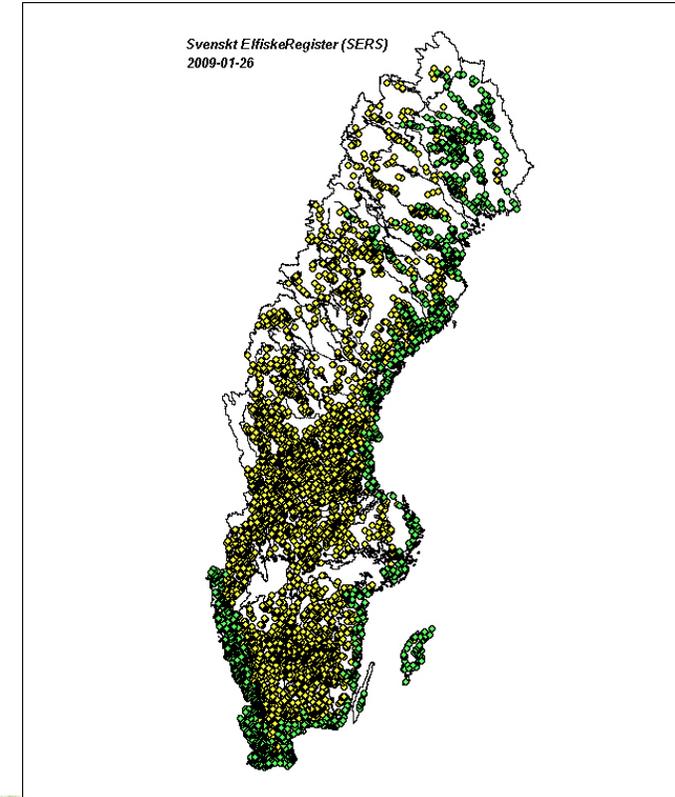


# Havsöring



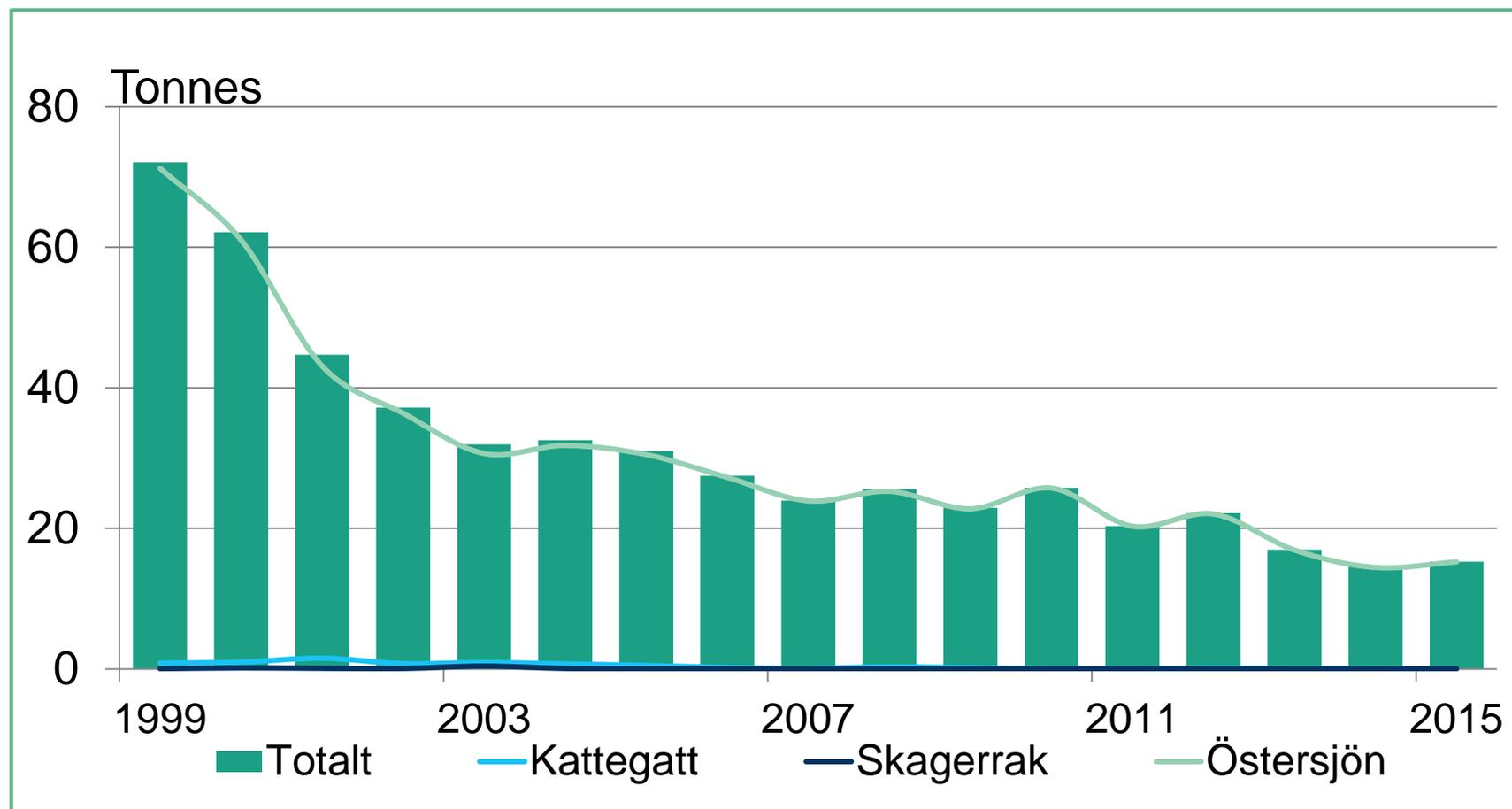
# Öring (*Salmo trutta*; brown trout)

- ca 1000 streams along the coast (70-110 along Skagerrak)
- few data on spawners, extremely few (n=3) on smolt output
- no data on sea survival (not even from tagging)
- data on recreational catches (perhaps >95% of total catch) is missing
- But data available on recruitment from many streams (stored in the database SERS (Swedish Electrofishing Register))





## Commercial fishery - Low interest, especially on the west coast.



Management must rely on what is possible and sustainable to harvest

This means that we need to know productivity of different streams and coastal areas

It is suggested that bottlenecks are

- at the fry stage (establishing a territory)
- smolt migration (migration mortality)
- post-smolt survival in the sea (predation)
- fishing mortality (also bycatches)

Focus on bottlenecks that we can influence

- smolt migration (migration mortality)
- fishing mortality (also bycatches)

We need to establish present status and potential of stocks.

- Electrofishing gives recruitment status

We need to assess fishing mortality.

- Fishing pressure needs to be quantified

Models to modify fishing pressure must be evaluated:

\*closed areas \*legal size \*bag-limit \*fishing season

Index rivers can give estimates of maximum productivity and the number of spawners required.

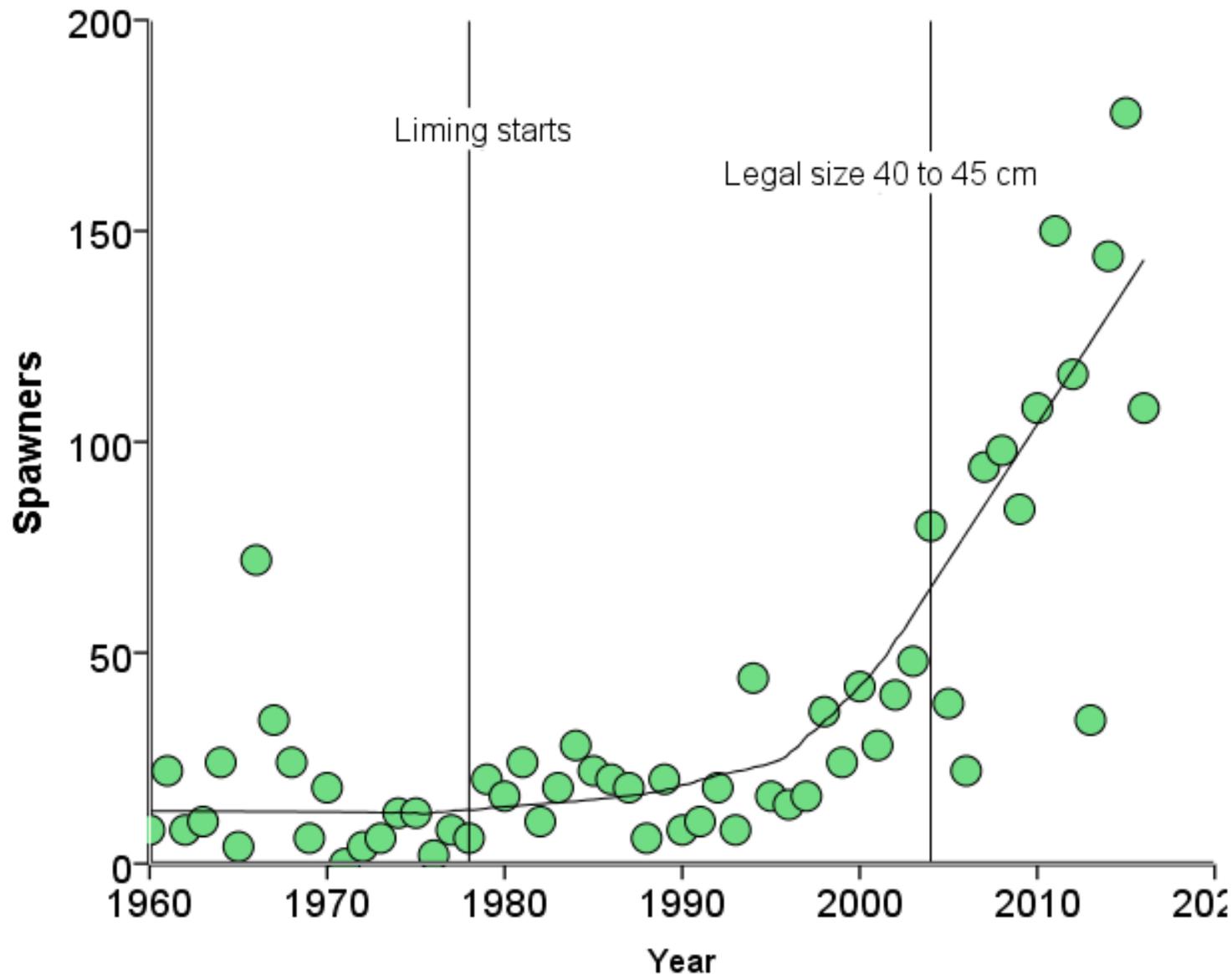
## River Högvadsån, Kattegatt.

Spawning run 1960-2016

Liming started 1978

Coastal fishing decreased from 1990

Legal catch size increased 2004

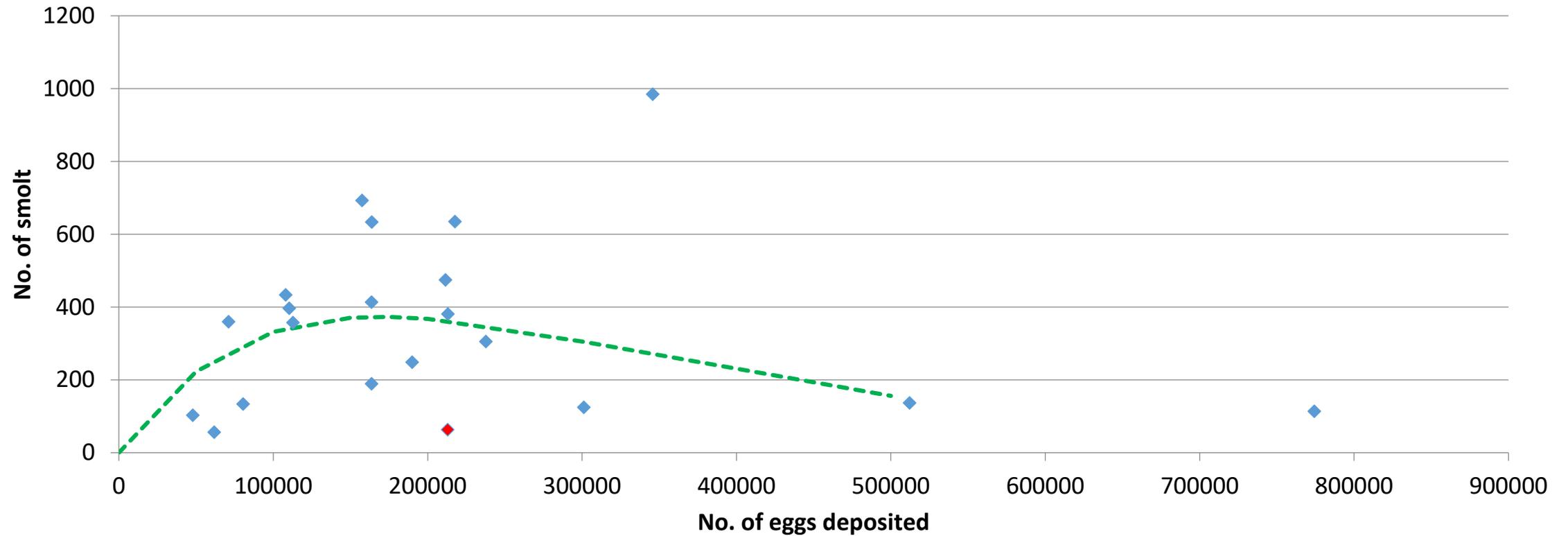


Index rivers can give estimates of maximum productivity and the number of spawners required.

## River Åvaån, Main Baltic Sea

Ricker curve:

40 eggs per m<sup>2</sup> of trout habitat gives optimum smolt production.





-True stock assessment not possible. Few records of spawners and smolt output. Instead we use recruitment data from nursery streams collected using electrofishing.

**RECRUITMENT STATUS – abundance of juveniles in streams.**

-status is computed as :

**Status (%) = (Observed density/Predicted maximum density)\*100**

Climate, stream size, habitat quality (habitat score; 0-12), water quality and geographical position (latitude, longitude) are taken in consideration when computing status. Only streams with a catchment area <1,000 km<sup>2</sup> included.

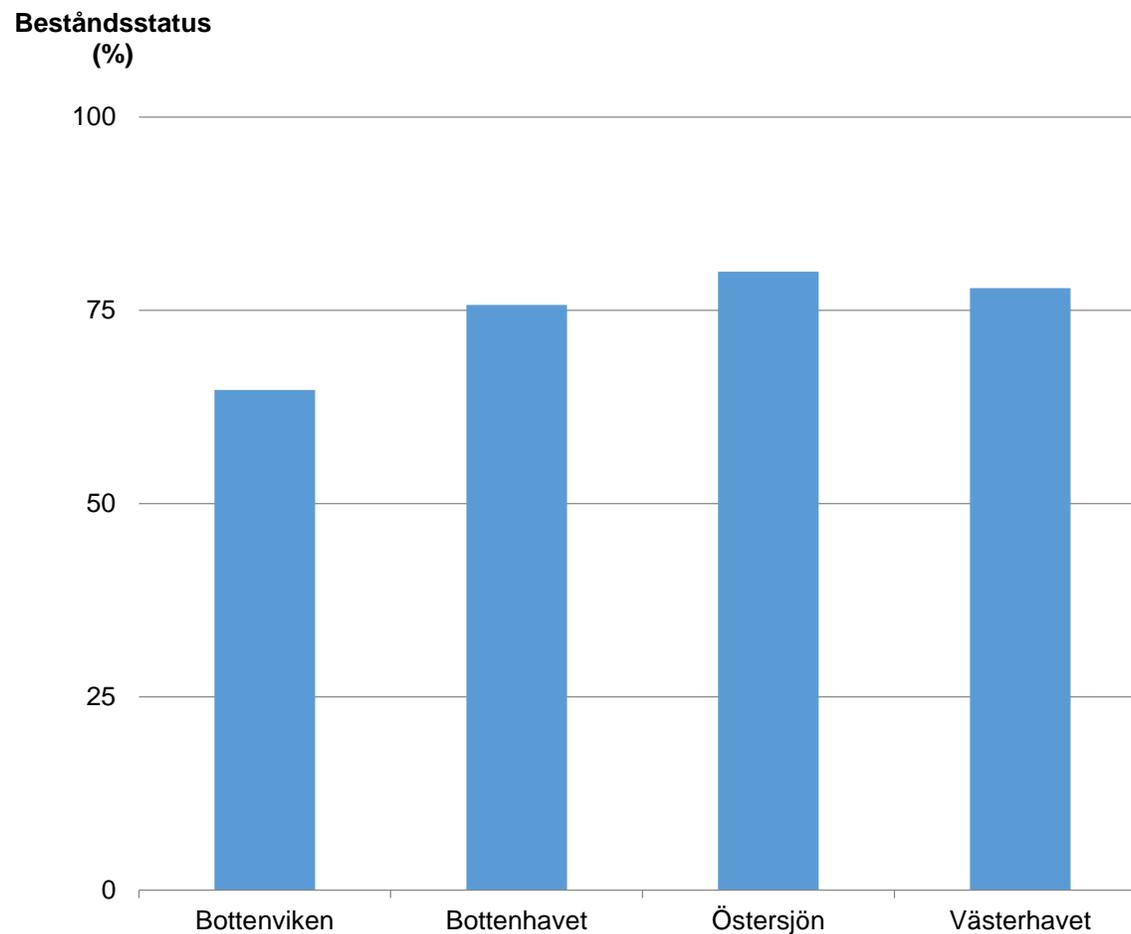
Reference: Pedersen et al. 2017 (SGBALANST 2011, WGBAST 2012 & 2015, 2016. WKTRUTTA I, WKTRUTTA II).



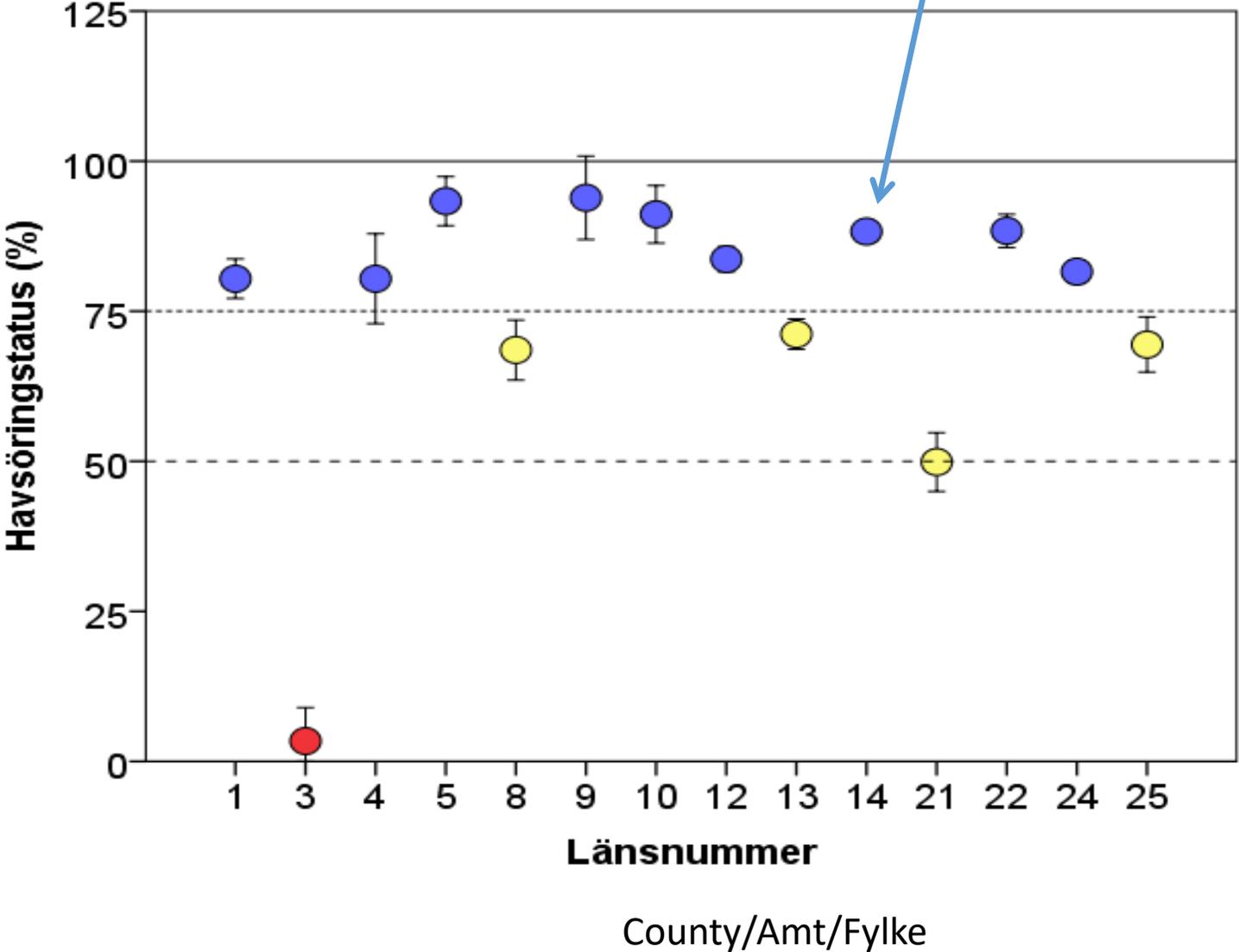


**Status is below 75% in Bottenviken. However, stocks are improving due to a ban on gill-nets (from 2006) in shallow waters in spring and autumn.**

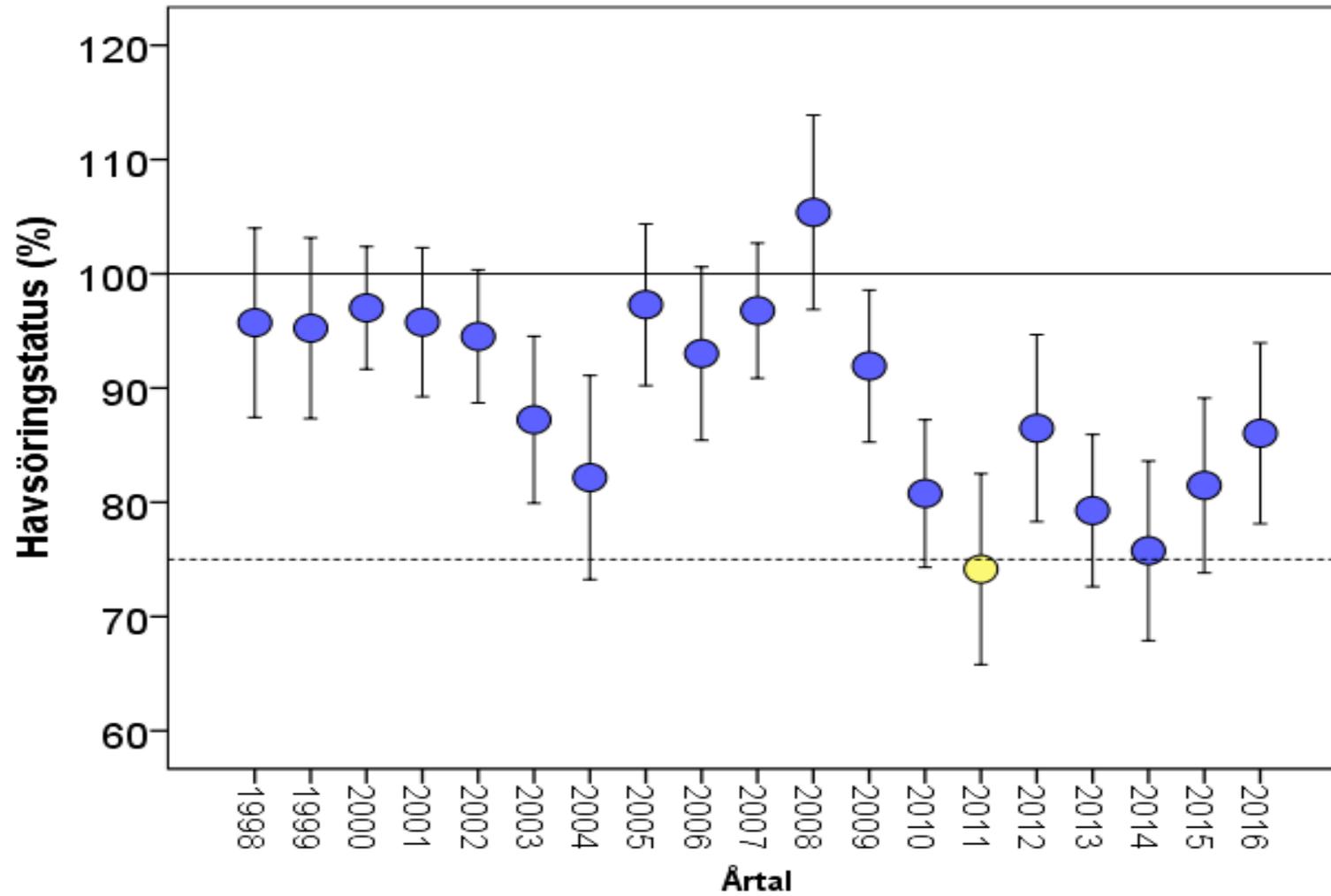
**Recruitment status sea trout**



Recruitment status 2010-2016.

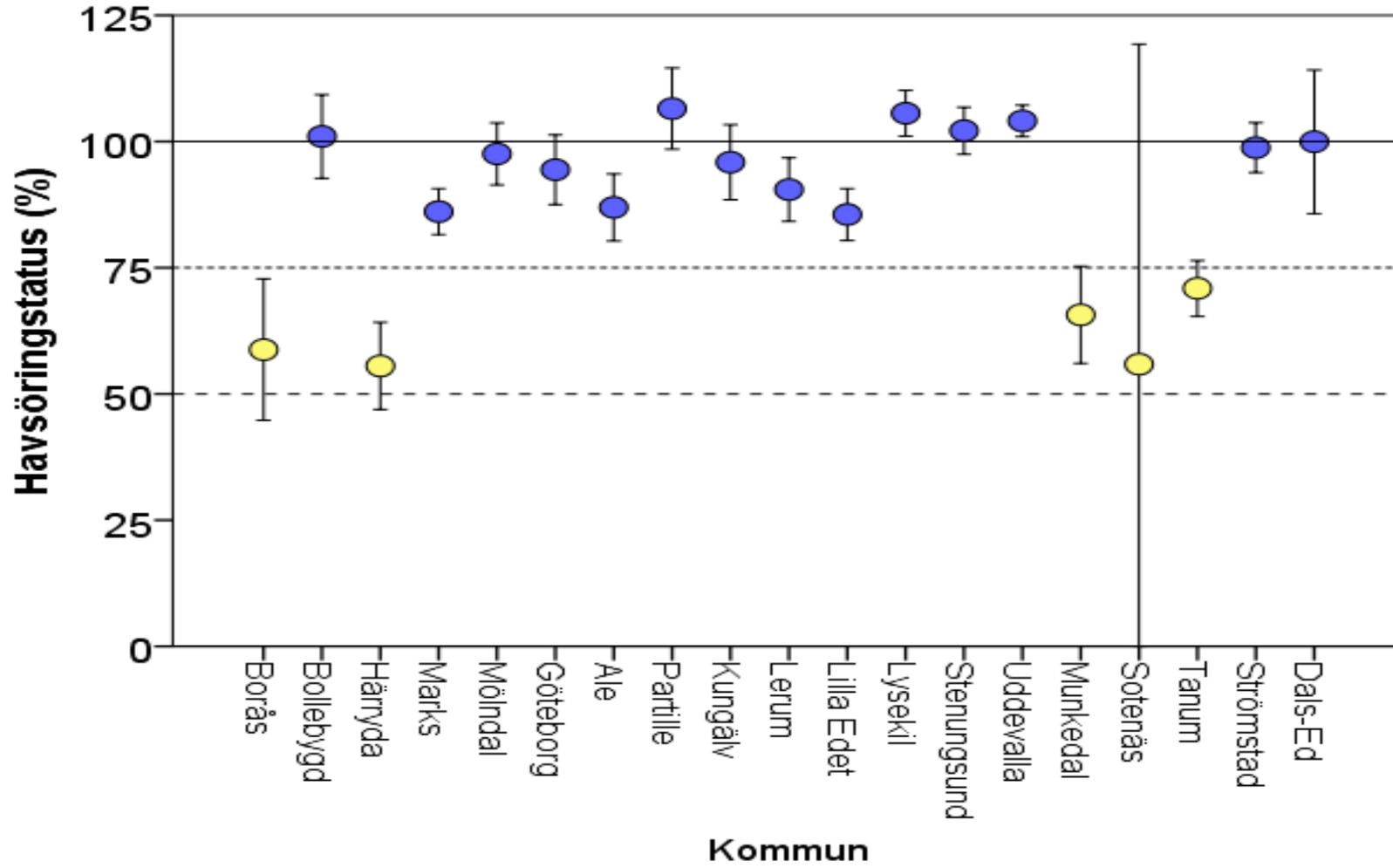


# Recruitment status – Skagerrak area, Sweden



Low flow in rivers during summer and autumn

Recruitment status for different communities (Skagerrak area)





Advice:

**Fångsterna bör inte ökas.**

(Försiktighetsprincipen!)

(No increase in catches.)

**Fångststatistik från fritidsfisket måste insamlas.**

(Catches in recreational fishery need to be quantified.)

(Are catches correlated with weak stocks?)

Suggestions for fishing rules not allowed:

- Decrease gill net fishing on trout (Precautionary principle, WGBAST/SGBALANST recommendations)
- Fishing free areas at river mouths

Suggestions for monitoring:

- Monitoring needs to also focus on the sea phase of trout
- More index stocks/rivers into a national programme (not salmon rivers)
- Or continue with recruitment status?