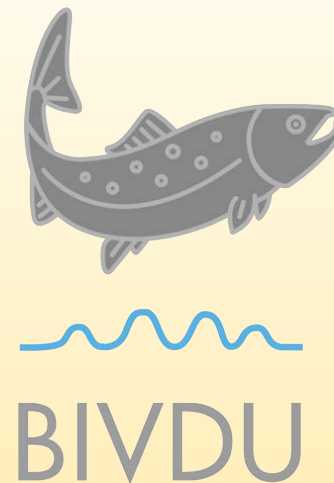


# Indigenous Salmon Research Symposium



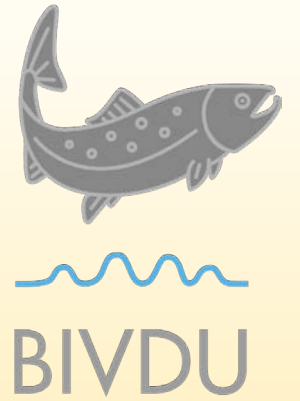
**Utsjok 3. – 4. oktober 2024**

**By**

**Inge Arne Eriksen, leader in Bivdu**

# **Thank you for the invitation!**

**Thank you for the opportunity to present our professional viewpoints on fish stock dynamics and the population basis for salmon in the Tana river system.**



**Bivdu considers it of paramount importance that:**

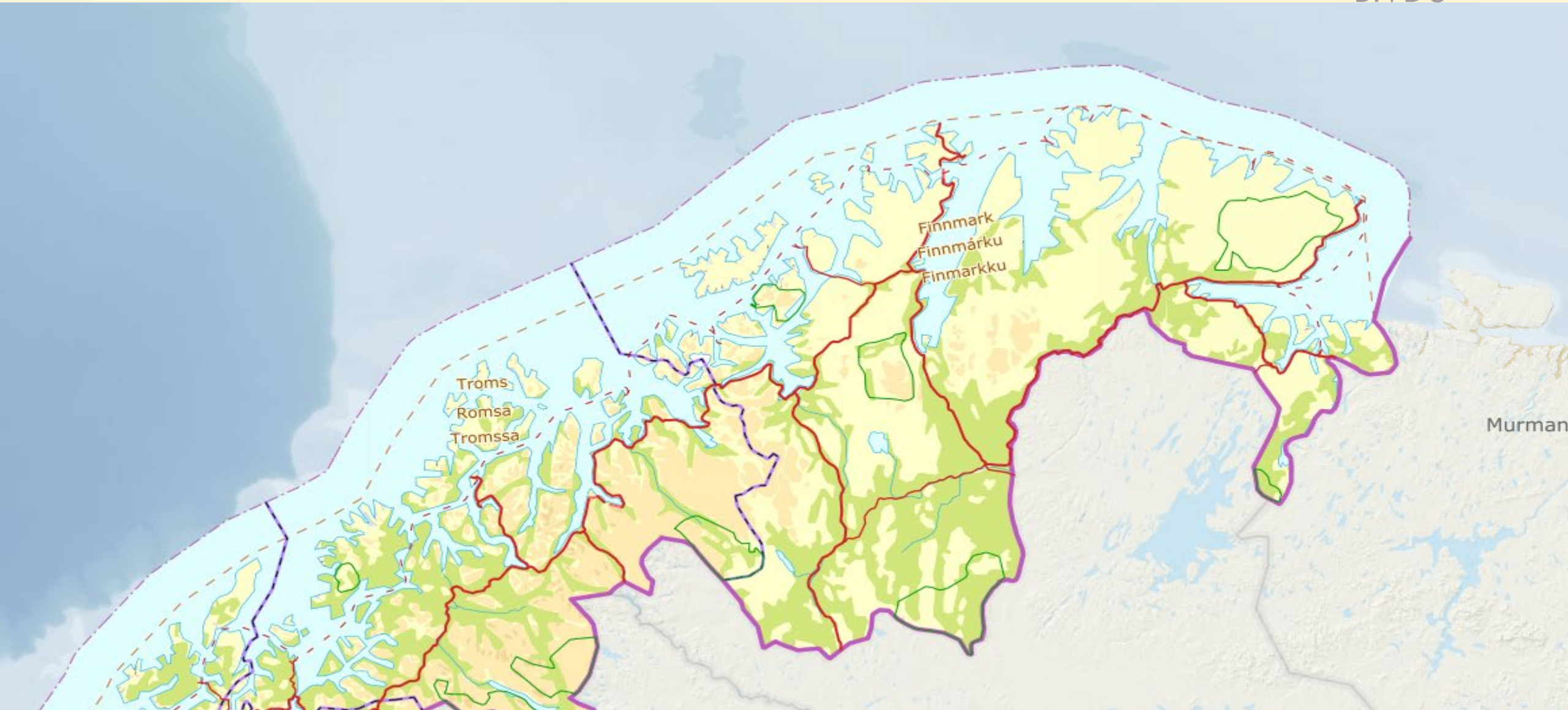
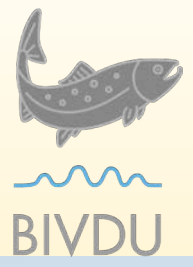
- 1) The size of the population of salmon in the Tana river system is mapped.**
- 2) The rights to fish Tana-salmon in river and sea is mapped.**
- 3) Humpback salmon must be fought by the sea salmon fishermen.**

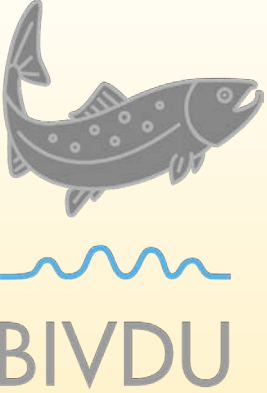


**Inge Arne Eriksen, leader of Bivdu:**

- Born and raised in Skjånes, Tanafjorden.
- Engaged in fishing sea salmon as a child, youth and adult. Master in population dynamics and estimation of fish by Norges Fiskerihøgskole, UITØ.
- Leader of the fishing organization Bivdu.

# Tanafjorden in Finnmark, my home place 😊





# Salmon fishing in river and the sea

Fishing for salmon contains many factors, some of which are:

- Cultural heritage and culture bearer in Sámi areas
- Rights
- Business and economy
- The salmons biology river/sea – Environment
- Stock size, growth, fish mortality, predation etc.
- Fish farming
- Humpback salmon
- Here in Utsjok, I will be talking about estimation of stock (growth, fish mortality, predation etc), and humpback salmon.

# Salmon – An anadromous fish



## Sea salmon fishing a culture bearer in Sea Sámi areas

According to historian Steinar Pedersen from Tana, fishing and sea salmon fishing in Sea Sámi areas have been practiced since around 6,000 years BC. Salmon fishing in Sea Sámi areas has been actively conducted as a cultural industry for 2-300 years, preserving community, culture, language and industry.

Today sea salmon fishing is considered the last remnant of a Sea Sámi culture based fishery. Despite this, the state has long carried out a severe reduction and regulation of sea salmon fishing, without considering this cultural and industrial heritage of the Sámi people. There is no sign of reconciliation!

- Today, sea salmon fishing is completely banned in almost all of Norway.
- Previously, most salmon were caught at sea, now most salmon are fished in rivers under the pretext that sea salmon fishermen is fishing on mixed stocks.
- Norway has ratified the international UN convention on fishing for migratory mixed stocks at sea, but for some «strange reason», Norway has reserved itself when it comes to salmon fishing.

**If the sea salmon fishery disappears, the main part of the Sea Sámi fjord- and coastal culture will also be gone.**

# Tana-salmon – growth/migration

## ➤ Salmon

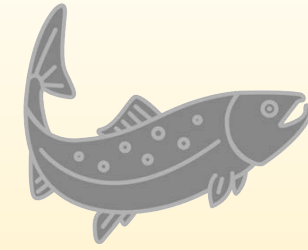
- Hatches and grows up in a river
- Migrates to the sea at the age of 3-4 years

## ➤ A 20 kg. salmon grows:

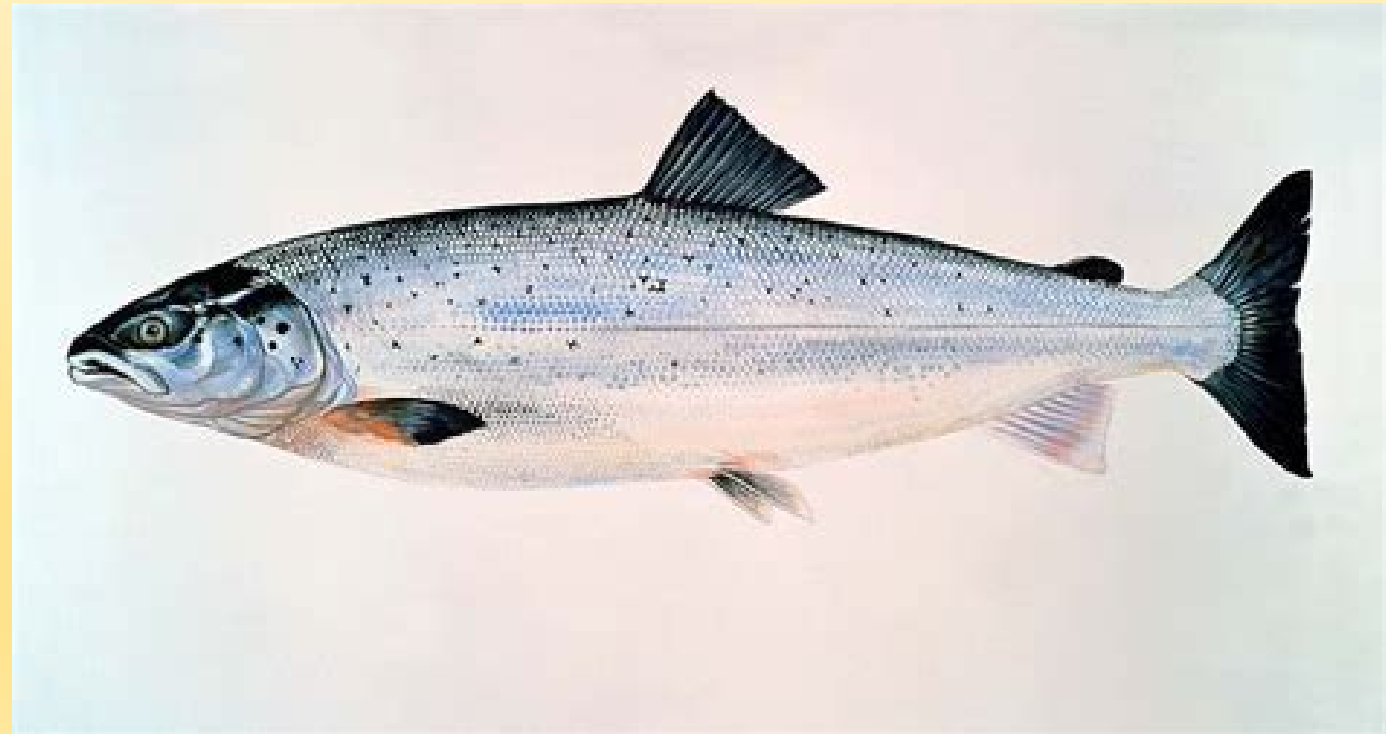
- In river approx. 0,2 kg **(1 %)**
- **At sea approx. 19,8 kg.(99%)**

## Feeding migration at the sea:

- North norwegian fjord and coastal areas.
- Barents sea.
- Norwegian sea.
- Svalbard zone
- West coast of Greenland



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# Arctic Ocean

GREENLAND

Franz Josef Land  
(Russia)

Svalbard  
(Norway)

Greenland  
Sea

Novaya  
Zemlya

Jan Mayen

Barents  
Sea

Kara  
Sea

Bear Island

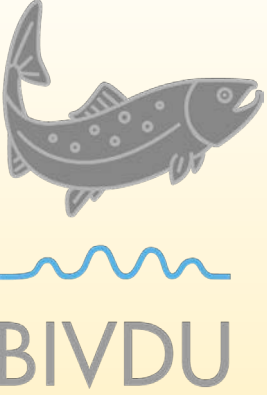


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Norwegian  
Sea

Murmansk





# What do we know of the salmon's life at sea?

- A 20 kg salmon gains 99 % of its weight at sea, but what do we know about the salmon's life at sea?
- Where does it migrate?
- What does it eat?
  - Does it face competition for food from other species?
- What threats do the salmon have at sea?

**And, «keep in mind»: There is no statistical correlation between the spawning stock and the number of three-year-olds in a fish population.**

**Which means there is an equal likelihood that a large spawning stock can have a low level of three-year-olds, as a small spawning stock can achieve a high level of three-year-olds.**

# What do we know about the salmon population in the Tana River?



- What is the size of the population?
- What is the size of the spawning stock??
- What is the size of the individual year classes?
  - Strong / week year classes?
- What does the salmon die from?
  - What is the fish mortality rate (F) – our fishing?
  - What is the natural mortality rate (M)?
    - Dies of old age
    - Dies of predation – eaten by other species?
    - **Remember: If we do not have control over M, it does not help to stop all fishing (F)**

**Population calculations of fish must be carried out so that everyone can check the numbers and the method.**

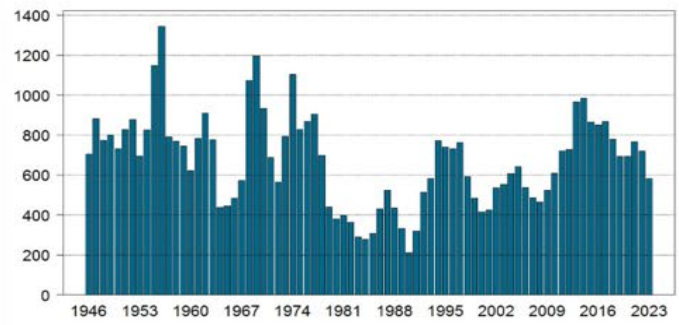
# Stock monitoring and advice, e.g. Cod 2025 (Institute of marine research, Bergen)



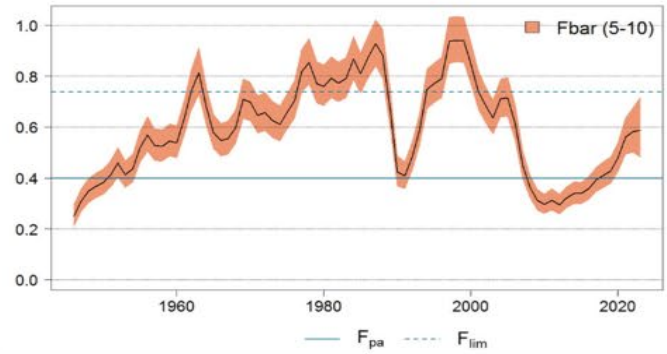
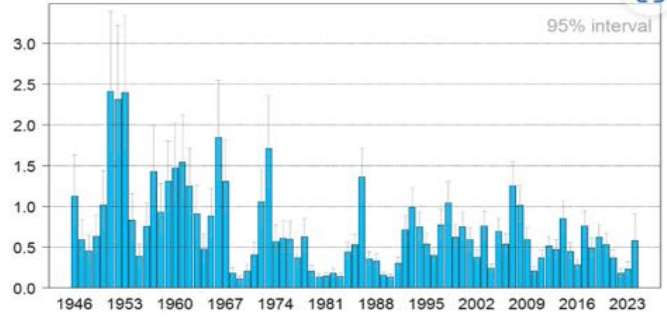
## Torsk - status



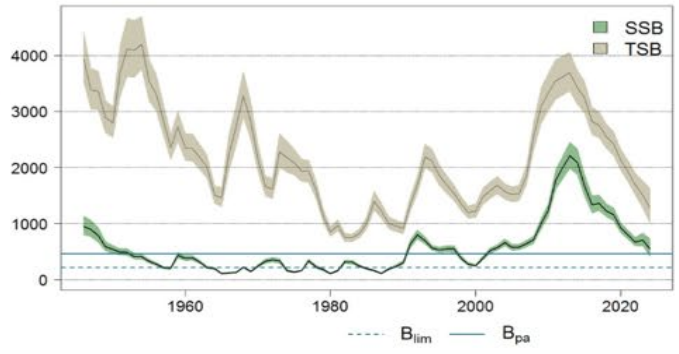
### Fangst



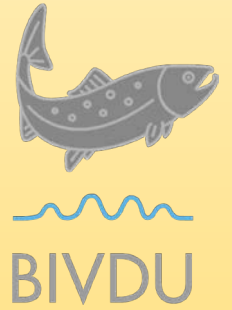
### Rekruttering (3 år)



### Fiskedødelighet

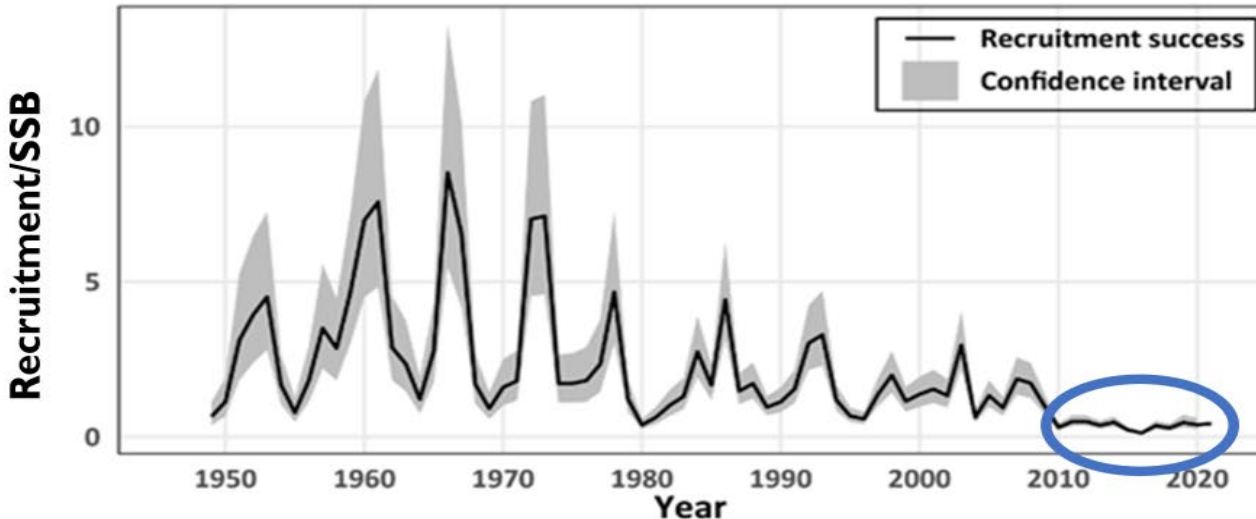
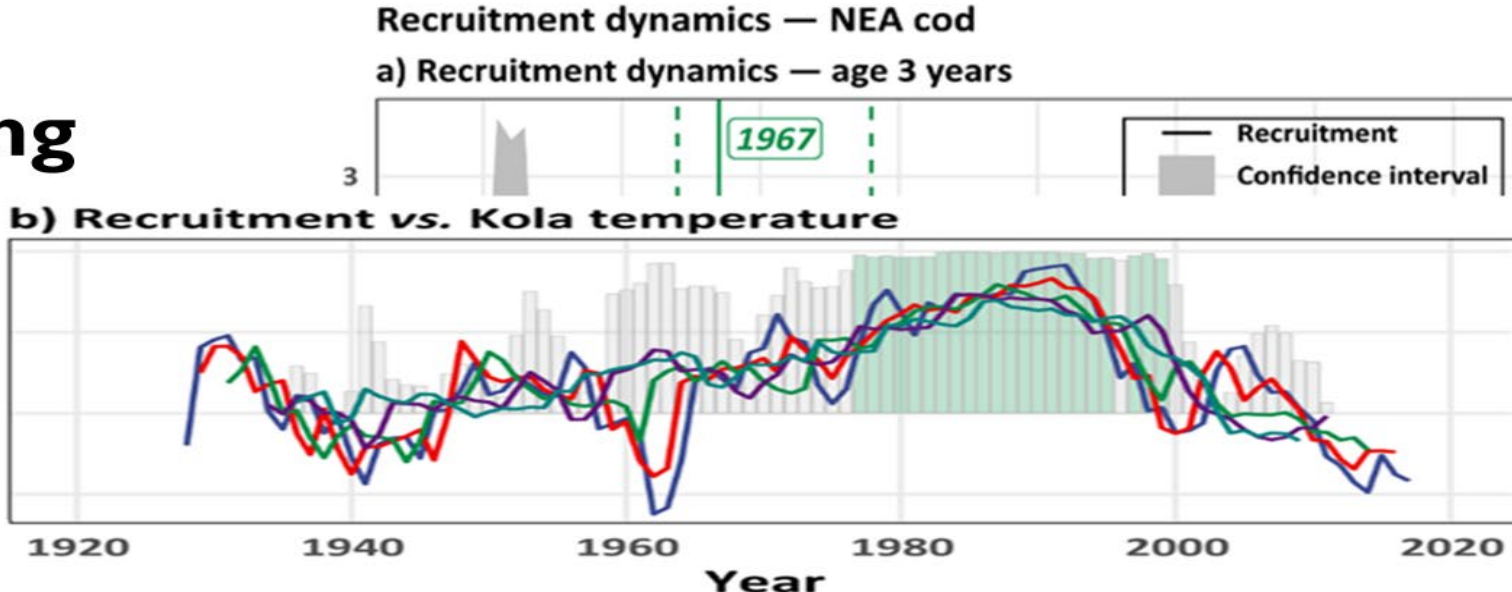


### Gytebestand

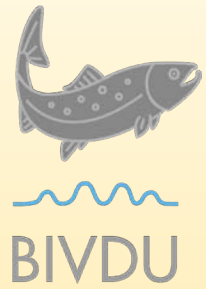


## Redusert torskerekruttering

- Rekrutteringen (antall 3 åringer) har vært lav den siste tiden
- En ny analyse viser gytesuksessen til torsk er på et lavmål
- Sammenhengen mellom temperature og rekruttering er i endring fra positive til negativ



(Ma & al 2023)



# NASCO – Sjølaksefisket beskatter vandrende laksbestander og må forbys!

- Norway / The scientific council has therefor been working for years to ban sea salmon fishing!
- The salmon management has followed NASCO`s advice and created a stigma against both the sea salmon fishing as a method fishermen who are seen as destroying the salmon stocks.
- Based on this, the salmon management has implemented the following measures without particularly strong scientific basis:
  - Reduced number of salmon fishing spots
  - Reduced fishing time
  - Reduced use of equipment
  - Labeled sea salmon fishing as «overfishing» and «poaching», which is very negative and stigmatizing for all those involved in sea salmon fishing.



The Norwegian authorities sanctions sea salmon fishing - economically

In addition to referring to sea salmon fishermen negatively, accusing them of «overfishing» and «poaching», the government also imposes economic sanctions on sea salmon fishing – even though it is a legal activity – to underman the fishermen`s economy.



Annually, the salmon management presents the demand to the Directorate of Fisheries that: «Income from sea salmon fishing should not be included in the income basis for obtaining king crab fishing quota». A reduced income requirement in king crab fishing leads to reduced quotas in king crab fishing, and consequently, reduced income from king crab fishing.

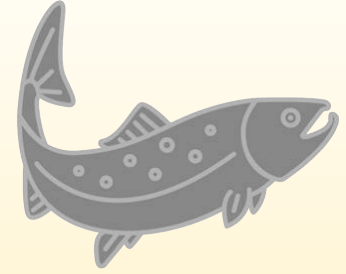
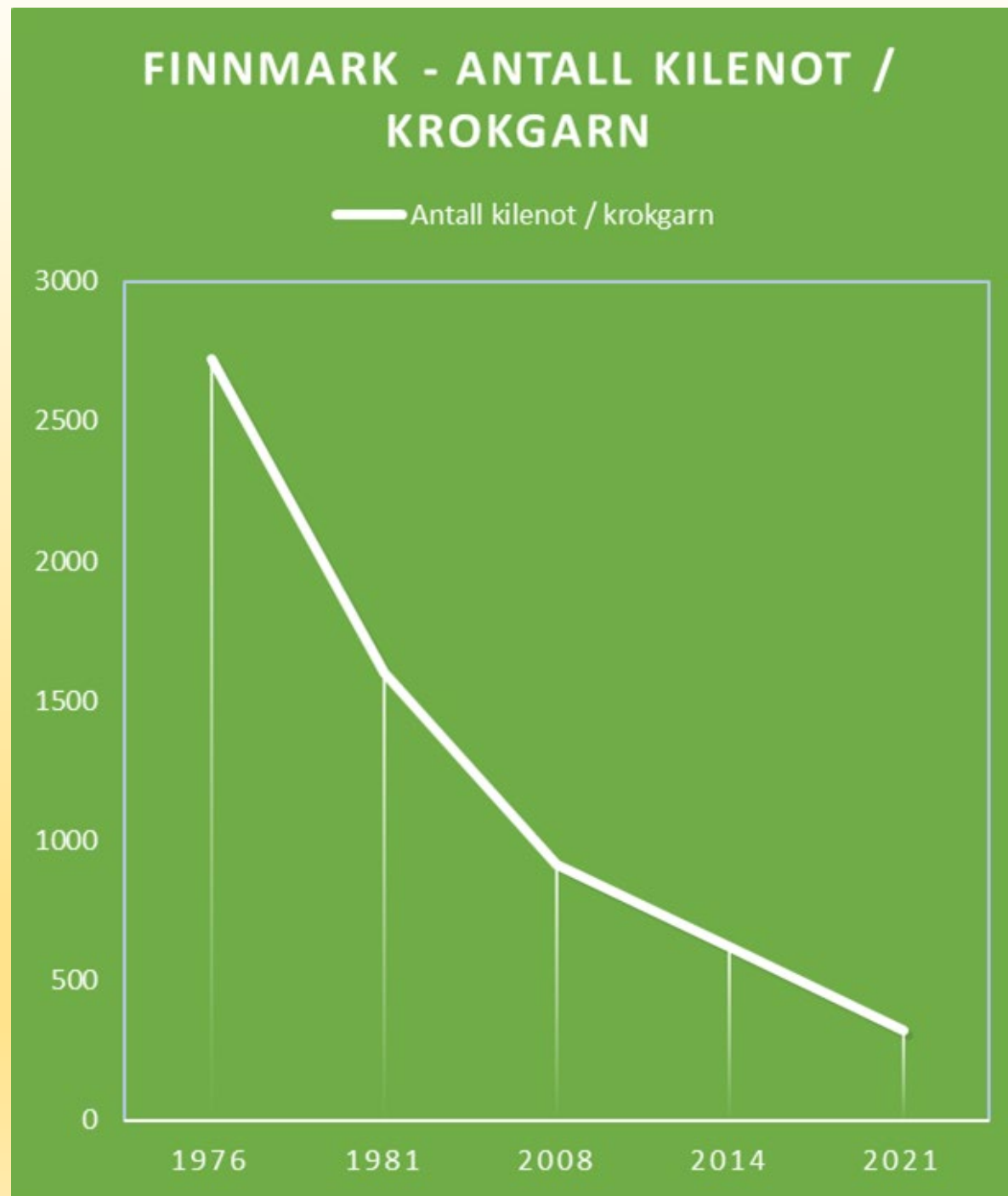
Many fishermen consider this a dubious and malicious method and strategy aimed at targeting sea salmon fishermen in the pursuit of king crab.

Norwegian authorities are economically punishing sea salmon fishermen in other types of fishing, even though they are conducting a fully legal sea salmon fishing.

Sea salmon fishing  
– A catastrophic  
reduction in:

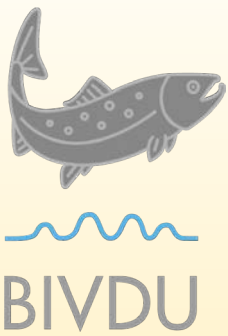
90%

the number of sea  
salmon fishing  
operations in  
Finnmark during  
the period:  
from 2723 in 1976  
to 301 in 2023.



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# Sea salmon fishing – catastrophic reduction in the use of equipment in Finnmark from 1976 to 2021



At the same time as the number of equipment/salmon fishing spots was reduced by approximately 90% during the period from 1976 to 2021, the following bans and restrictions on equipment choices in sea salmon fishing were also introduced:

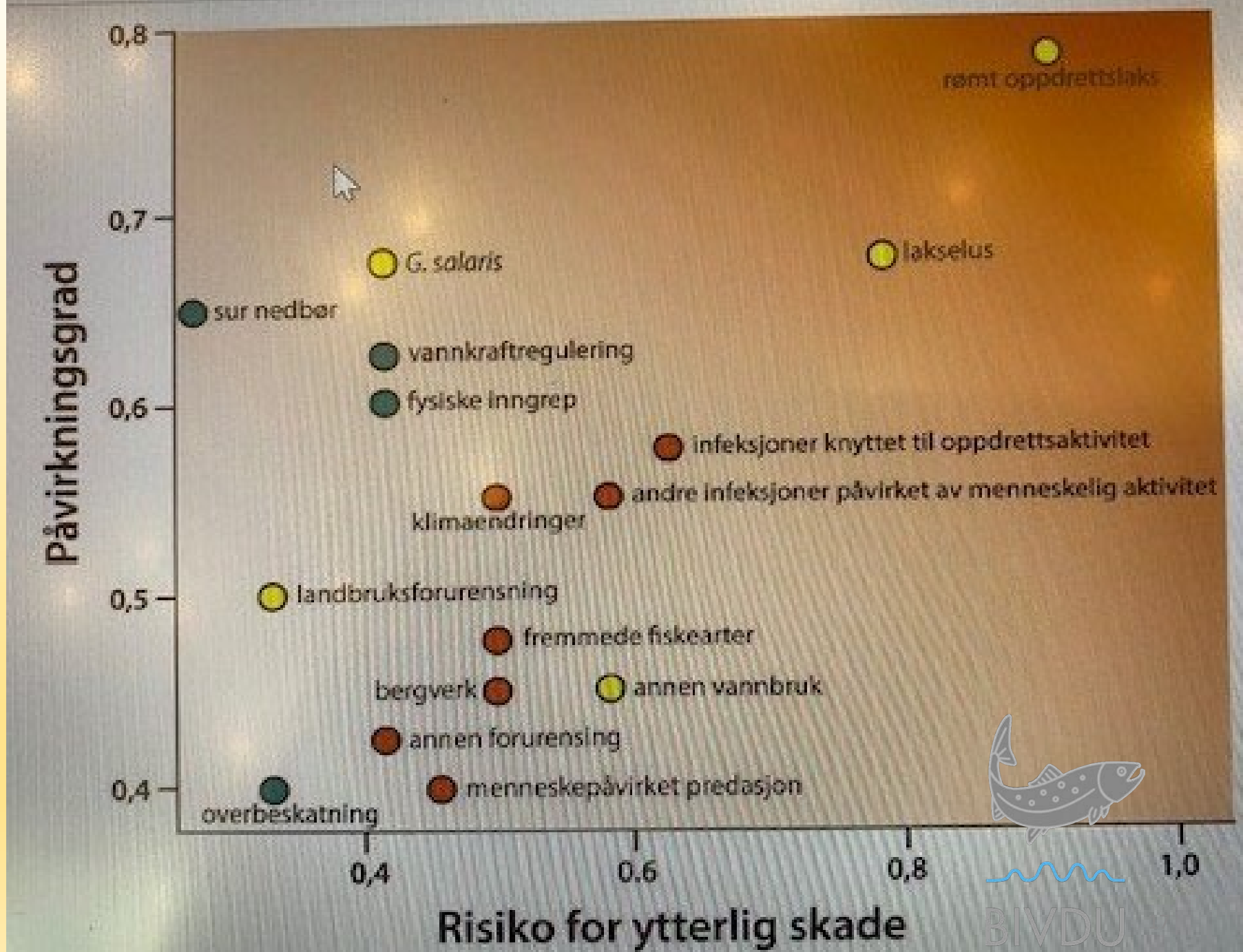
- Ban of the use of driftnets in 1988
- Ban of the use of seine nets 1980s
- Ban on the use of set nets/salmon nets in the 1970s
- Ban on the use of salmon trolling before May 15<sup>th</sup>
- In 2022 – 2023, it is only legal to fish with trap nets (traditional fishing gear) in Norway.
- From 2021 to 2024, there was a ban on sea salmon fishing in large parts of Finnmark!
- Historiker Steinar Pedersen fra Tana skriver: «The local population's fishing for salmon in the sea and river in the Tana River and Tanafjord has been stopped by the authorities for the first time, after more than 6,000 years of fishing.» (translated). I think this is a national management scandal against the Sami as indigenous people, which the international community must become aware of and address with the state of Norway.



But why limit sea salmon fishing when VRL after 2028 believes that salmon fishing –

Is no threat!

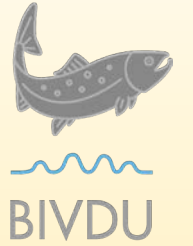
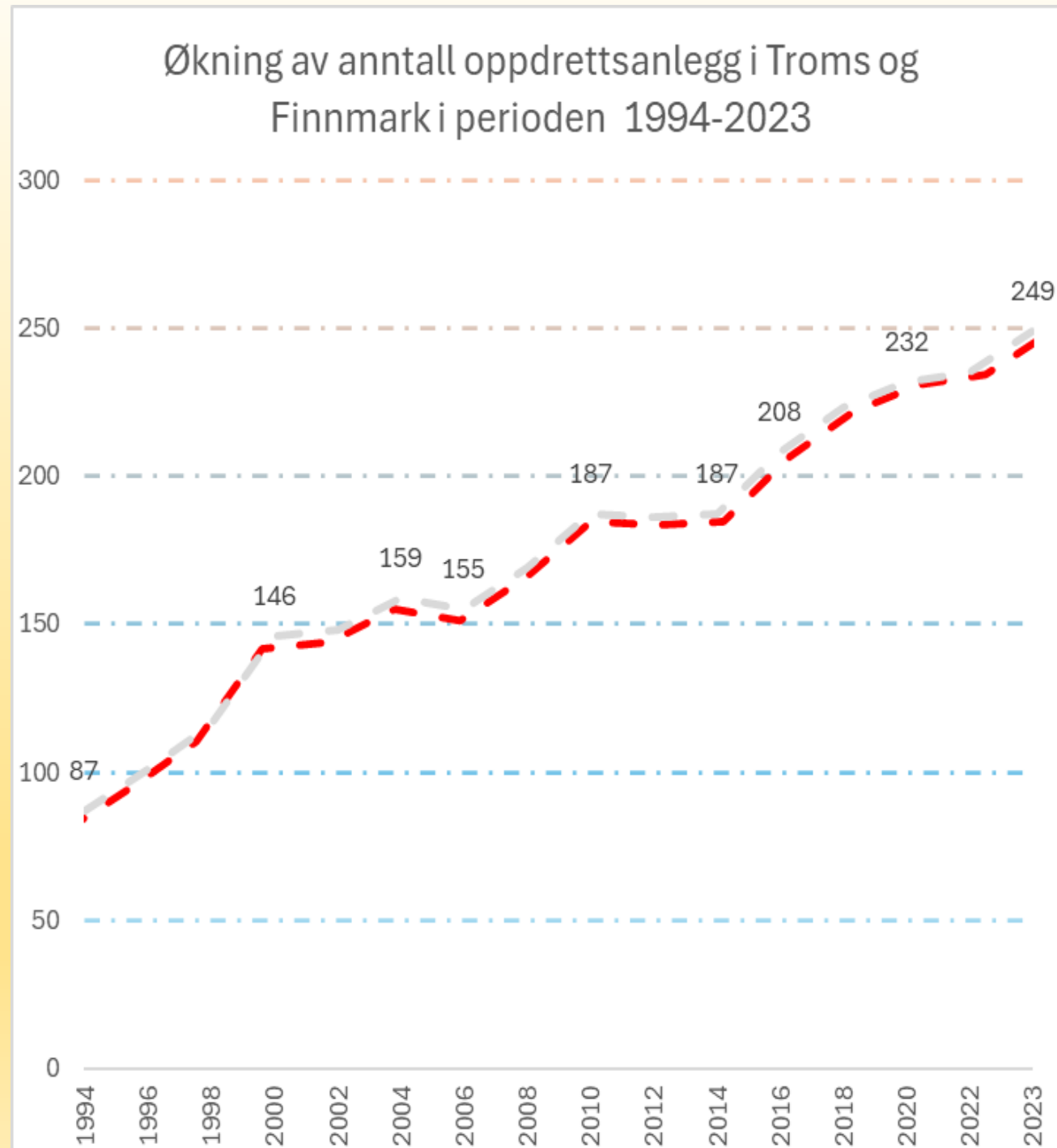
salmon farming with sea lice is the greatest danger and the biggest impact!!

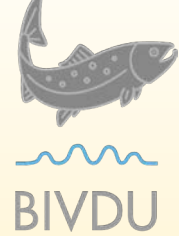


# The highest risk: Fish farming.

What has been done in the fish farming industry to reduce the risk to our salmon?

- Sea lice?
- Escaping?
- Disease?
- Copper emissions?
- Other negative impacts?

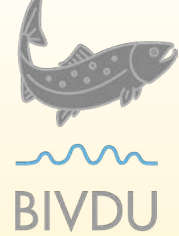




## Local knowledge– Sea salmon fishing -> Catch data

- ❖ Each fisherman has a local understanding of the salmon stock size based on their catch.
  - ❖ When the catch is small, the fisherman understands that the stock is small.
  - ❖ When the catch is large, the fisherman understands that the stock is large.
- ❖ By using the fishermen's catch based on this understanding and creating as long a time series as possible, one can establish a method for calculating salmon stock based on catch per unit effort (CPUE).

**CPUE** (catch per unit effort) is an indirect measure of the abundance of a target species. Changes in CPUE are assumed to reflect changes in the true abundance of the target species. A declining CPUE indicates a decrease, while an unchanged or increasing CPUE indicates sustainable harvesting of a growing stock.



## Local knowledge – But is there a salmon crisis?

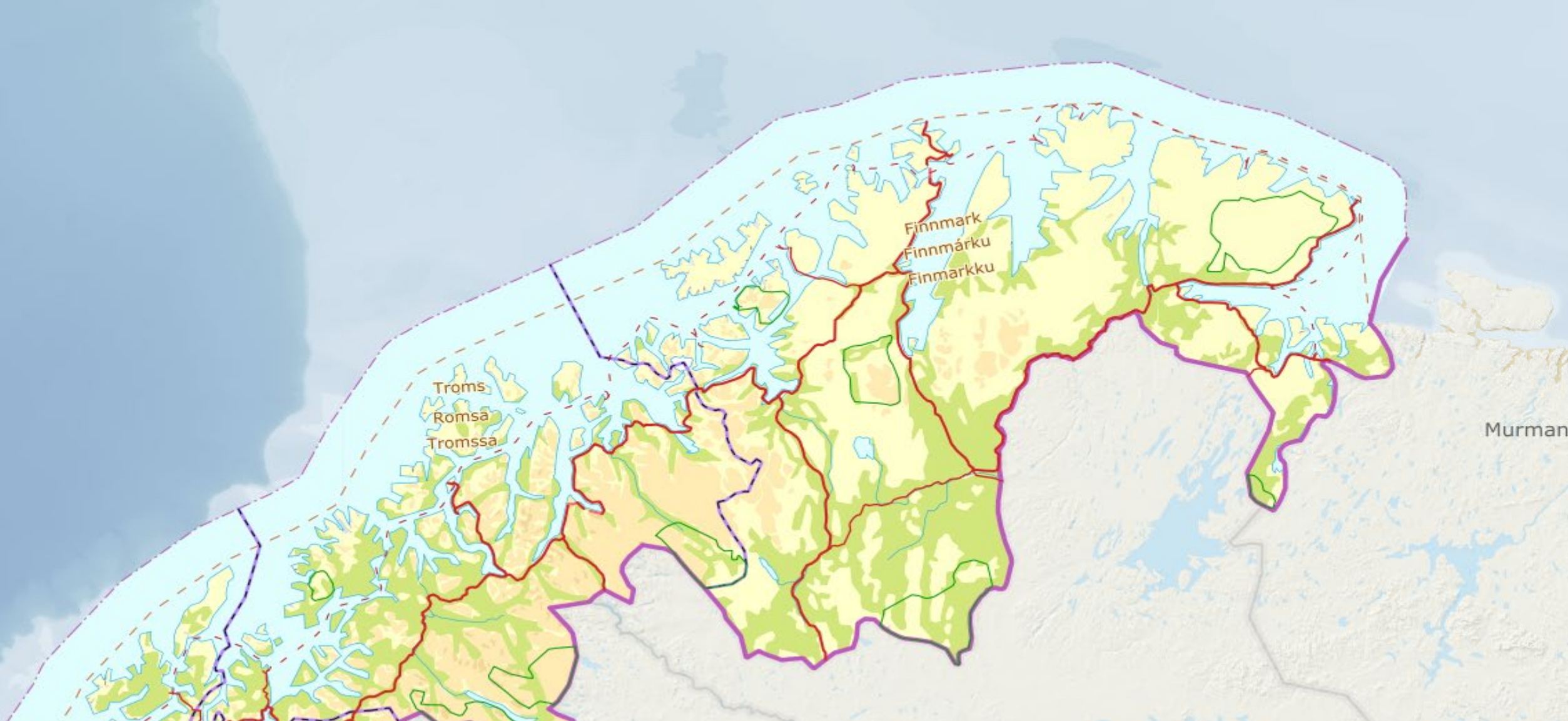
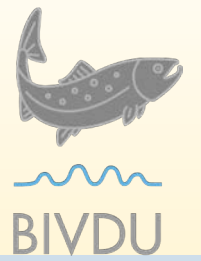
Bivdu has been monitoring the development of sea salmon fishing in Finnmark for many years by compiling a CPUE\* over 4 locations:

- 1) Varangerfjorden
- 2) Inder Tanafjord
- 3) West Finnmark – Coast
- 4) West Finnmark - Fjord

Fishing is conducted with trap nets or hook nets at the same fishing spot every year.

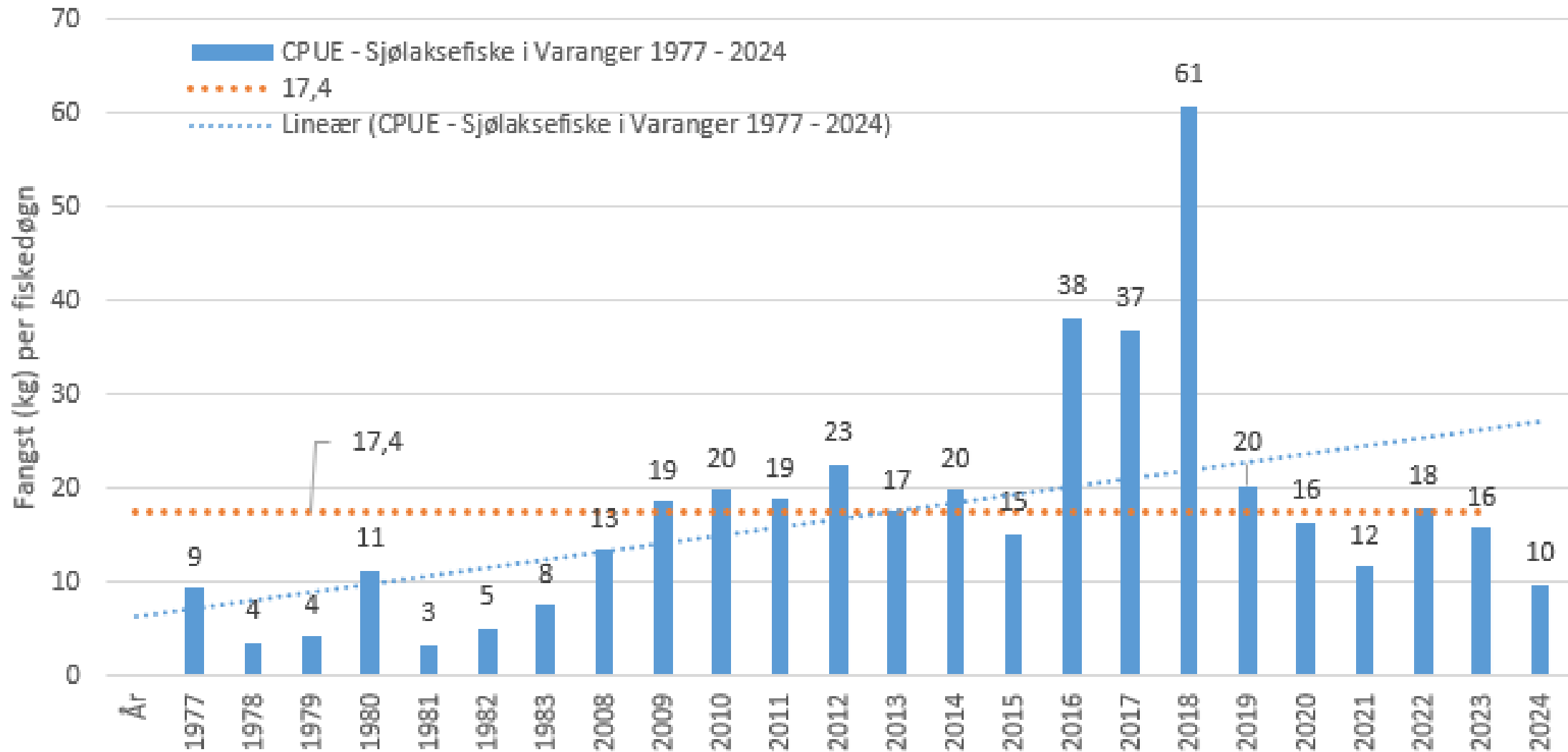
Some fishing spots are affected by ocean currents and wind more than others, which can cause large fluctuations from year to year. Therefore, it is important to interpret the average numbers.

# Bivdu - CPUE measurement stations in Finnmark



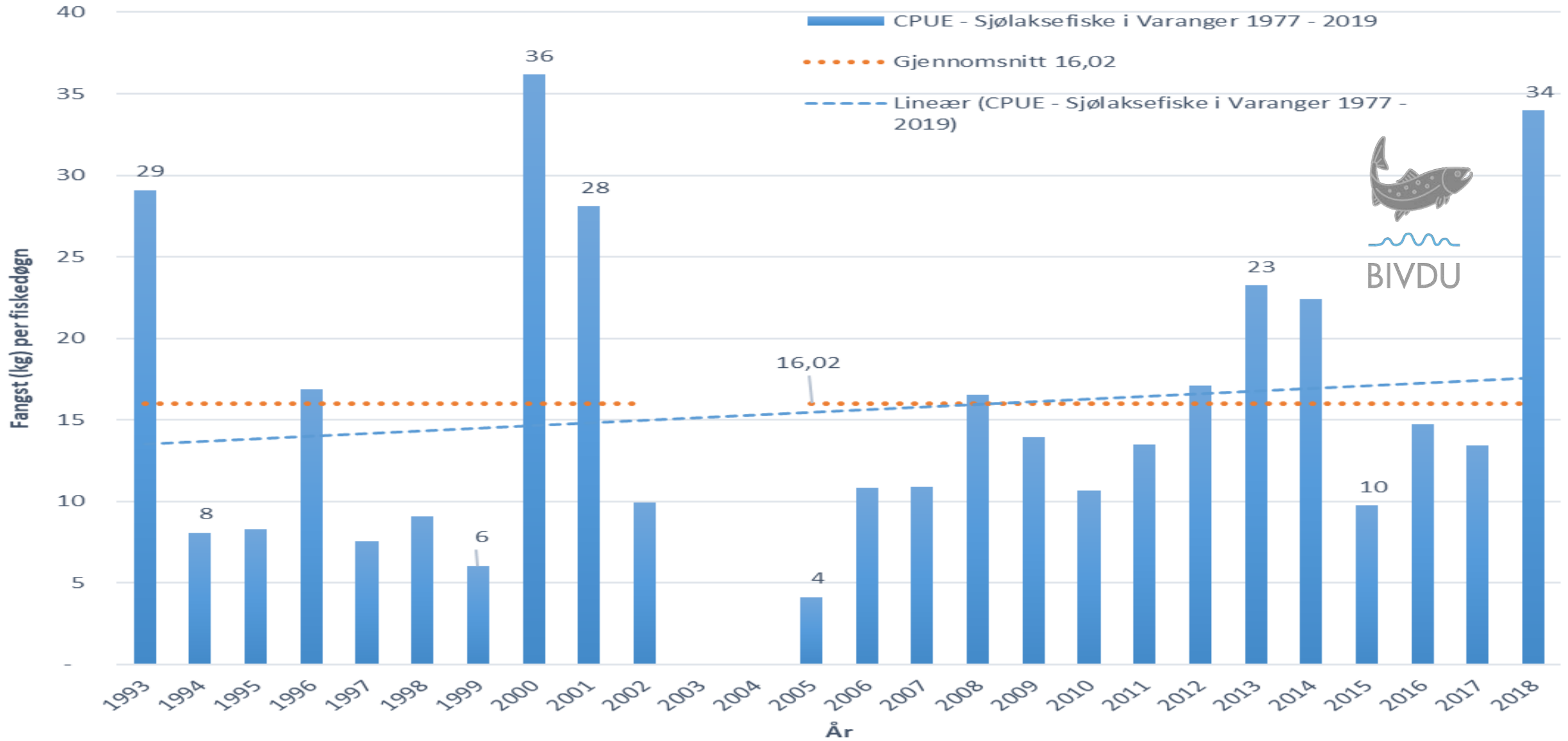
# 1) Indre Varanger

## CPUE - fangst av laks i sjø i Varanger 1977 - 2024



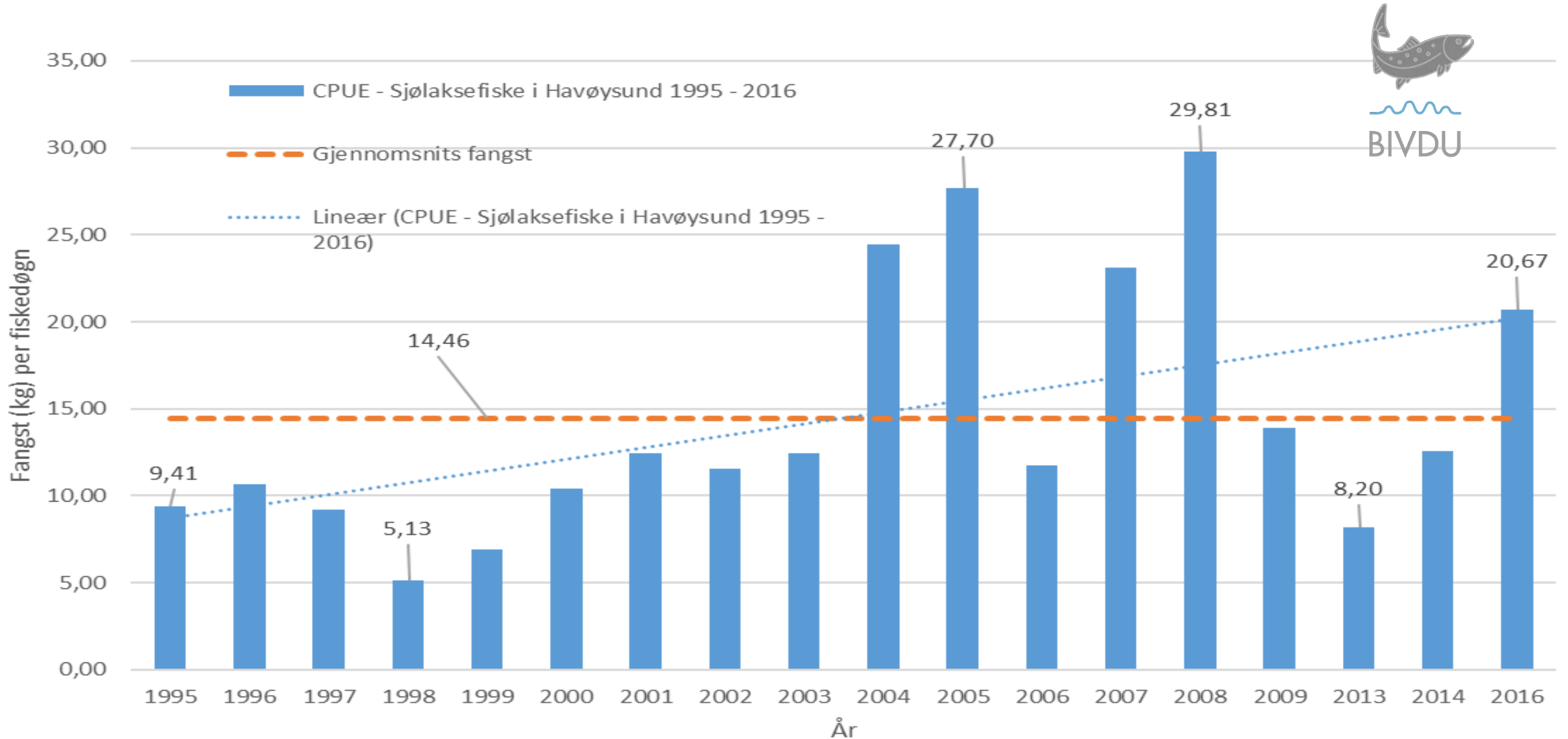
## 2) Inder Tanafjord

### CPUE - Sjølsksefiske i Tana 1993 - 2018



### 3) West Finnmark - Coast

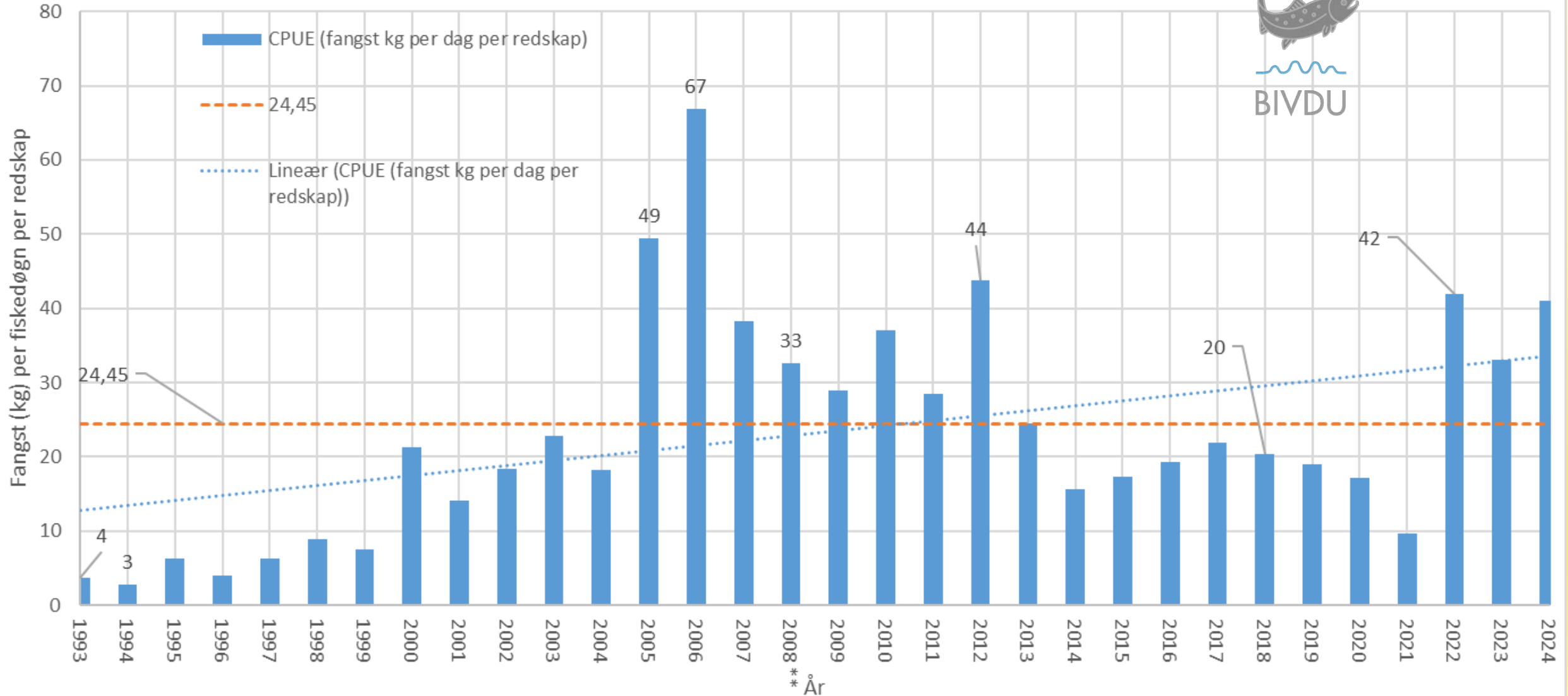
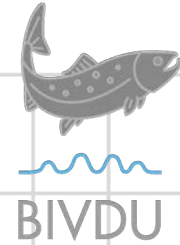
CPUE - fangst av laks i sjø i Vest-Finnmark (Havøysund) 1995 - 2016



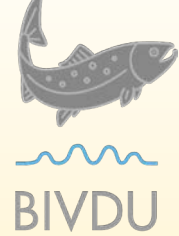


# 4) West Finnmark - Fjord

CPUE - Kilnotfanget laks i sjø - Vest-Finnmark (fjordstrøk) 1993 - 2024

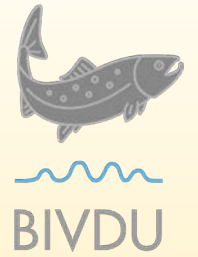


# CPUE – Summary



- **The salmon stocks being fished here are in good condition and are not in any crisis!**
- The question we ask ourselves: why is a larger number of salmon not being recorded as migrating up the Tana River?
- Are there errors in the counting methods in the Tana River that are creating the crisis?
  - Use of acoustic methods:
    - Does the measureperiod cover the entire migrationperiod for salmon?
    - Are there river stretches where the salmon can pass without being recorded?
    - Are there “shadow areas” (physical or methodological) that cause fish not to be recorded?
    - Errors in the measurement method (methodological errors) and/or misinterpretation of measurement data (e.g., when using echo integration)
- ❖ Camera counting:
  - ❖ Could the distance be to large?
  - ❖ Can muddy waters affect the counting?
  - ❖ Can a salmon «shadow» another salmon in the same school of fish?

Drift counting: Is drift counting unsuitable as a method in large rivers (width over 10–12 meters)?

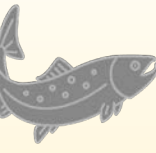


## Humpback salmon – A winner in norwegian rivers

I believe I have grounds to say that “Humpback salmon is a winner in Norwegian rivers.”

- In the river, it spawns and is not affected by predation, unlike our salmon
  - This is partly because it does not stay in the river after it has hatched.
  - Humpback salmon will eat anything
  - The humpback salmon has an incredible growth rate that no known species in our environment can match. Even intensive fish farming cannot compare to the growth rate of humpback salmon.
  - The theory of eradicating it with barriers in the river is an illusory idea that I believe will never succeed.

# **I think we've lost the battle against the humpback salmon!**

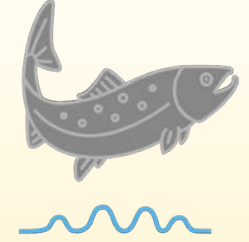


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The Ministry of Climate and Environment and the salmon management authorities have lost the first battle in the fight against the humpback salmon, namely stopping it!

- The main reason for the lost battle is that the bureaucrats, scientists, and advisors themselves want to eradicate the humpback salmon without utilizing the local population's knowledge in combating the humpback salmon.
- Humpback salmon is an invasive species, but we have an advantage in the fight: the local population knows the environment. The humpback salmon does not.
- Experience: When the management fishes without using local knowledge, it usually goes wrong, as it has to a great extent in the capture of humpback salmon.
- Local knowledge is the cornerstone of fishing in both the sea and rivers.

# Sea fishing of humpback salmon



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The question is also:

Who in Norway have decided that we can't fish humpback salmon at sea?

- The department/directorate does not want to catch humpback salmon in the sea. But why?
- A committee was appointed to examine the effects of catching humpback salmon in the sea. They concluded that fishing for humpback salmon in the sea would destroy our wild salmon stocks.
- It is particularly important to note that the committee that reached this conclusion **lacked expertise in sea fishing.**
- Sea fishermen can effectively catch humpback salmon. All bycatch is released back into the sea.

**Fishing for humpback salmon in rivers hinders, harms, and exposes regular salmon to bacteria, viruses, and diseases!** This is something the management must take into account



When the scientists fish!

Imagine treating our fish and food in such a way.

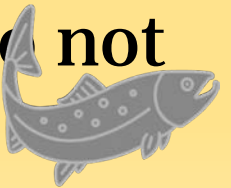
Shameful !!

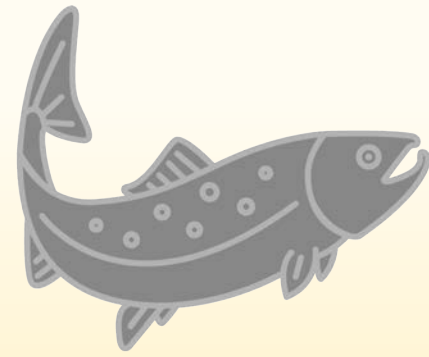
- Respect ? ☹️

What about the wild salmon that might be with the humpback salmon, will it survive?

# The humpback salmon is a winner, and we must harvest it in the sea!

- The wild salmon must be allowed to be undisturbed while they migrate up the rivers to spawn.
- The management in Norway and Finland must agree that sea salmon fishermen - who hold rights to fish for anadromous fish in the sea – should be allowed to fish for humpback salmon in the sea in 2024.
- Sea salmon fishermen must be able to earn money on the humpback salmon.
- Sea salmon fishermen must be allowed to use effective tools and methods that maintain the quality of the humpback salmon and do not harm other unwanted fish that are released back into the sea
- Sea salmon fishing is the future of combating humpback salmon!





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**Thank you for having me!**