

**Baltic sea trout workshop in Kotka 31.5. – 2.6. 2006-05-16**

**Swedish country report**

**Jonas Dahl**

**Swedish Board of Fishery, Institute of Freshwater Research  
Brobacken, Älvkarleby**

There are approximately 600 rivers and creeks that have viable sea trout populations in Sweden. Based on relatively few but long time series, the status of sea trout populations in the South of Sweden, Main Basin and Bothnian Sea has generally been improved compared to the 1920 – 1970's (Degerman et al. 2006). The exception is the Bothnian Bay area, where the sea trout populations are very weak.

## 1. Fishing and catches by sea areas

By tradition, there has been a low interest for commercial sea trout fishing in Sweden, whereas sportfishing and non-commercial net fishing has been more popular. A national survey (Svenskt Fiske 2005) of 7000 fishermen (both sport fisherman and non-commercial net fishermen) showed that recreational fishing (rod) was the main source of the Swedish catches (expressed in tonnes) in 2004 (Table 1). Data for commercial fishing are taken from log books.

Table 1. Shows the result of a study in 2004 (expressed in tonnes).

Sportfishing (rod)	336	68%
Non-commercial (net & traps)	124	25%
Commercial fishery	33	7%
	493	

However, the non-commercial net-fishing becomes more important in the northern parts of Sweden (Table 2).

Table 2. Non-commercial catches in 2004 (expressed in tonnes).

Area	Sportfishing	Nets and Traps
West coast	98,6 (92 %)	8,9 (8%)
The sound	59,7 (90 %)	6,4 (10 %)
Main Basin	122,7 (68 %)	58,2 (32 %)
Bothnian Bay and Bothnian Sea	55,5 (52 %)	50,6 (48 %)

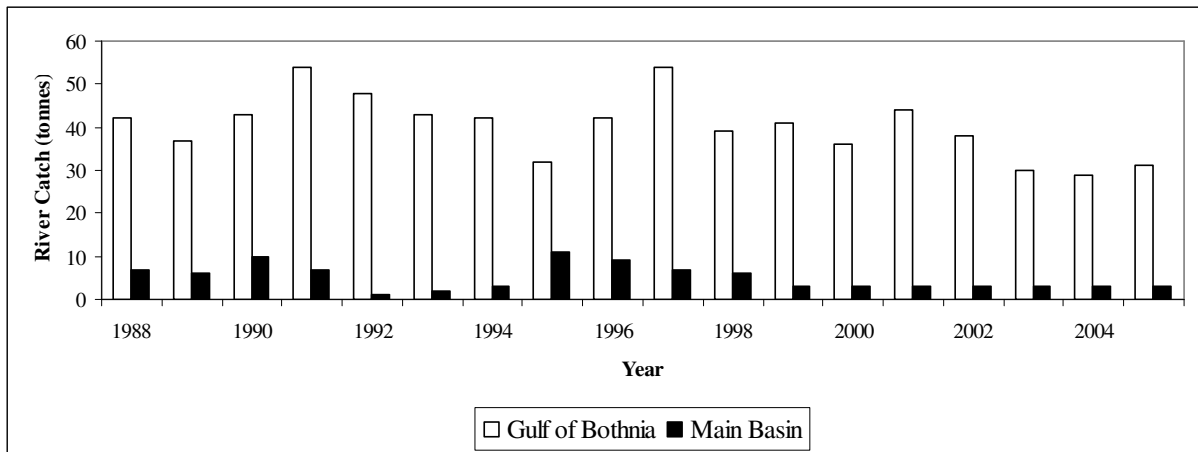


Figure 1. Nominal river catches (tonnes) of sea trout divided in Main basin and Gulf of Bothnia. Data only collected from rivers with salmon stocks.

## 2. Fishing regulations

### Bothnian Bay (New rules starting from 1 June 2006)

#### *Sea*

50 cm minimum size

No nets in shallower waters than 3 meters during spring (1 April – 10 June) and fall (1 October – 31 December).

Each river or creek has a restricted area outside of the river mouth where fishing is prohibited.

#### *River*

Fishing allowed usually during 18 June - 31 August but differs among rivers. Rivers with only hatchery production has longer fishing season.

1 salmon or sea trout per day in rivers with wild stocks where sportfishing is allowed. In rivers with hatchery production, local rules are applied.

### Bothnian Sea

#### *Sea*

Each river or creek has a restricted area outside of the river mouth where fishing is prohibited

Still 40 cm minimum size

*River*

Fishing allowed usually during June, July and August but differs among rivers. Rivers with only hatchery production has longer fishing season, for example Dalälven 1/3 – 31/10.

**Main Basin**

*Sea*

50 cm minimum size

Restricted areas are established outside the mouth of some rivers and streams.

In Scania and Blekinge, fishing after Sea trout is allowed between 1/1 – 15/9.

*River*

Fishing usually allowed 1/4 – 30/9 but differs among rivers.

**West coast**

*Sea*

45 cm

Fishing for sea trout allowed 1 April – 30 September.

Restricted areas are established outside the mouth of specific rivers and streams.

Only 120 mm mesh is allowed in waters shallower than 3 meters.

*River*

Fishing usually allowed 1/3 - 30/ 8 in larger rivers but differs among rivers.

### 3. Sea trout stocks and their status by sea area

Preliminary data suggests that only 11 % of the rivers in Bothnian bay, 31 % in the Bothnian Sea, 35 % in the East Main Basin and 41 % in the South Main Basin has expected densities of sea trout parr in waters with high/good ecological status. These expectations are derived from the EU water directive which divides running waters into five categories (high, good, intermediate, poor and bad). Different biological, chemical and geological parameters are used to determine the status of a specific river or creek.

### 4. Annual monitoring of trout stocks

Table 3. Number of rivers and localities that is electrofished annually in Sweden (specifically for sea trout).

Area	Rivers	Localities
Bothnia Bay	10	134
Bothnia Sea	18	34
South Main Basin	29	47
Scania	35	49
West Coast	106	164

### 5. Threats for the stocks

Water regulation  
Sea fishing  
Water quality  
Morphological degradation of streams (effects of canalization and timber rafting)  
Low flow periods  
Nutrient retention ponds

### 6. Improvement measures in sea trout rivers

Restoration after excavation for timber rafting.

By-pass channels (nature-like fish ways) has become very popular, allows also other species to migrate upstream.

Dams and other obstacles are removed or fish ladders are constructed.

Liming

## 7. Releases of hatchery trout smolts (range between 1999-2005).

Table 4. Releases of hatchery sea trout smolts (range 1999-2005). All hatchery fish has their adipose fin removed, since 2005.

Sea Area	Numbers of smolt released	Carlin Tagging
Bothnian Bay	125 000 - 148 000	2980 - 5000
Bothnian Sea	232 000 - 302 000	7000 - 12 488
Main Basin	37 000 - 215 000	600 - 1827
West Coast	3 000 - 10 000	0 - 1000

## 8. Recapture rates (Carlin-tagging)

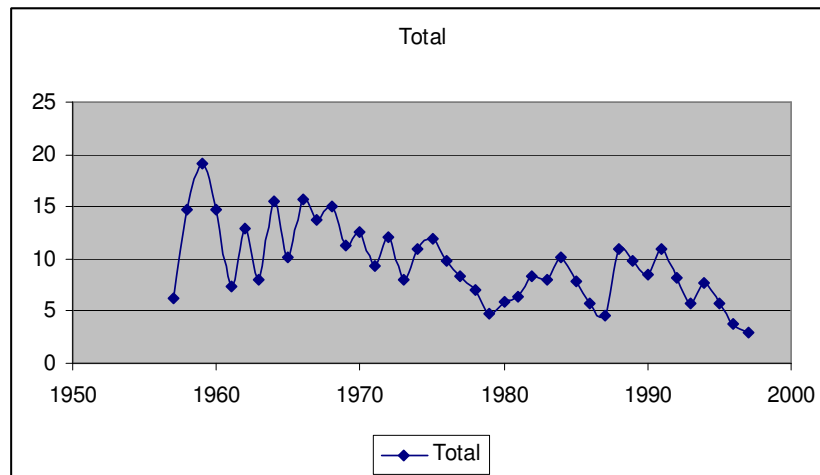


Figure 2. Mean recapture of Carlin-tagged sea trout smolts in the Gulf of Bothnia (Lule älv River, Skellefteälv River, Umeälv River, Ångermanälven River, Indalsälven River, Ljusnan River and Dalälven River). Recapture rates expressed in %. Results in 1950's based on small datasets.

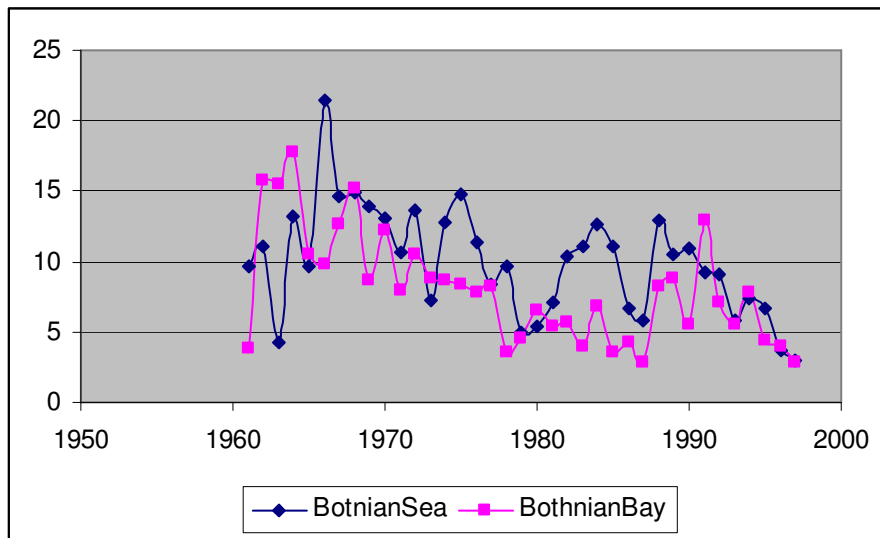
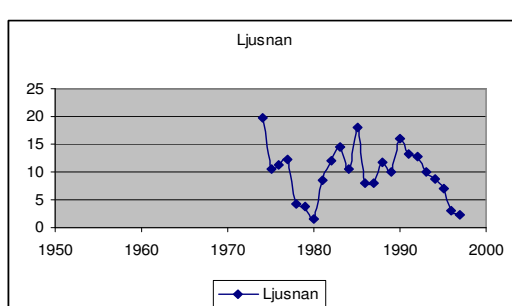
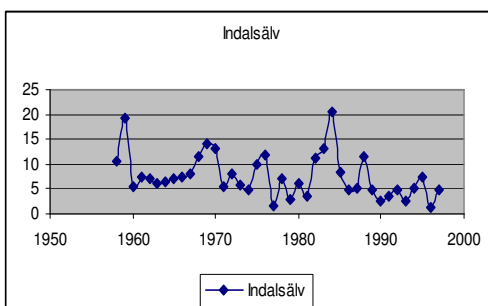
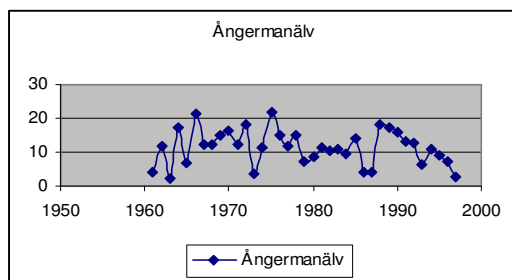
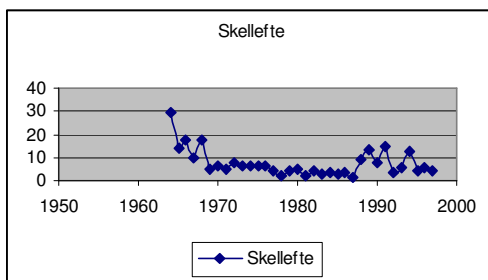
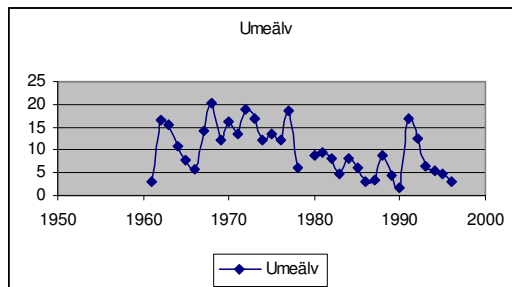
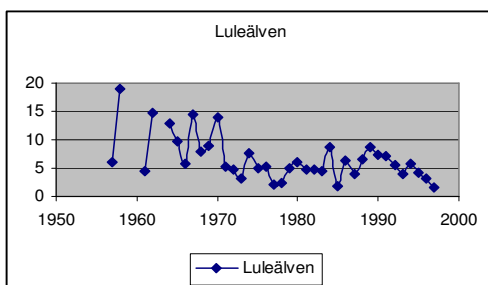


Figure 3. Recapture rates (expressed in %) of hatchery sea trout divided into Bothnian Bay (Luleälven River, Skellefteälven River and Umeälven River) and Bothnian Sea (Ångermanälven River, Indalsälven River, Ljusnan River and Dalälven River).



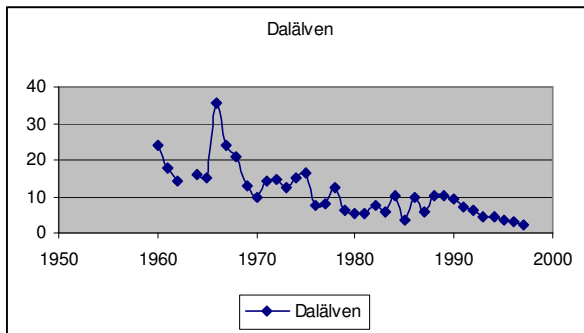


Figure 4. Recapture rates (expressed in %) for the individual rivers.

## 9. Research activities

Electrofishing surveys in sea trout rivers  
 Carlin tagging  
 Smolt trapping  
 How to produce a more nature-like hatchery trout?  
 Effects of fish food fat levels on hatchery trout survival  
 Determine reproductive success  
 Local adaptations in sea trout populations  
 Sexual selection vs. artificial selection.

## 10. Needs for national conservation and management measures

Increase minimum size in the Bothnian Sea, all areas in the Baltic Sea should have at least 50 cm.

Restoration in rivers with former timber rafting.

Establishment of long-term index rivers.

## **11. Main conclusions**

Preliminary data suggests that in waters with high/good ecological status, only 11 % of the rivers in Bothnia Bay, 31 % in the Bothnia Sea, 35 % in the East Main Basin and 41 % in the South Main Basin has expected densities of sea trout parr.

Sportfishing is the main mortality source for Swedish sea trout in the West coast, Scania and in the main Basin whereas sportfishing, non-commercial fishing with nets and commercial trap nets is of equal importance in the Bothnian Sea and Bothnian Bay.

The conditions for the sea trout are critical in the Bothnia Bay. The main reasons are believed to be fishing and poor freshwater habitat conditions. Important management measures have been implemented in this area (starting from 1 June 2006). This work will then continue also in Bothnian Sea and in the Main Basin.