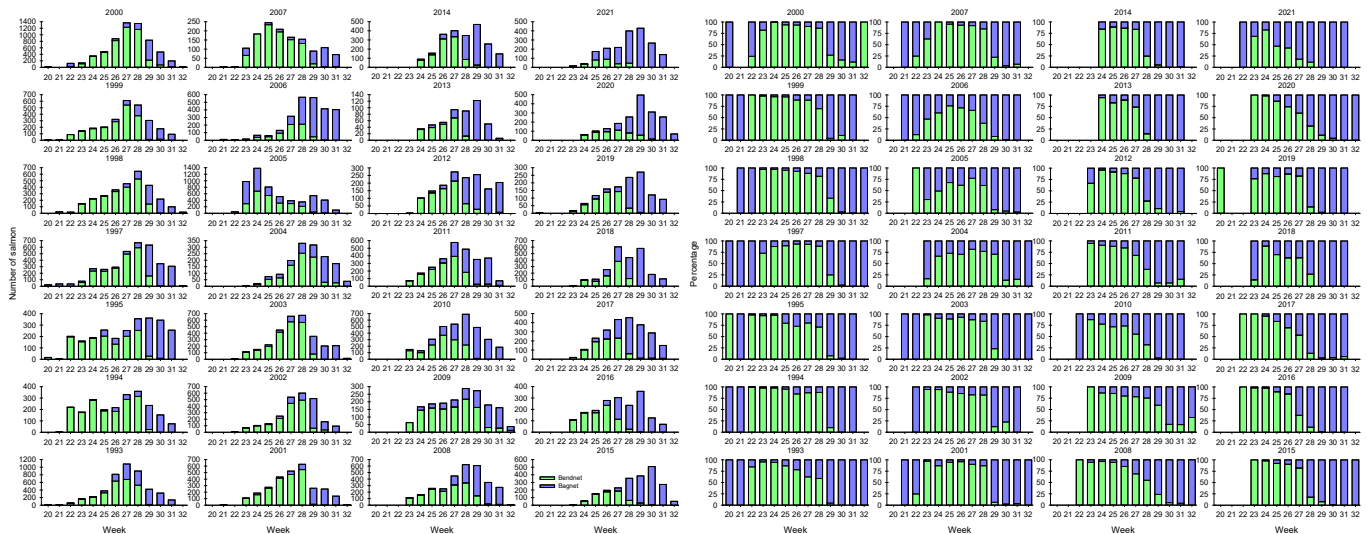


Figure 15. Weekly numbers and proportions of salmon below 3 kg caught with bag nets and bend nets in Alta salmon district. Source; SSB.

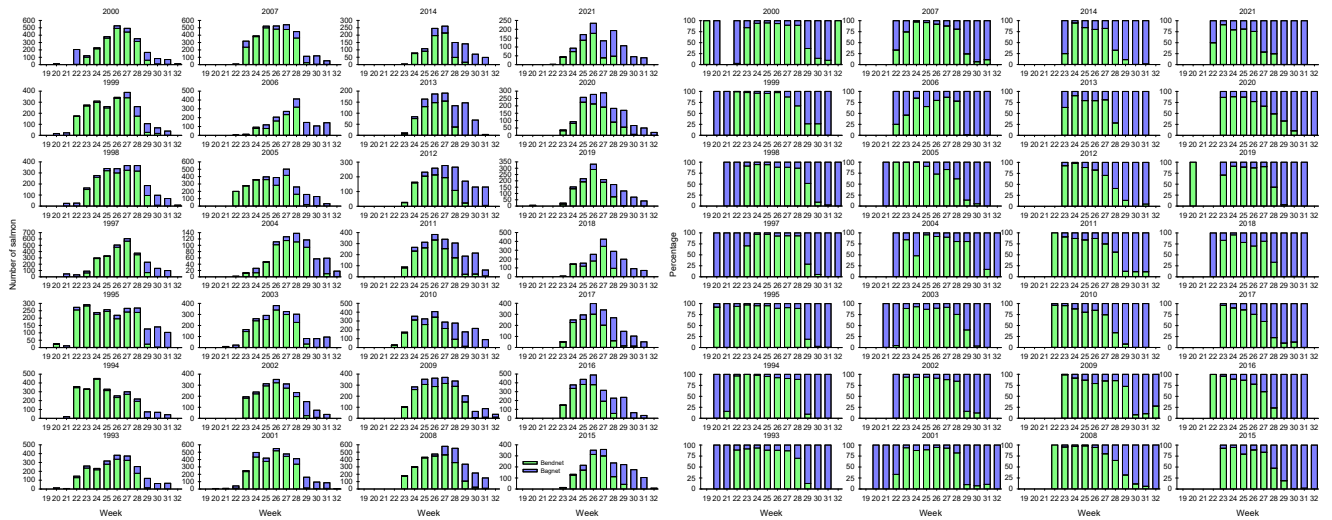


Figure 16. Weekly numbers and proportions of salmon between 3-7 kg caught with bag nets and bend nets in Alta salmon district. Source; SSB.

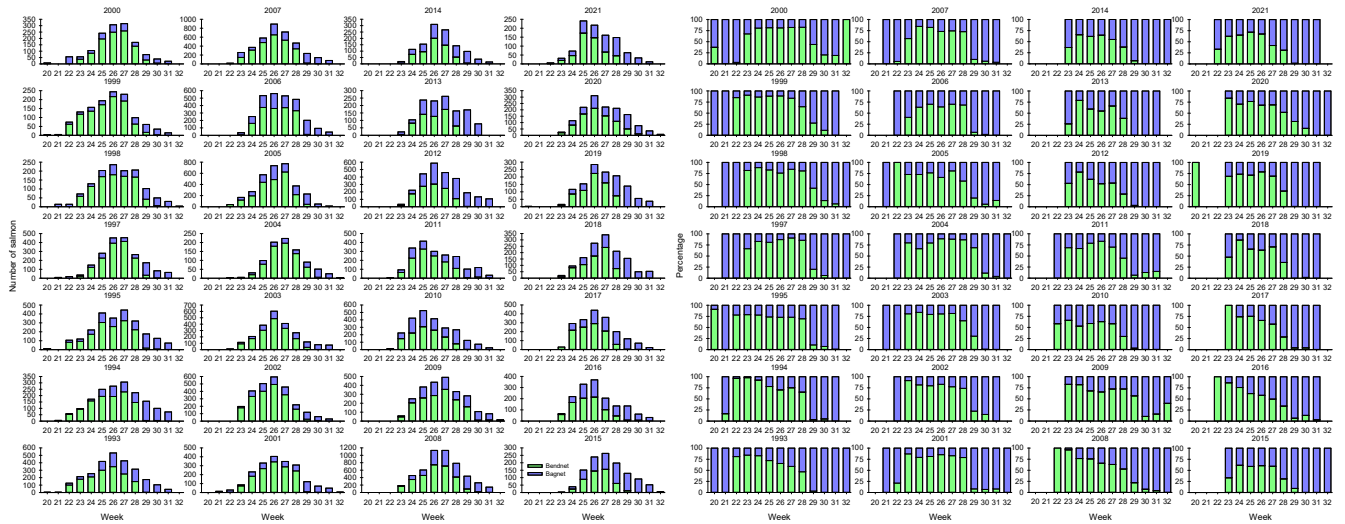


Figure 17. Weekly numbers and proportions of salmon above 7 kg caught with bag nets and bend nets in Alta salmon district. Source; SSB.

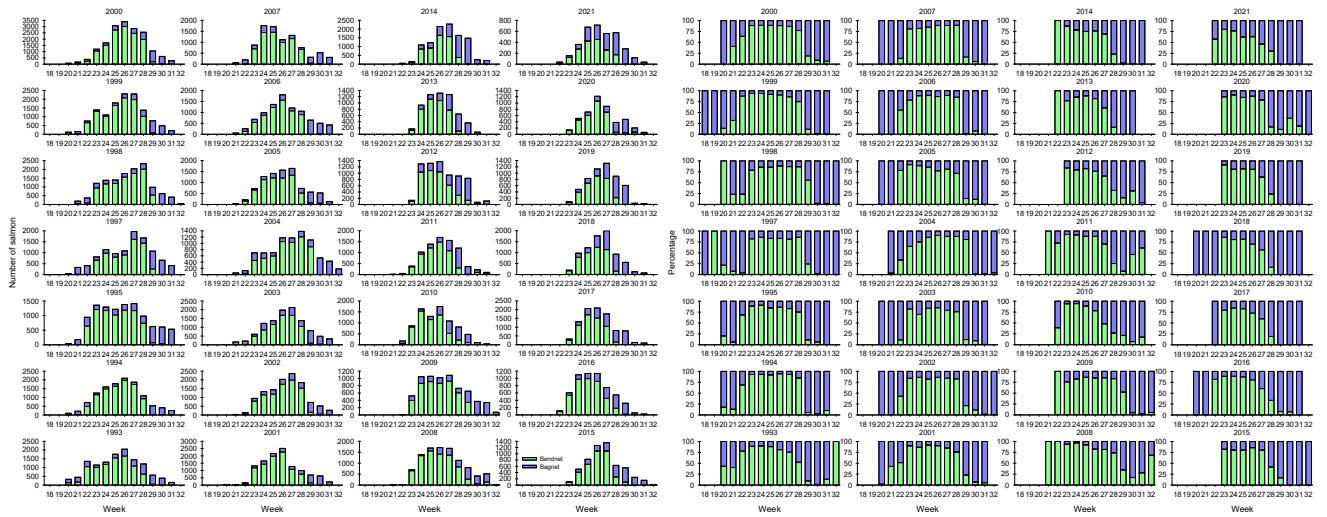


Figure 18. Weekly numbers and proportions of salmon caught with bag nets and bend nets all size groups combined in Hammerfest salmon district. Source; SSB.

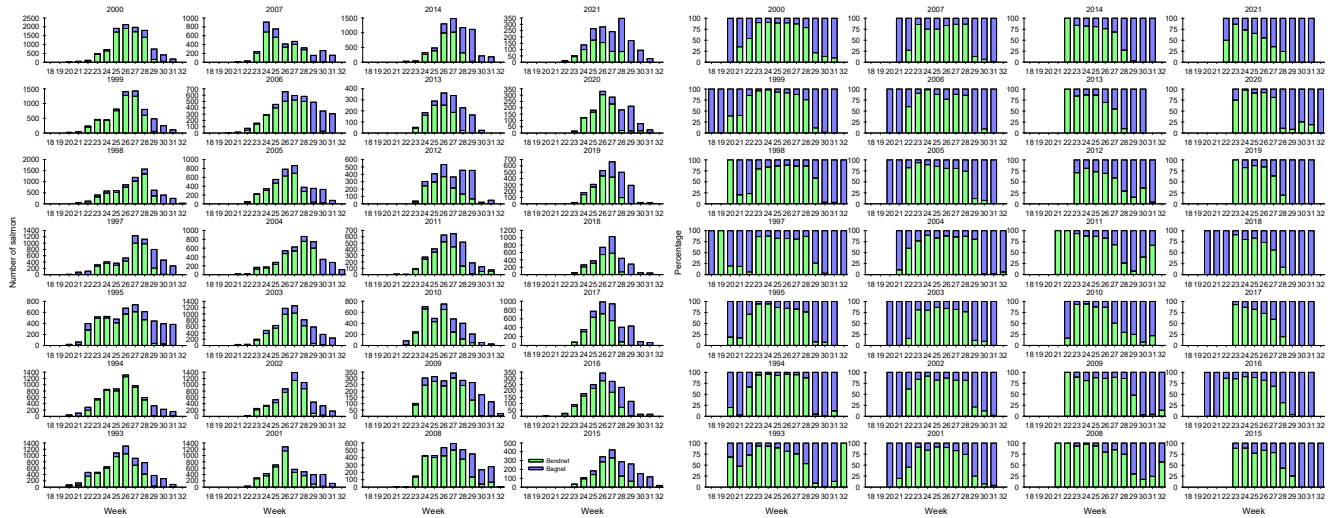


Figure 19. Weekly numbers and proportions of salmon below 3 kg caught with bag nets and bend nets in Hammerfest salmon district. Source; SSB.

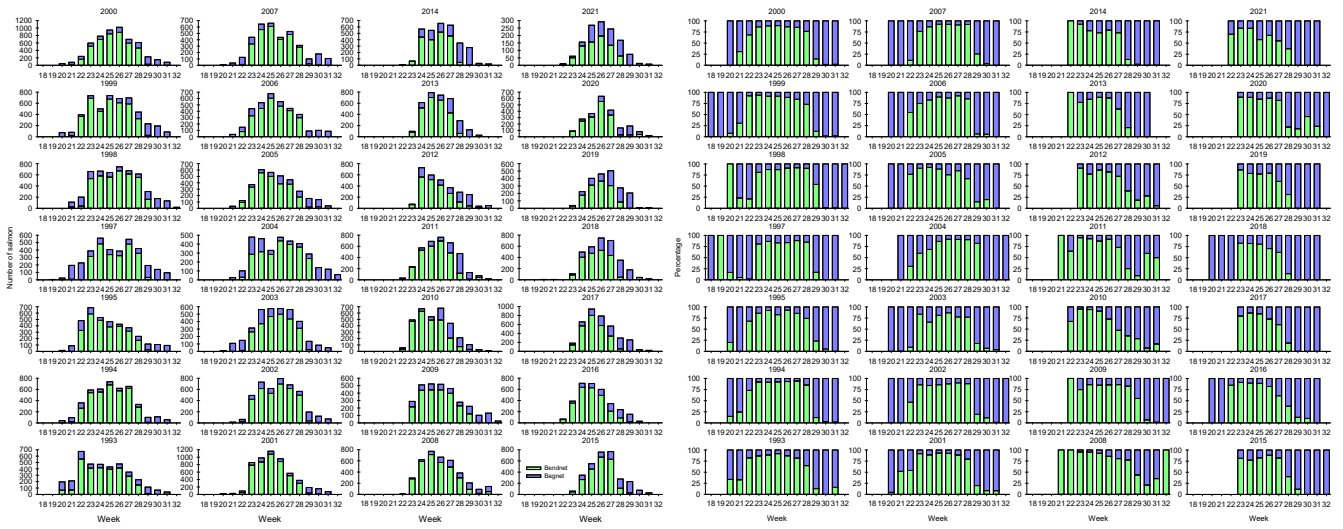


Figure 20. Weekly numbers and proportions of salmon between 3-7 kg caught with bag nets and bend nets in Hammerfest salmon district. Source; SSB

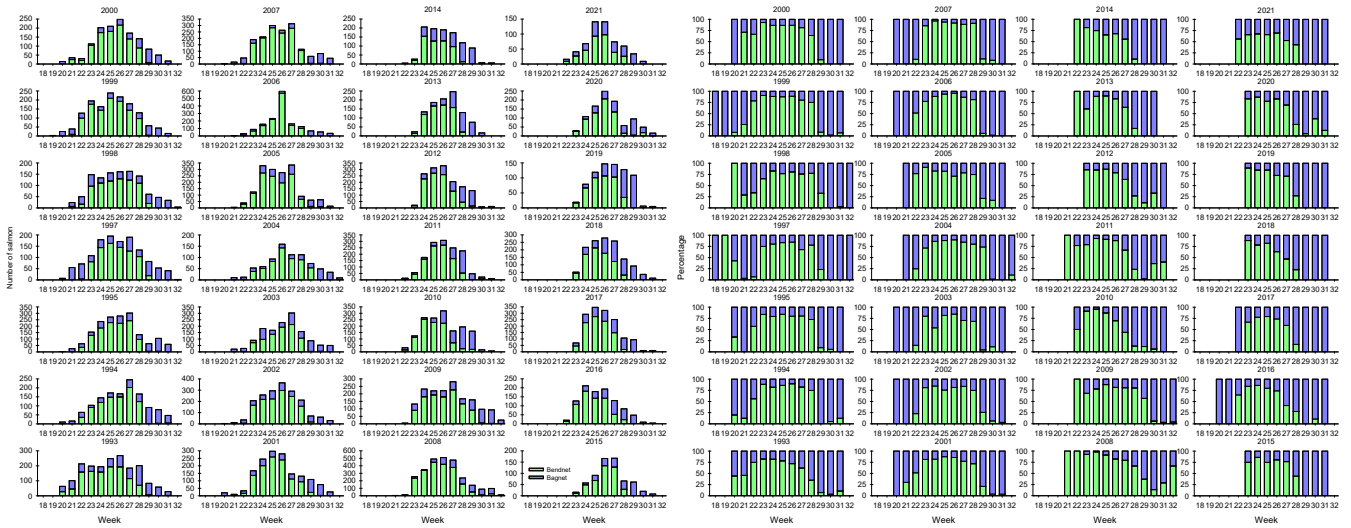


Figure 21. Weekly numbers and proportions of salmon above 7 kg caught with bag nets and bend nets in Hammerfest salmon district. Source; SSB.

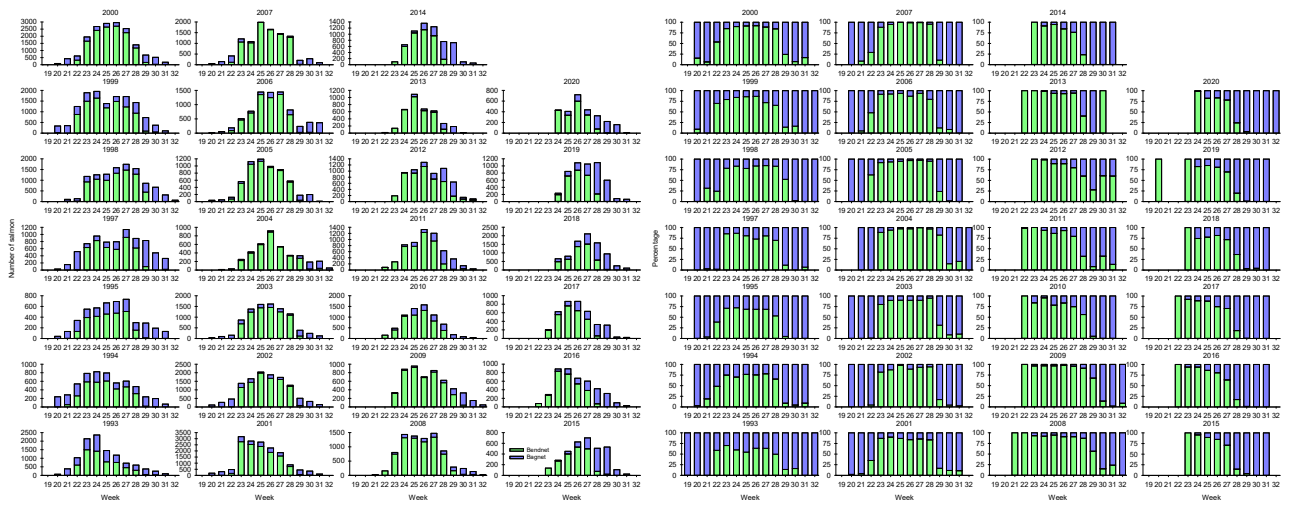


Figure 22. Weekly numbers and proportions of salmon caught with bag nets and bend nets all size groups combined in Tana salmon district. Source; SSB.

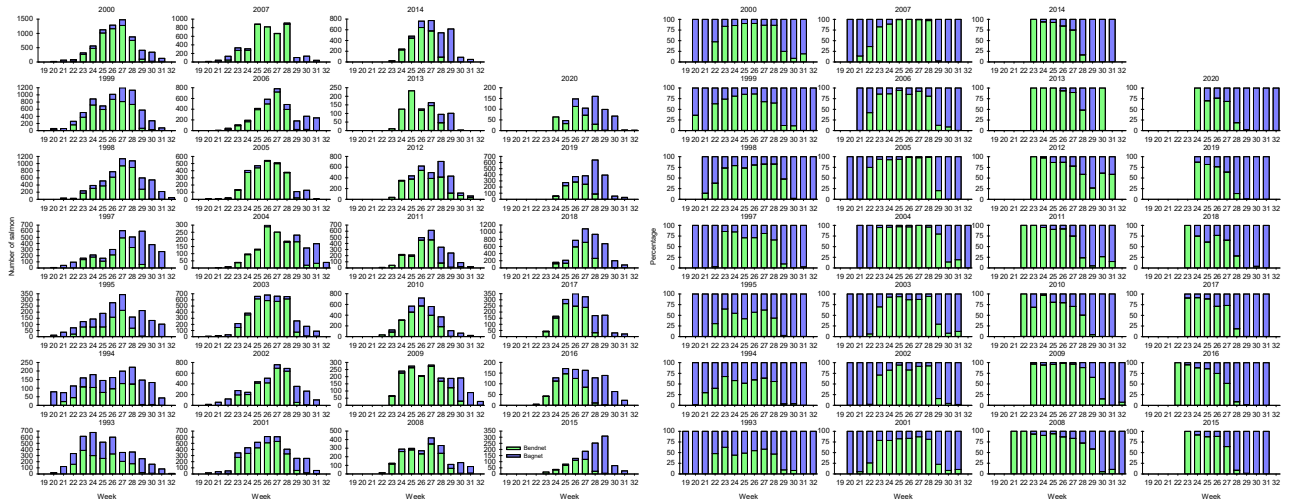


Figure 23. Weekly numbers and proportions of salmon above below 3kg caught with bag nets and bend nets in Tana salmon district. Source; SSB.

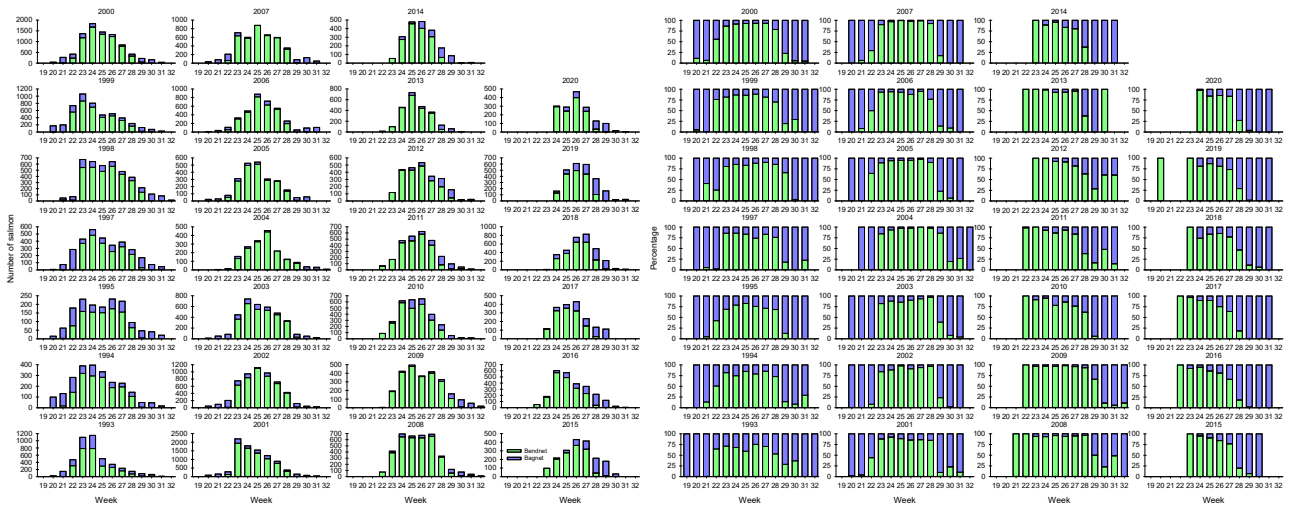


Figure 24. Weekly numbers and proportions of salmon between 3-7 kg caught with bag nets and bend nets in Tana salmon district. Source; SSB.

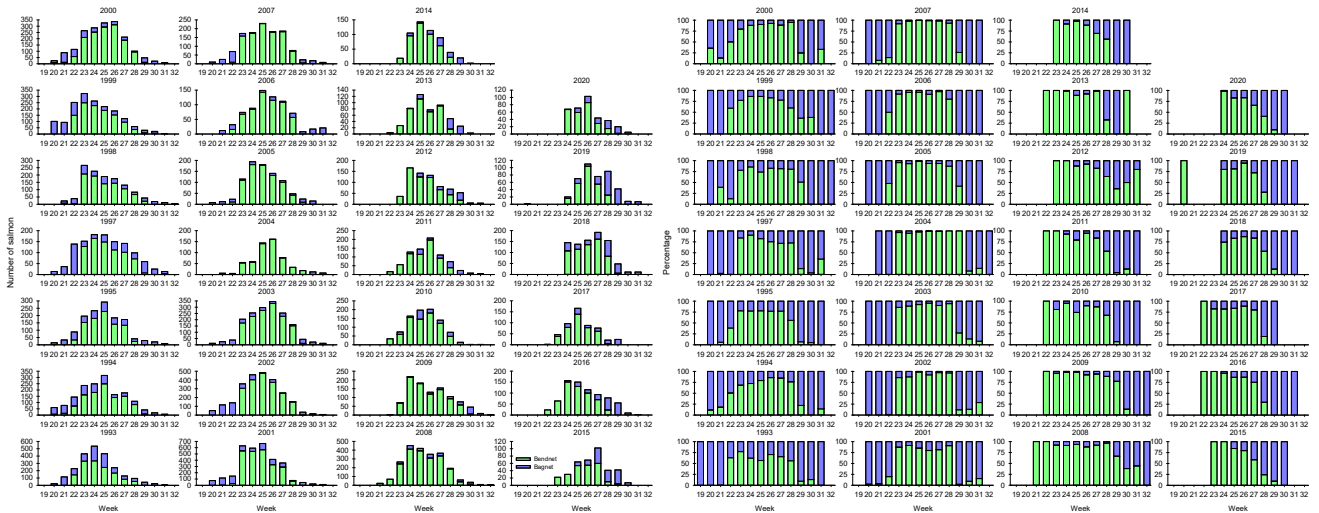


Figure 25. Weekly numbers and proportions of salmon above 7 kg caught with bag nets and bend nets in Tana salmon district. Source; SSB.

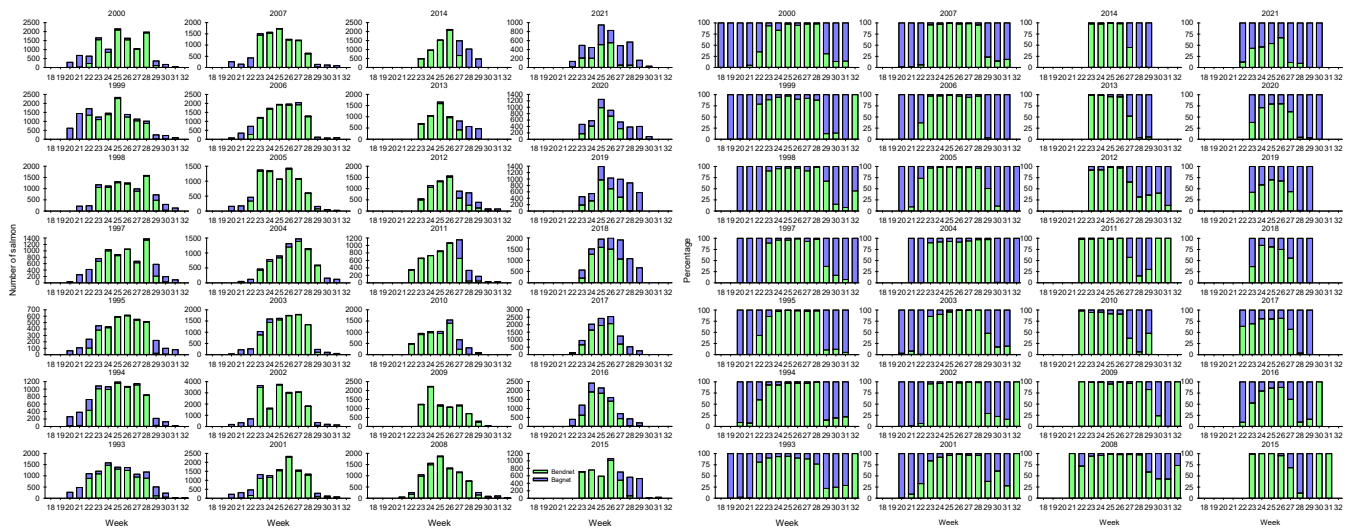


Figure 26. Weekly numbers and proportions of salmon caught with bag nets and bend nets all size groups combined in Varanger salmon district. Source; SSB.

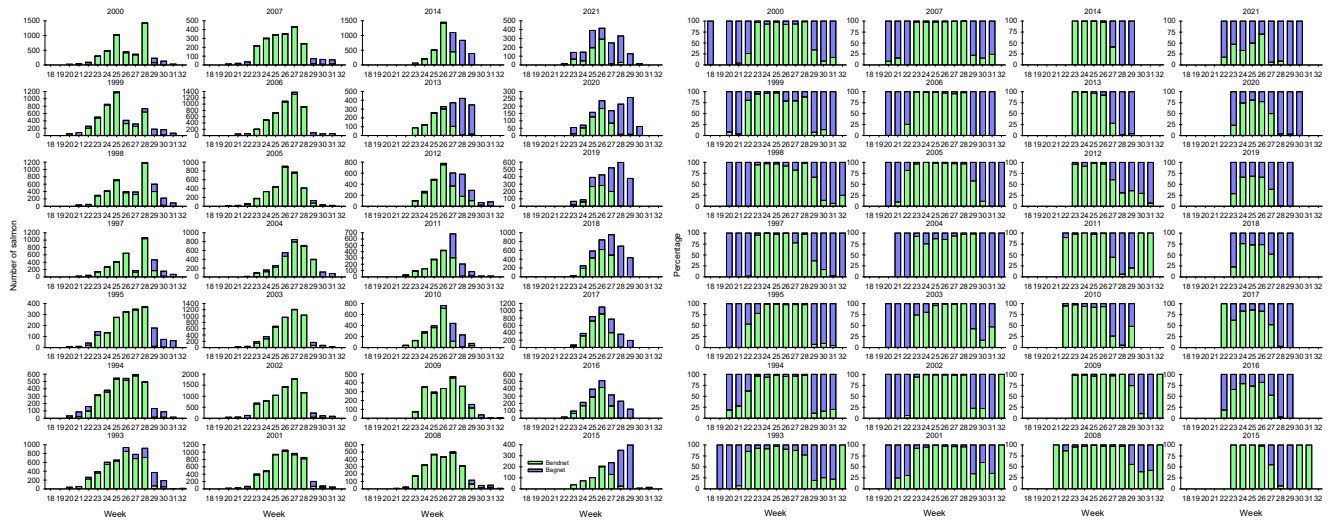


Figure 27. Weekly numbers and proportions of salmon below 3 kg caught with bag nets and bend nets in Varanger salmon district. Source; SSB.

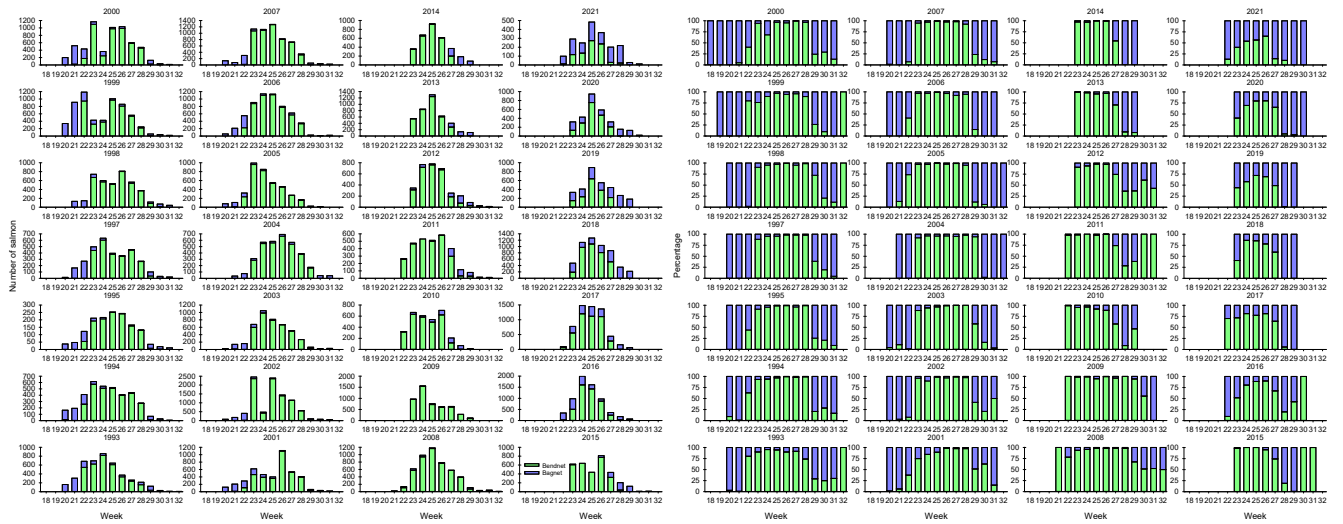


Figure 28. Weekly numbers and proportions of salmon between 3-7 kg caught with bag nets and bend nets in Varanger salmon district. Source; SSB.

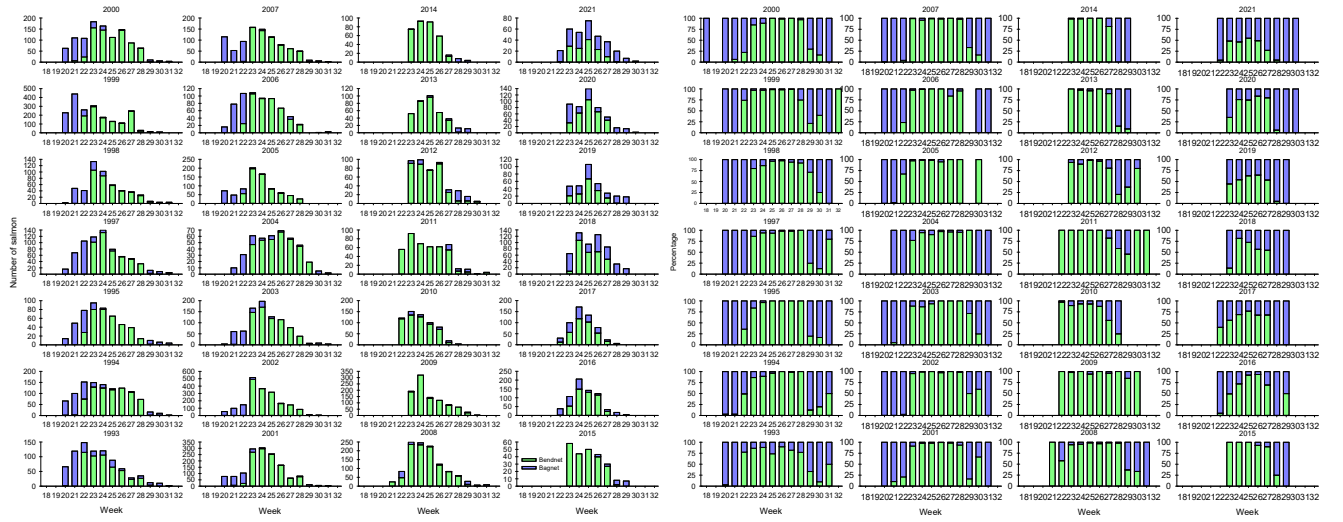


Figure 29. Weekly numbers and proportions of salmon above 7 kg caught with bag nets and bend nets in Varanger salmon district. Source; SSB.