The fascinating (and terrifying) story of Meri

From observations to actions – why HELCOM exists

Katja Laingui, Manuel Frias, Meri… and a banana (you'll see why)

A reader's version





HELCOM Baltic Marine Environment Protection Commission

This is Meri, a white-tailed eagle. Her family has been hunted, poisoned, almost wiped out… and is still here.





Katja



Meri’s family were the first to tell us that the Baltic Sea was getting sick. Not with words…



Manuel

…with their eggs. Let’s find out how.



Katja



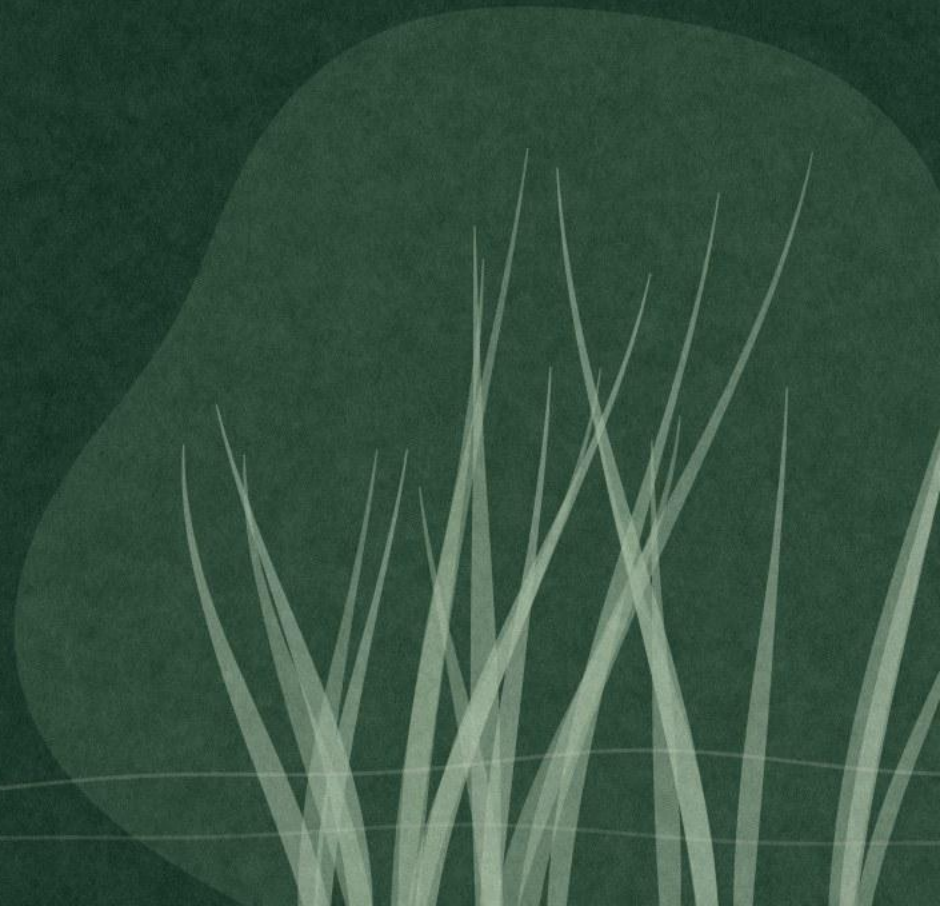
First, let’s check where Meri lives.



Katja

Meri, the messenger

Where does Meri live?



The Baltic Sea is fragile … and big

This is the Baltic Sea: about 420 000 km². Big, right?



Wait… is it really big?

Not quite! On a world map it is tiny.
And fragile. Let’s see why.



The Baltic Sea is one of the least salty seas in the world.

Salinity. Grams of salt per liter

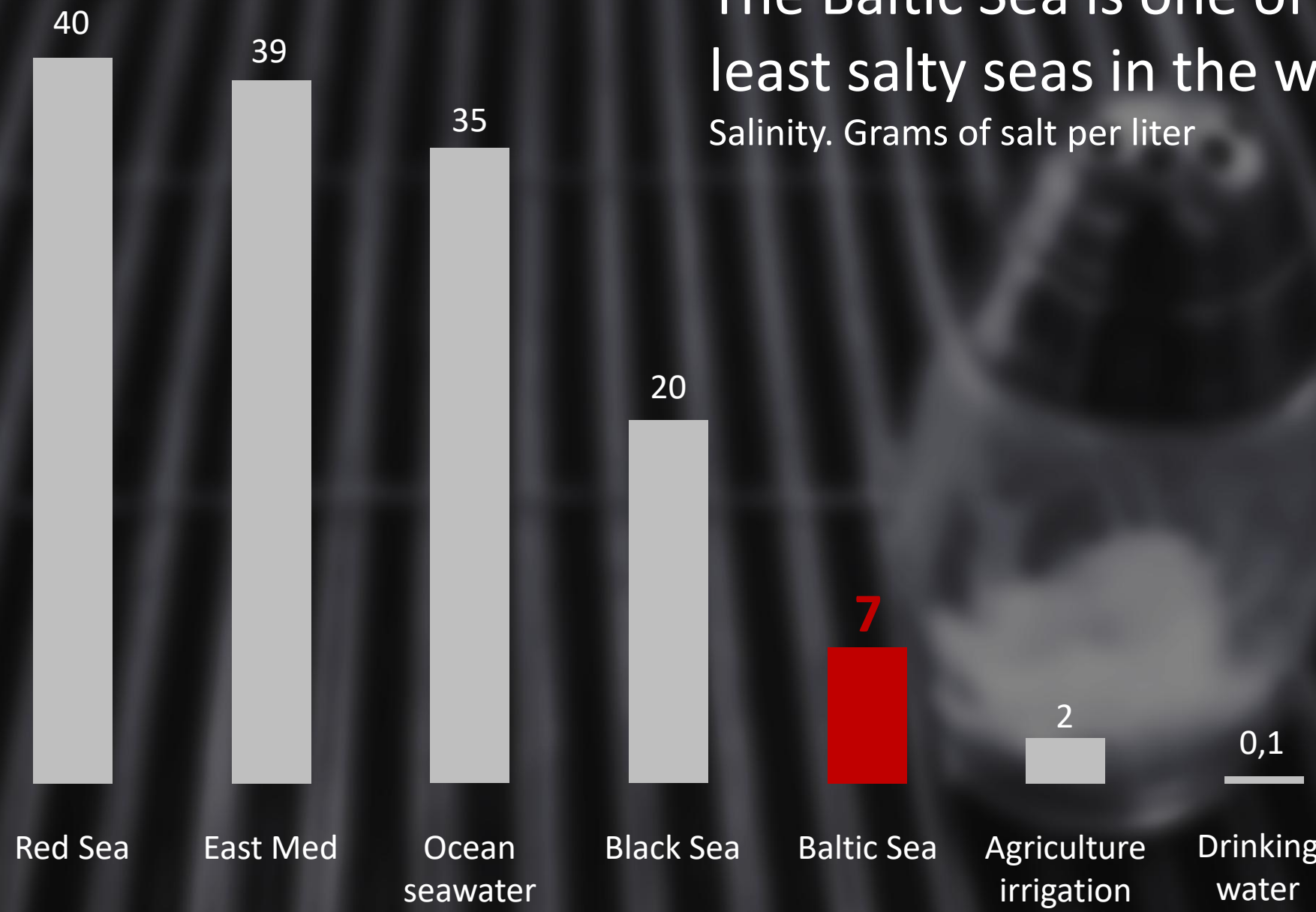
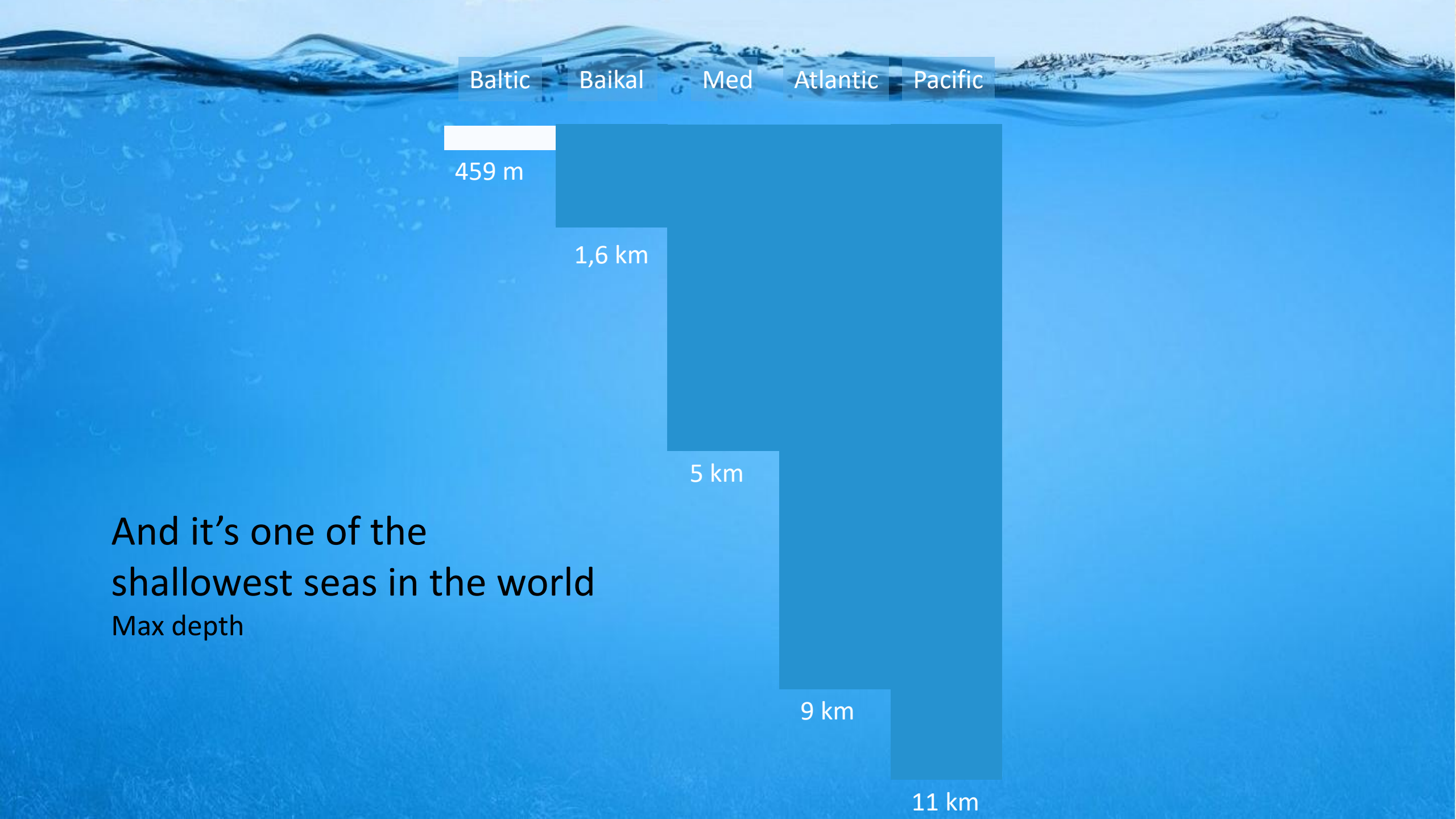


Photo: Leonid Mamchenkov

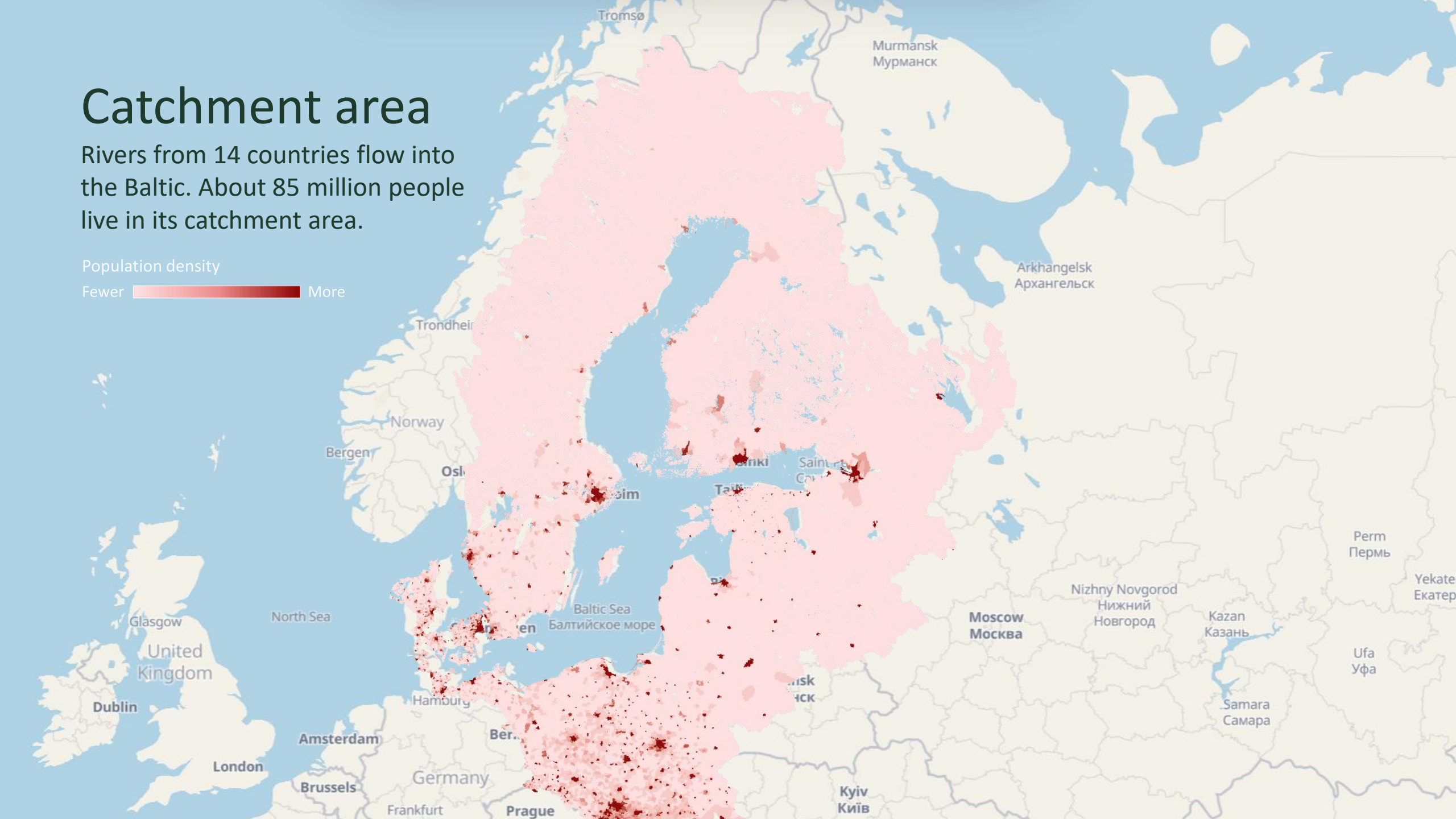


And it’s one of the shallowest seas in the world

Max depth

Catchment area

Rivers from 14 countries flow into the Baltic. About 85 million people live in its catchment area.

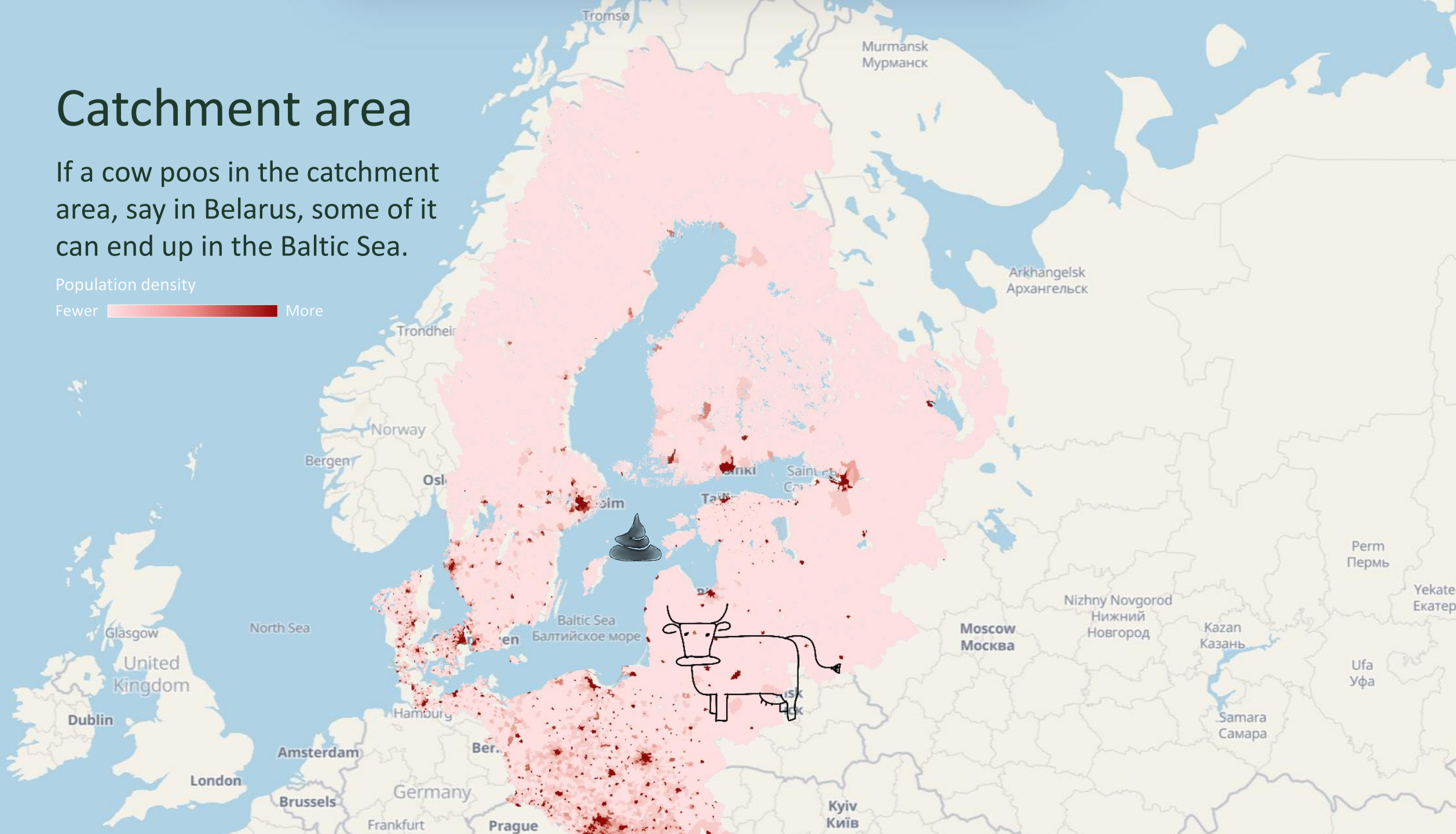


Catchment area

If a cow poos in the catchment area, say in Belarus, some of it can end up in the Baltic Sea.

Population density

Fewer More



The Baltic Sea is fragile

And it is slow: the water takes about 30 years to renew. What we put in stays for a generation.

Small, shallow, closed, crowded, slow.
That's fragile.



The life of Meri’s family

Now, back to Meri. Meri’s ancestors had a dramatic and miserable life.



Manuel

Around 1900, eagles like Meri’s family were thriving in the Baltic Sea

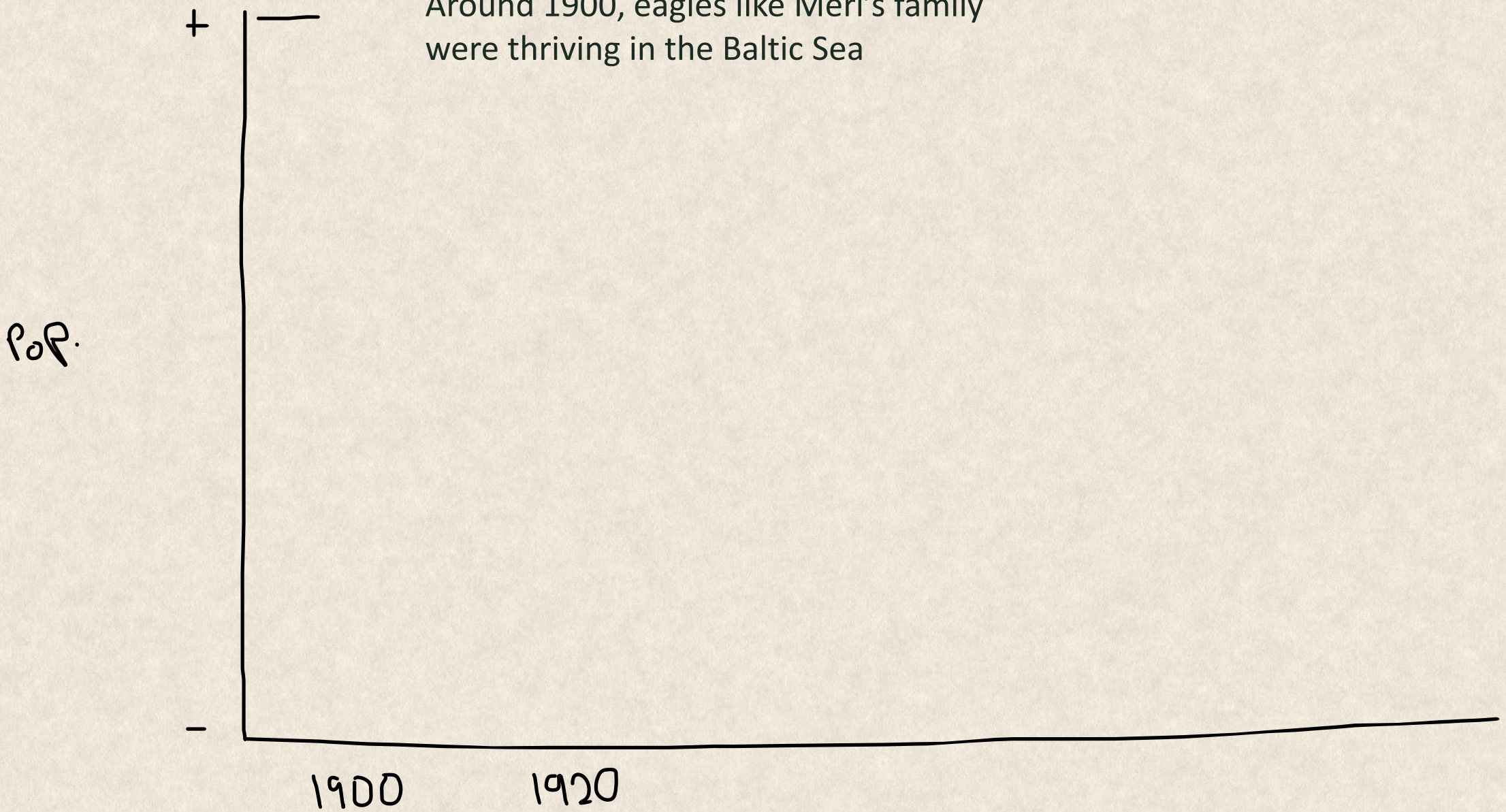
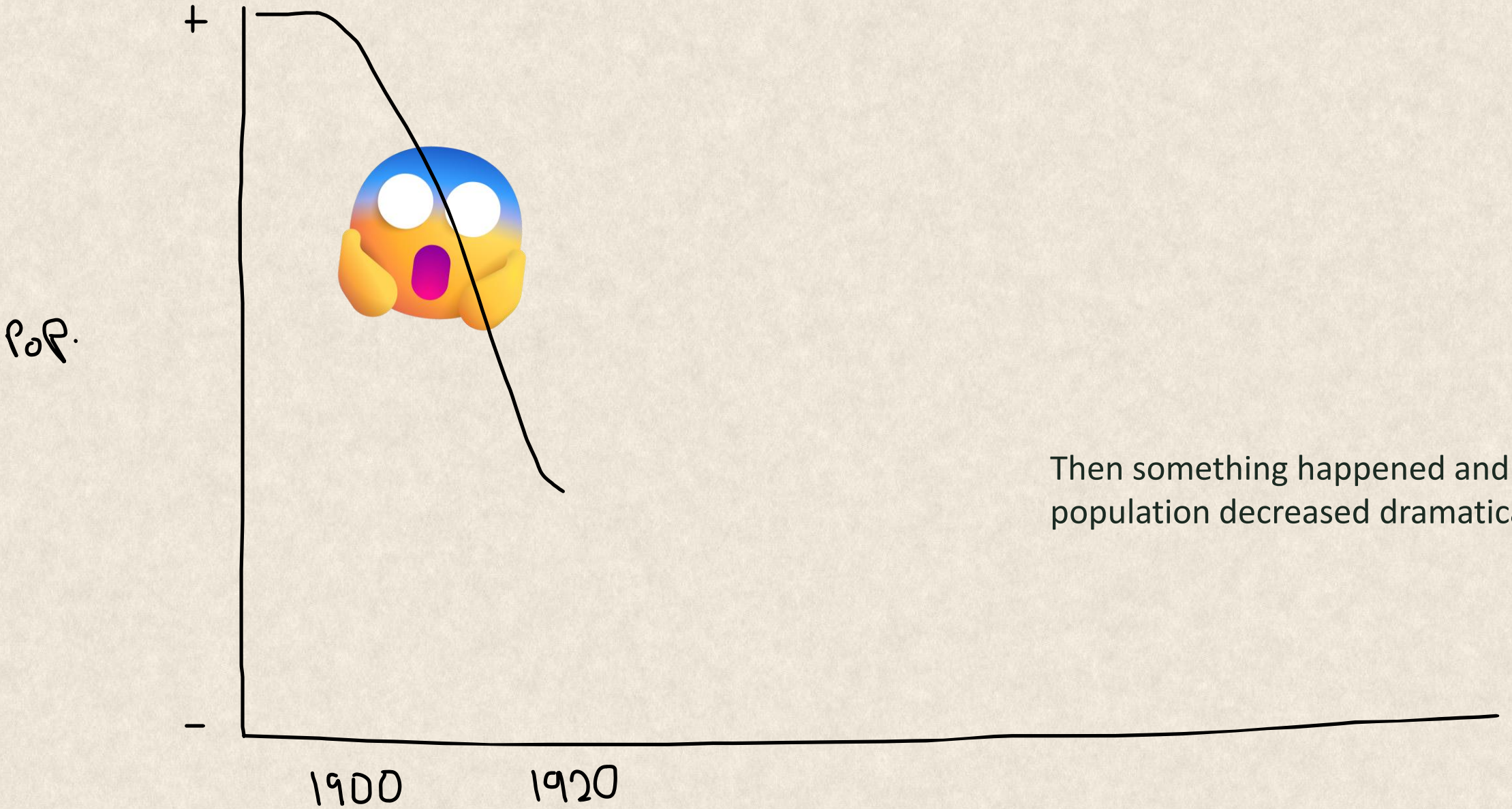
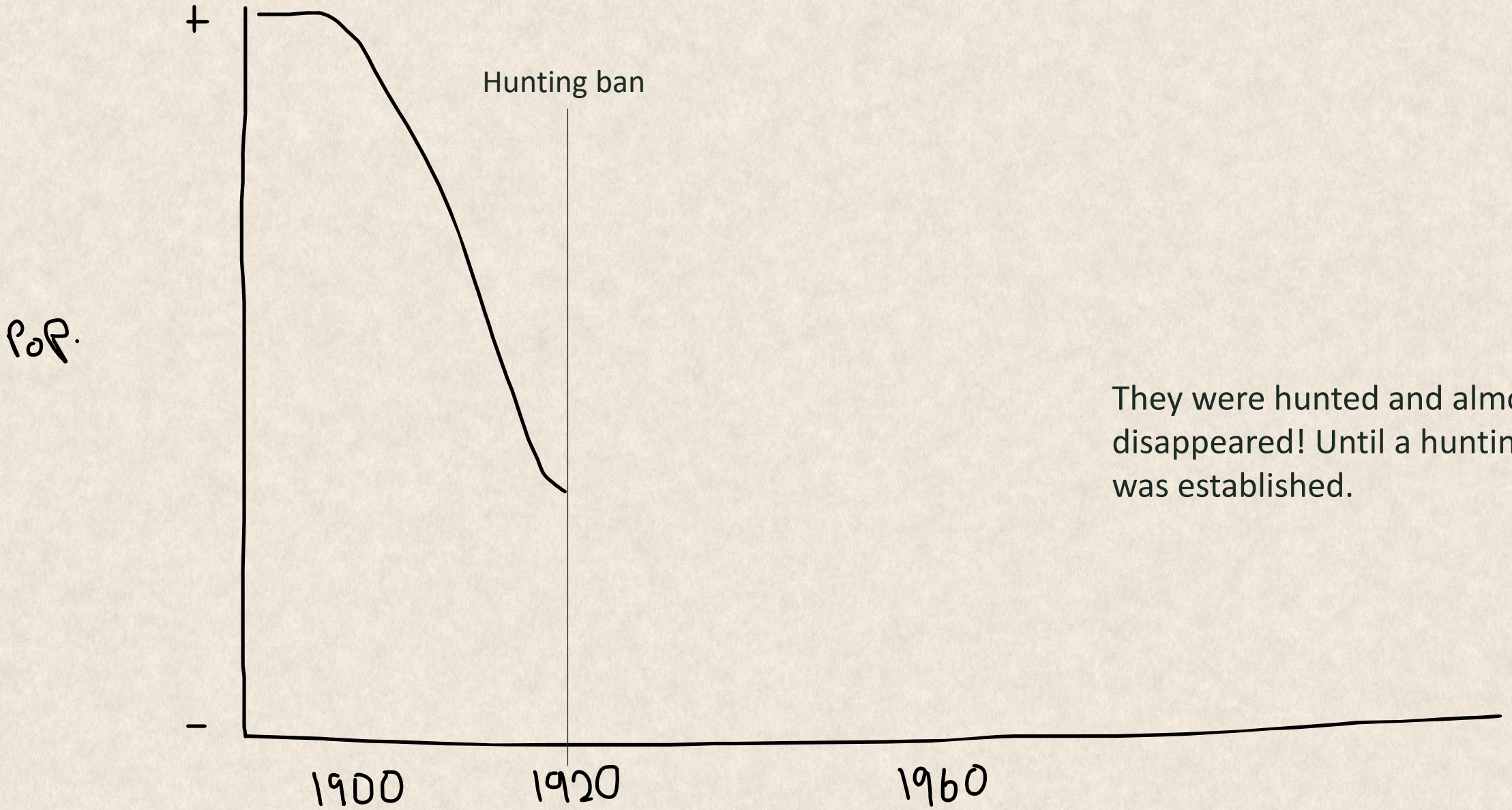


Illustration – not measured data.



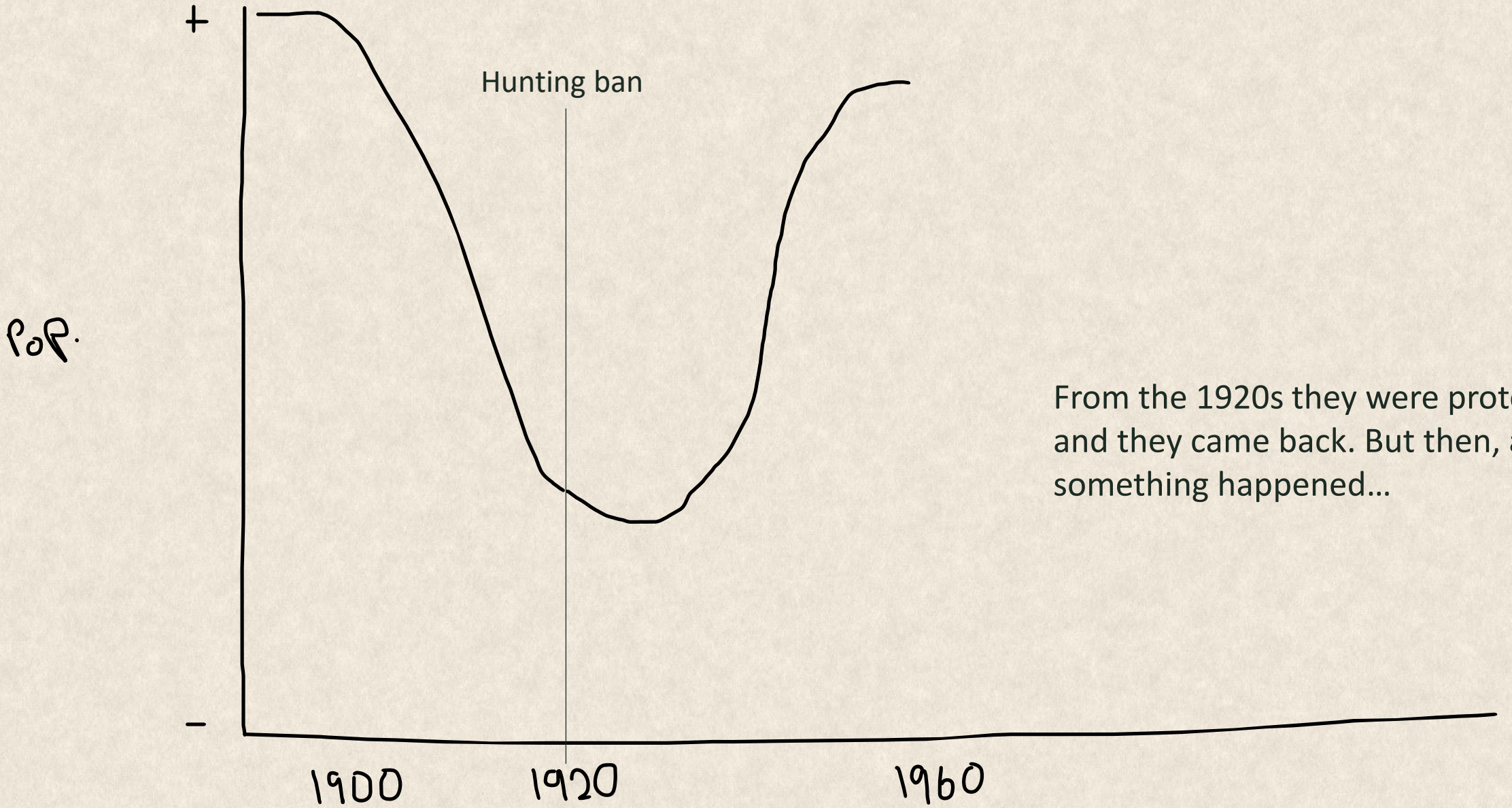
Then something happened and their population decreased dramatically.

Illustration – not measured data.



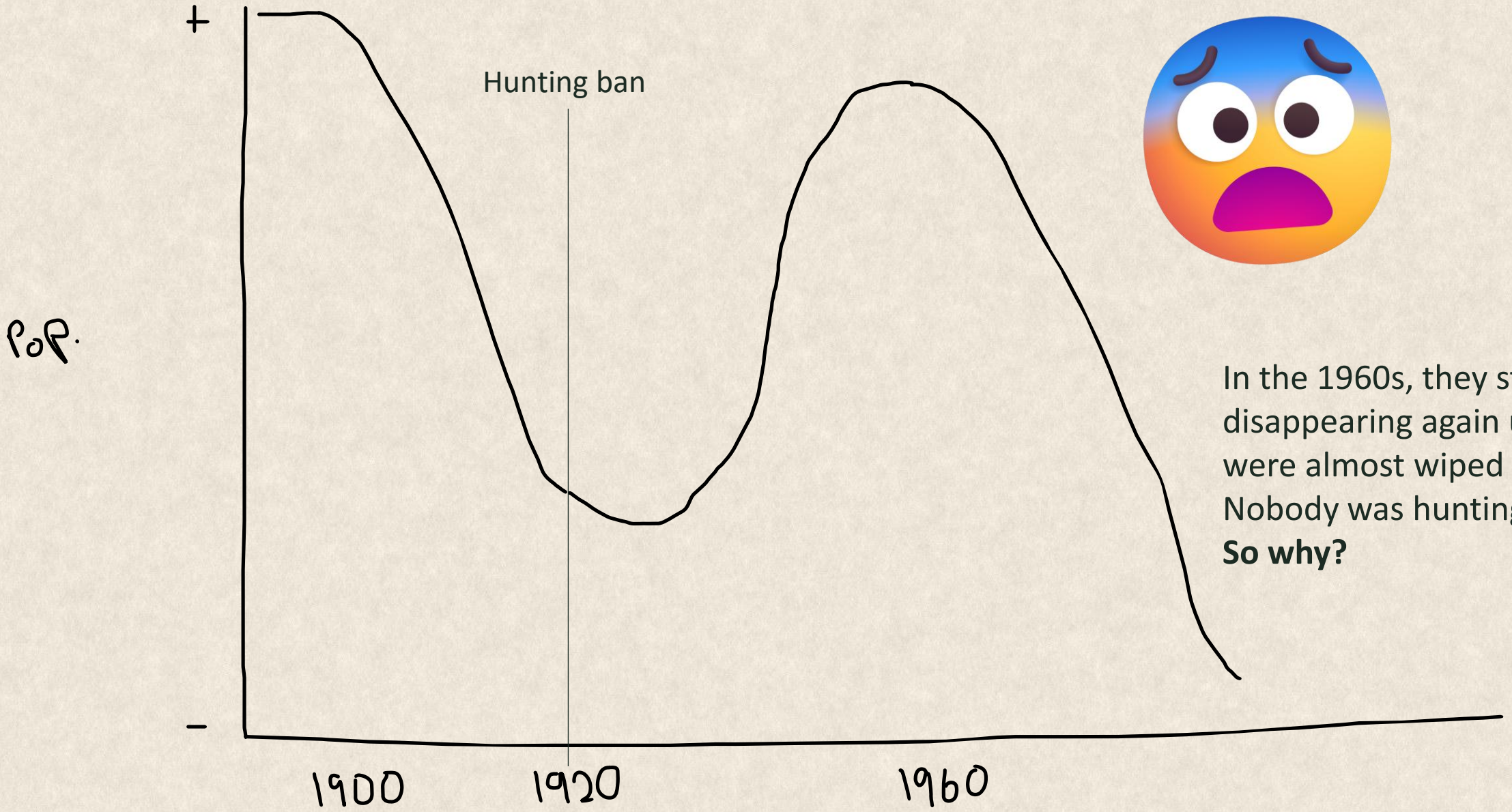
They were hunted and almost disappeared! Until a hunting ban was established.

Illustration – not measured data.



From the 1920s they were protected, and they came back. But then, again, something happened…

Illustration – not measured data.



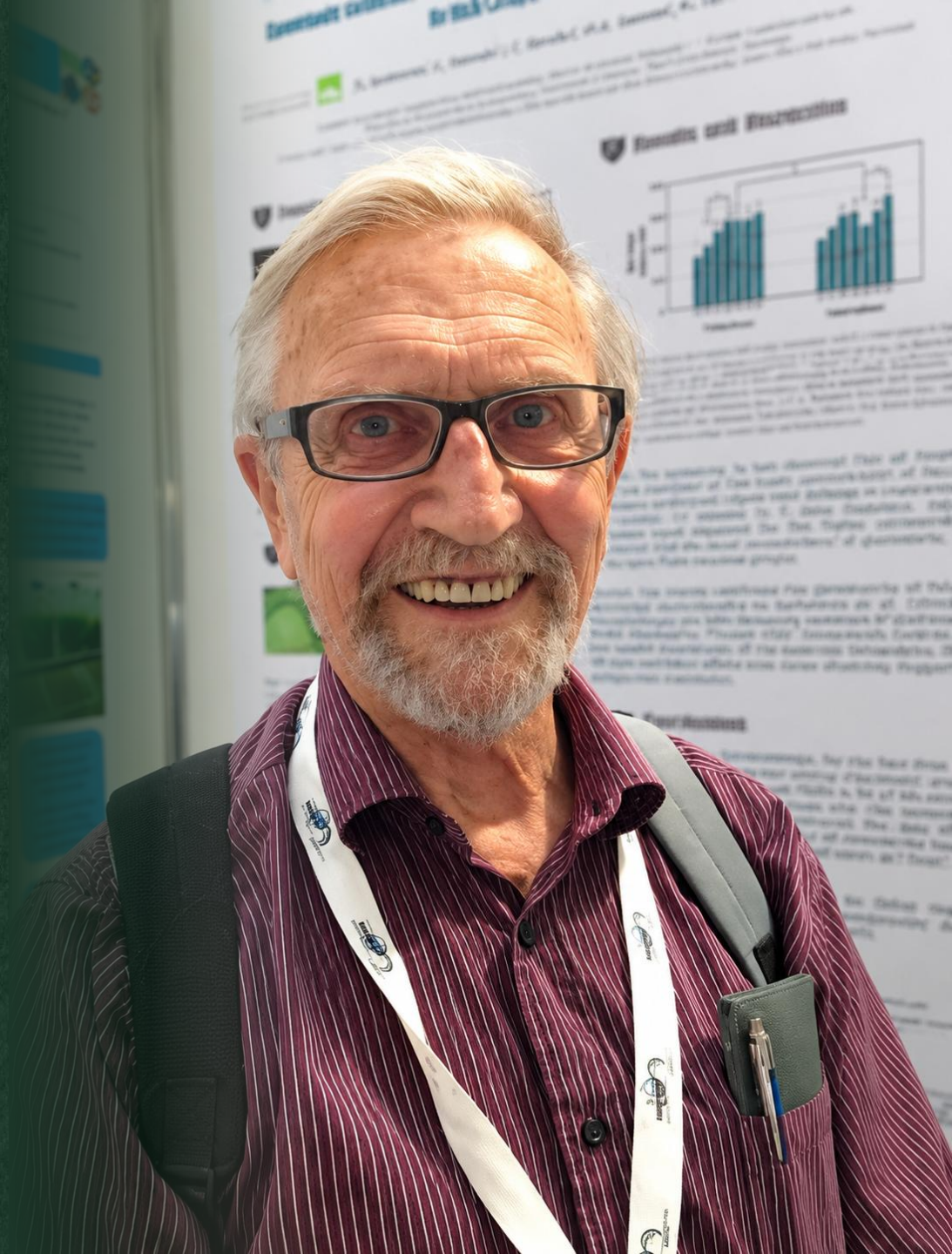
In the 1960s, they started disappearing again until they were almost wiped out. Nobody was hunting them.
So why?

Illustration – not measured data.

Sören Jensen

Swedish chemist who found PCBs in white-tailed eagles

In 1966, Swedish chemist Sören Jensen was measuring the pesticide DDT. He found a poison nobody was looking for: PCBs. In fish, in a dead eagle, and in his own baby daughter’s hair.



These poisons built up in the fish the eagles ate.
DDT made their eggshells thin.



Photo: Etsy listing, replica egg. Educational use; removed on request.

So thin that they cracked under the weight of the parents.



LoLaJoy / MauricioPóvoa,Pixabay. Image:Clker-Free-Vector-Images,Pixabay

Meri was not the only messenger, the only sign that the Baltic was getting sick. From the 1950s, as the population increased, more and more phosphorus and nitrogen flowed into the sea.

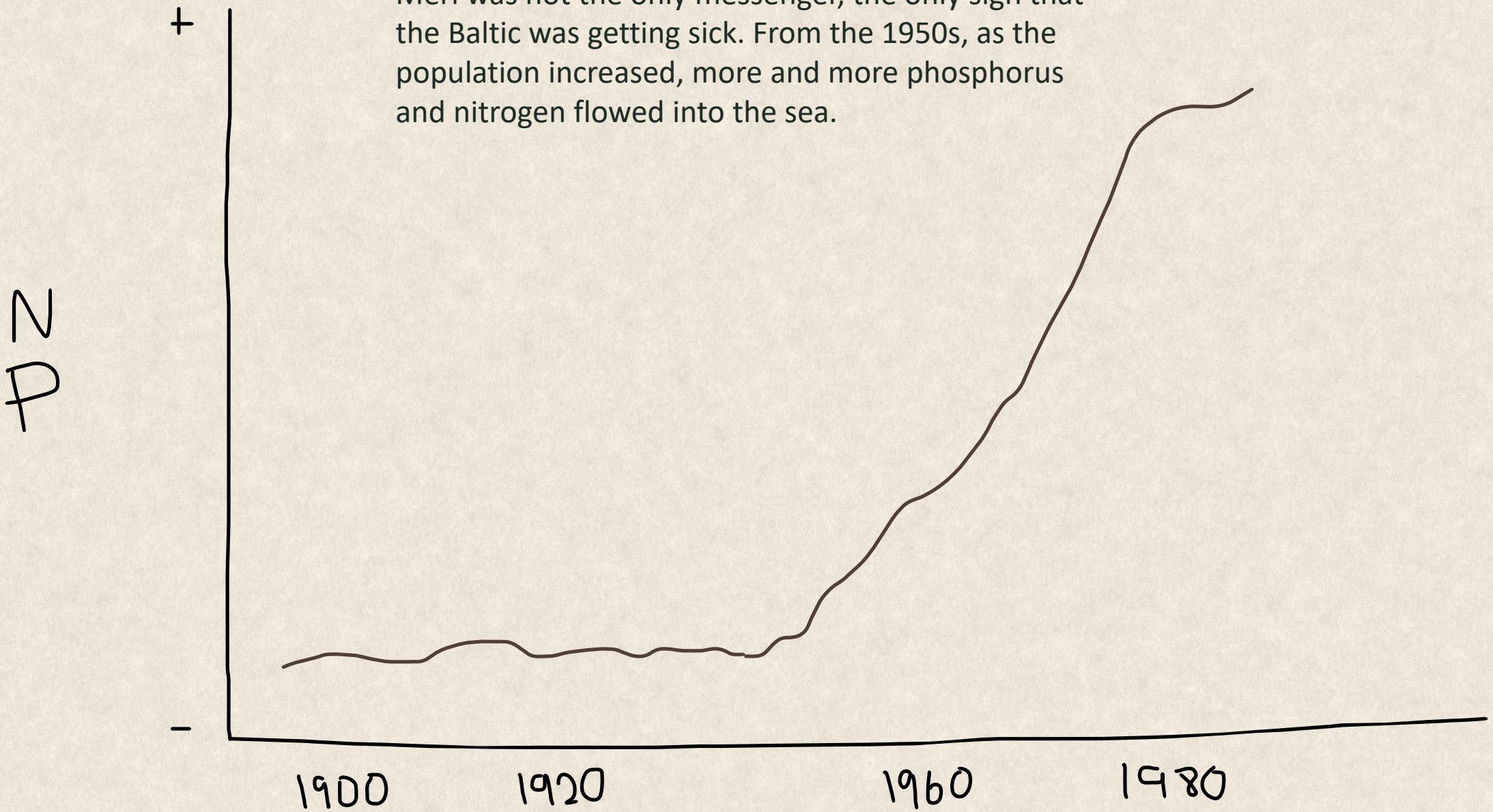
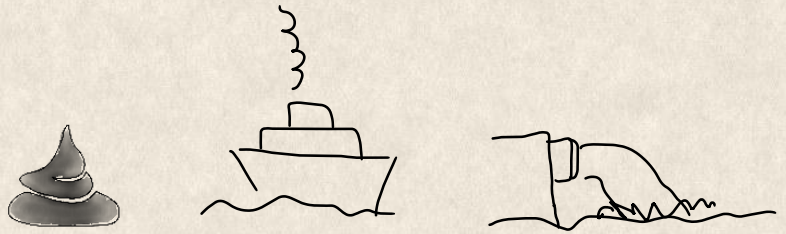


Illustration – not measured data.



From sewage, ships and farm fields, through the rivers. Yes, that cow again. These nutrients feed algae. More on that later.

N
P

+

–

1900

1920

1960

1980

Illustration – not measured data.

No country can fix this ALONE

The poisons and nutrients came from all around the sea.
No country could stop them alone.



Something extraordinary happened in 1974



Katja

In the middle of the Cold War, all the countries around the Baltic sat at the same table.

They signed the Helsinki Convention to protect the Baltic Sea together. HELCOM, the Helsinki Commission, was created to make it work.







Soft law = fair play

Most of what HELCOM agrees are recommendations: “soft law”. Like fair play in football: it works because everyone keeps their word.



Hard law = rules

The Convention itself is “hard law”: a treaty the countries must follow. Like the referee’s rules.

About ten years after the bans, the eggs hatched again. Meri's family came back.

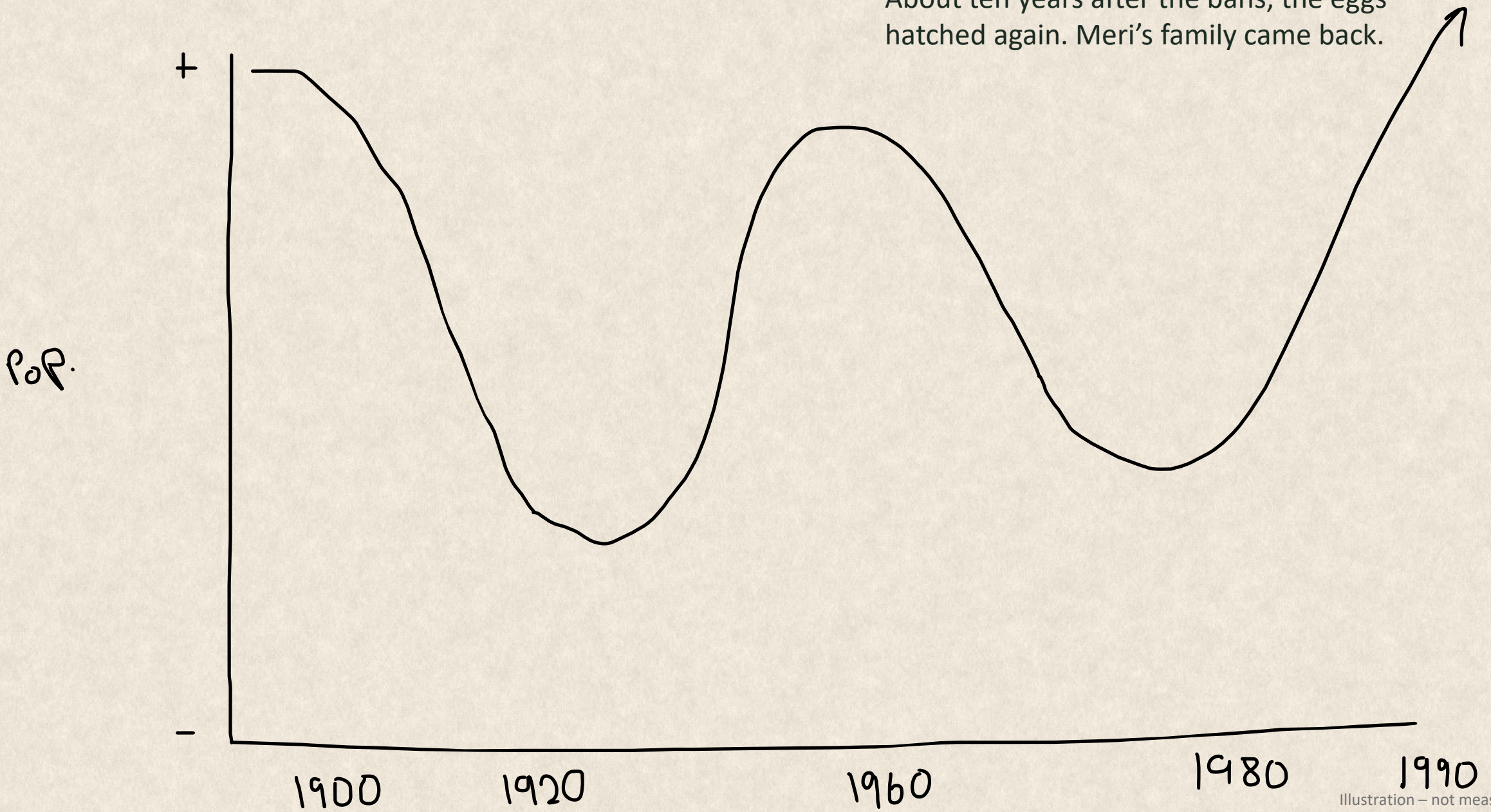


Illustration – not measured data.

Meri is a HELCOM indicator

How do we know? Volunteers have counted nests and chicks every year since the 1970s. The eagle is now an official HELCOM indicator: a measurable sign of the sea's health.

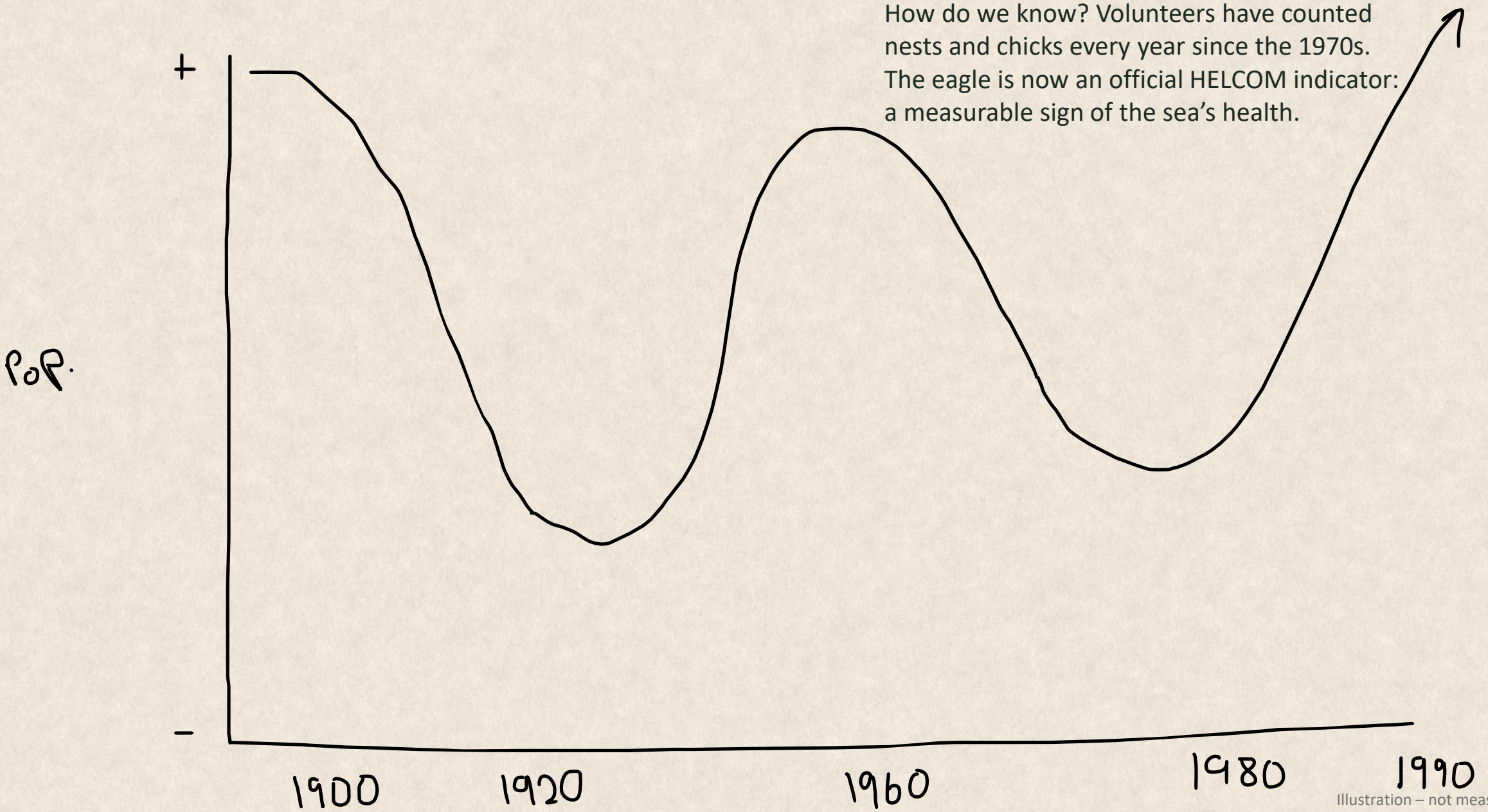


Illustration – not measured data.

The plan

Acting together saved Meri’s family.

Can it save the whole sea?

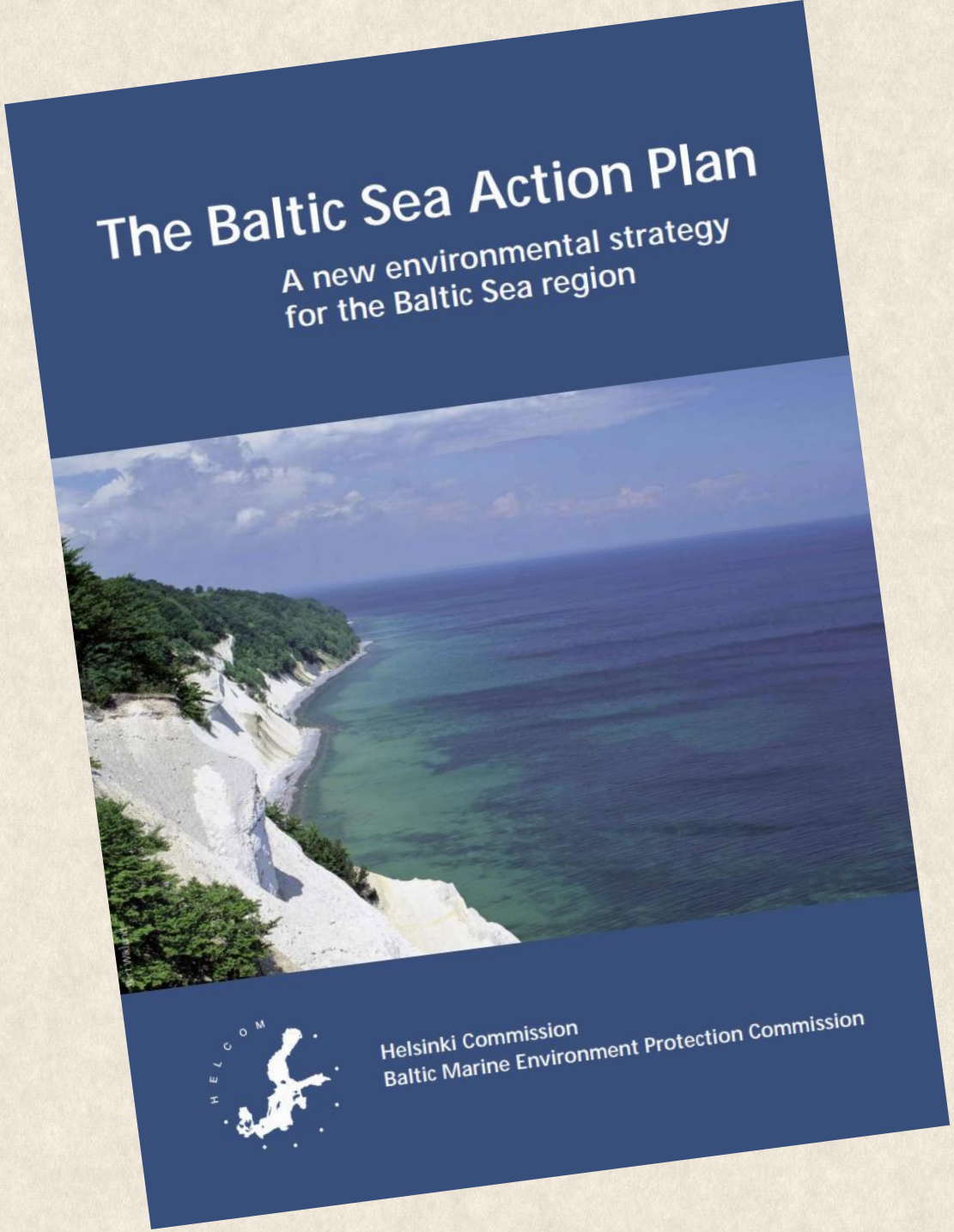
The Helsinki Convention sets out good intentions. To make them happen, we need concrete actions.



Manuel

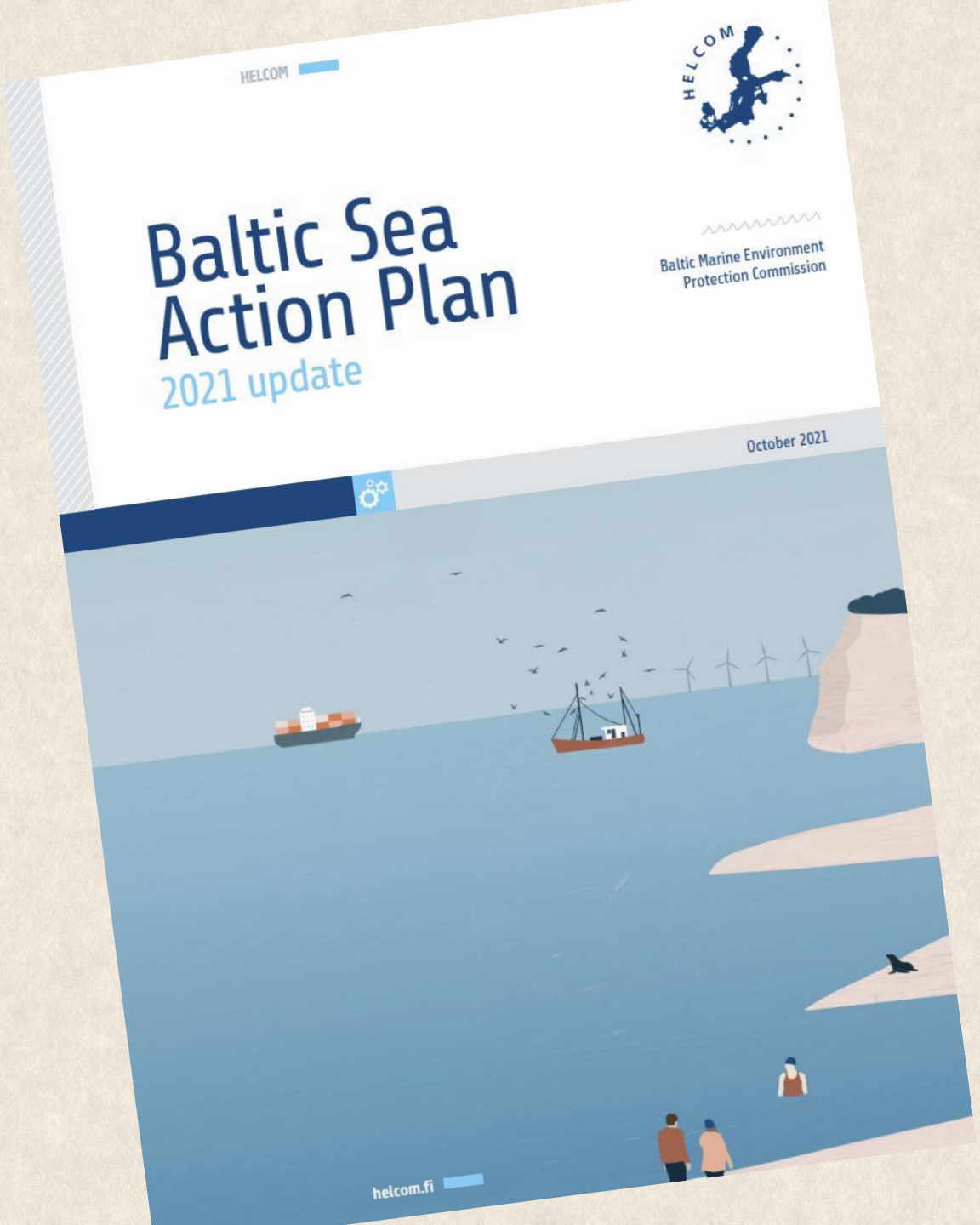
2007

In 2007, the countries turned their promises into one big plan: the Baltic Sea Action Plan (BSAP).



2021

In 2021 they updated it, with actions to complete by 2030.



199 actions

HELCOM Baltic Sea Action Plan, 2021 update.



68 Sea-based activities

36 Eutrophication

35 Biodiversity

32 Hazardous substances & litter

28 Horizontal topics

One square = one action.

Source: HELCOM (2021), Baltic Sea Action Plan – 2021 update



Fifty years after the Convention, Meri flies over the same sea. What does she see?

Hazardous substances

Stop 1: hazardous substances. Some poisons stay in the sea for decades and build up in fish, like this Baltic herring.



Baltic herring (*Clupea harengus membras*)

Hazardous substances

That’s why Finland advises children and young women to eat large Baltic herring only once every two months. The BSAP contains actions to reduce the effects of hazardous substances.

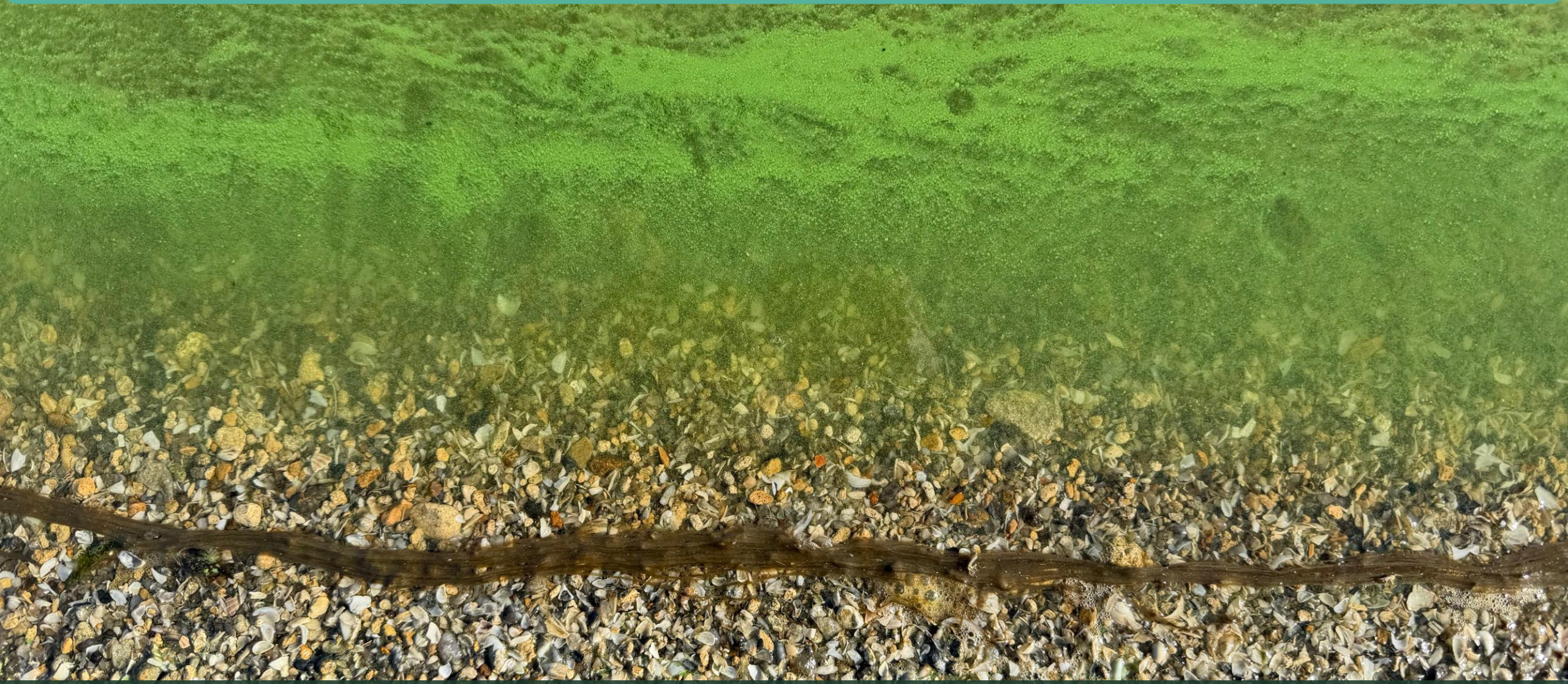


Baltic herring (*Clupea harengus membras*)

Finnish Food Authority: Baltic herring over 19 cm: children and young women should eat it **only once every two months.**

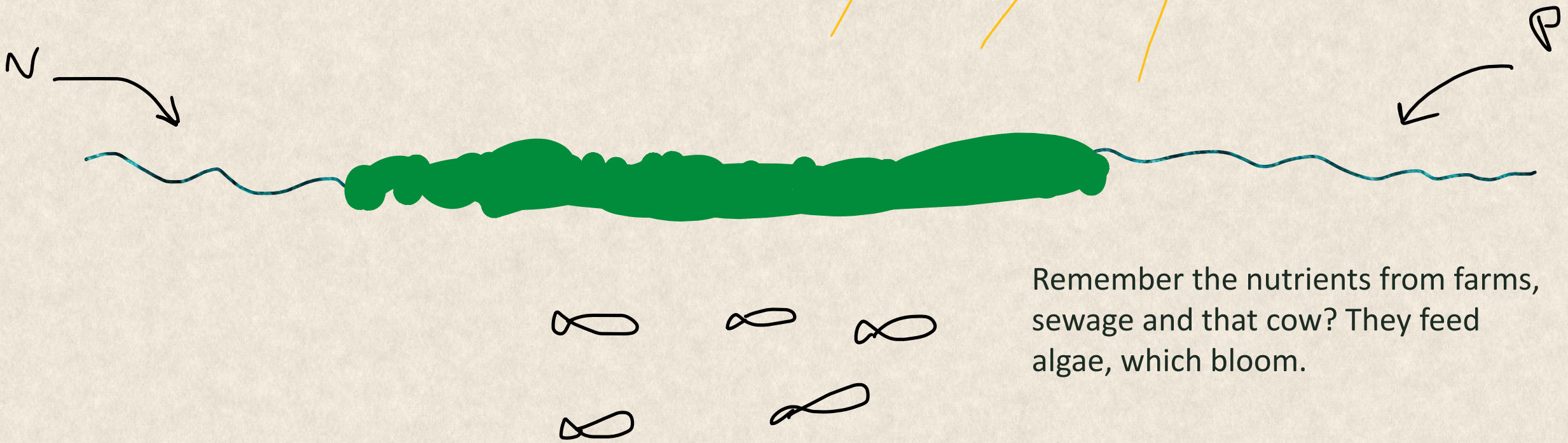
Source: Finnish Food Authority (Ruokavirasto), Safe use of fish. Advice for school-age children and for women of reproductive age, pregnant or breastfeeding. Herring length measured ungutted.

Eutrophication



Stop 2: eutrophication, too many nutrients. In summer, parts of the sea turn green.

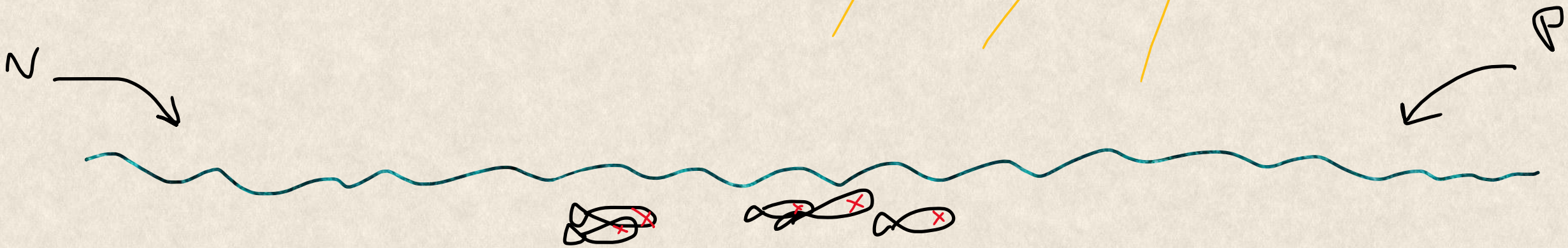
Eutrophication



Remember the nutrients from farms, sewage and that cow? They feed algae, which bloom.

Illustration by the authors.

Eutrophication



When the algae die, they sink and rot, using up the oxygen. On the bottom, fish and animals suffocate: dead zones. The BSAP contains actions to reduce eutrophication.



Illustration by the authors.

Sea-based activities

How did it get here?

Stop 3: sea-based activities. How did this banana get to Finland? By ship, like most things we buy.



Photo: RyanMcGuire, Pixabay

Sea-based activities



The Baltic Sea is one of the most trafficked seas in the world.

Watch the ship traffic: youtube.com/watch?v=3CBgs5O1WPc (or search “HELCOM AIS video”)

Sea-based activities



Ships bring noise, oil spills and new species. Wind farms add turbines, and eagles can collide with them. The BSAP contains actions to reduce the effects of sea-based activities.

Biodiversity

Stop 4: biodiversity. Grey seals almost disappeared in the 1970s, and came back. The BSAP contains actions to protect biodiversity.



Still from a video by Prora, Pixabay

The scoreboard

The promises are written down.

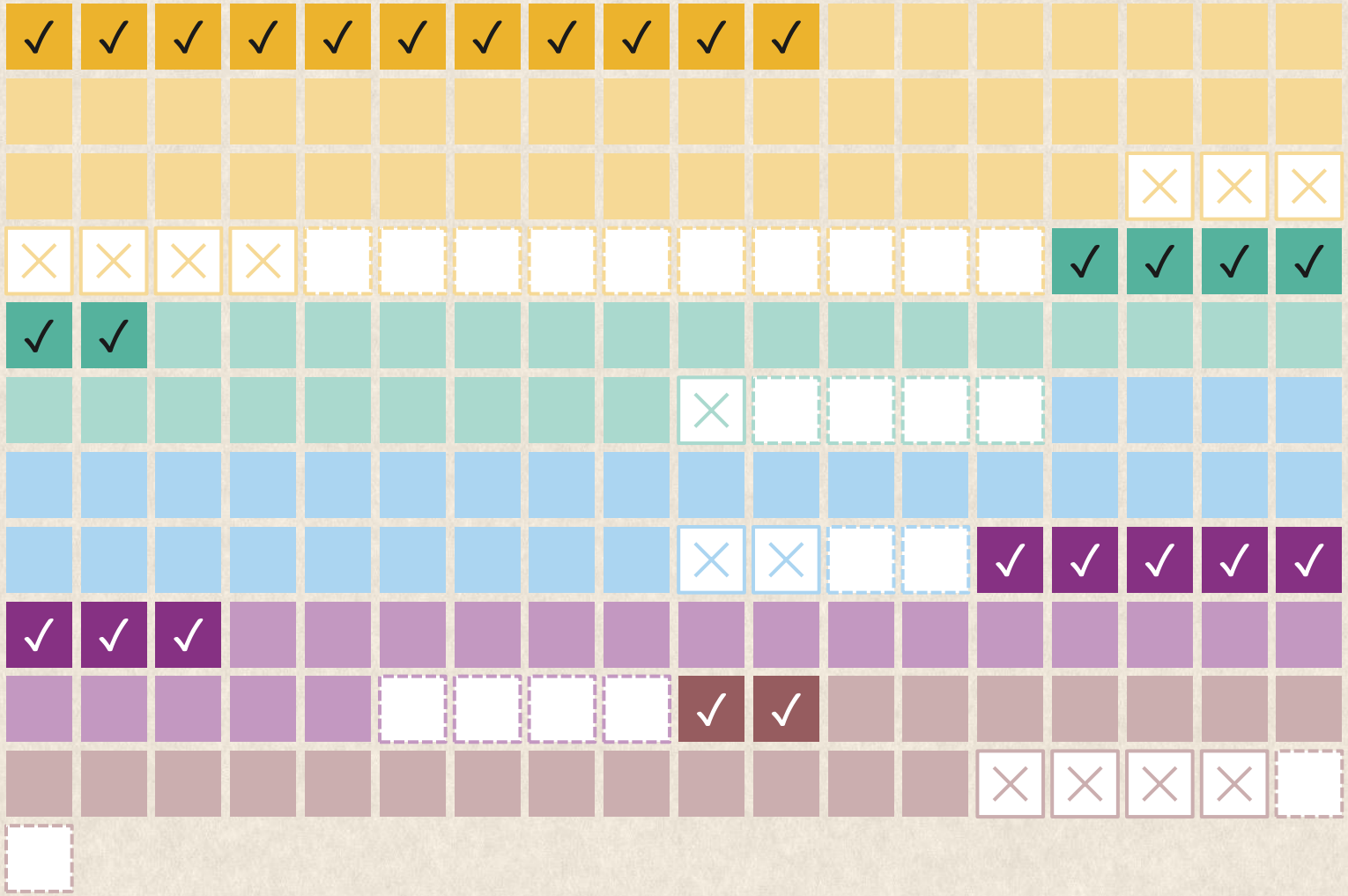
But were they kept?



Katja

Were the promises kept?

199 actions of the Baltic Sea Action Plan (2021) · status Sept 2026



✓	**14%**	Accomplished
	68%	Partly accomplished
✗	**7%**	Not accomplished
	11%	Deadline still ahead

Of 199 actions, only 27 are fully done: 14%. 136 are partly done.

"Partly accomplished": for joint actions, work is ongoing; for national actions, some countries have implemented it.

Source: HELCOM (2021), Implementation of the 2007 BSAP, p. 5; HELCOM Explorer, 3 Sep 2026.

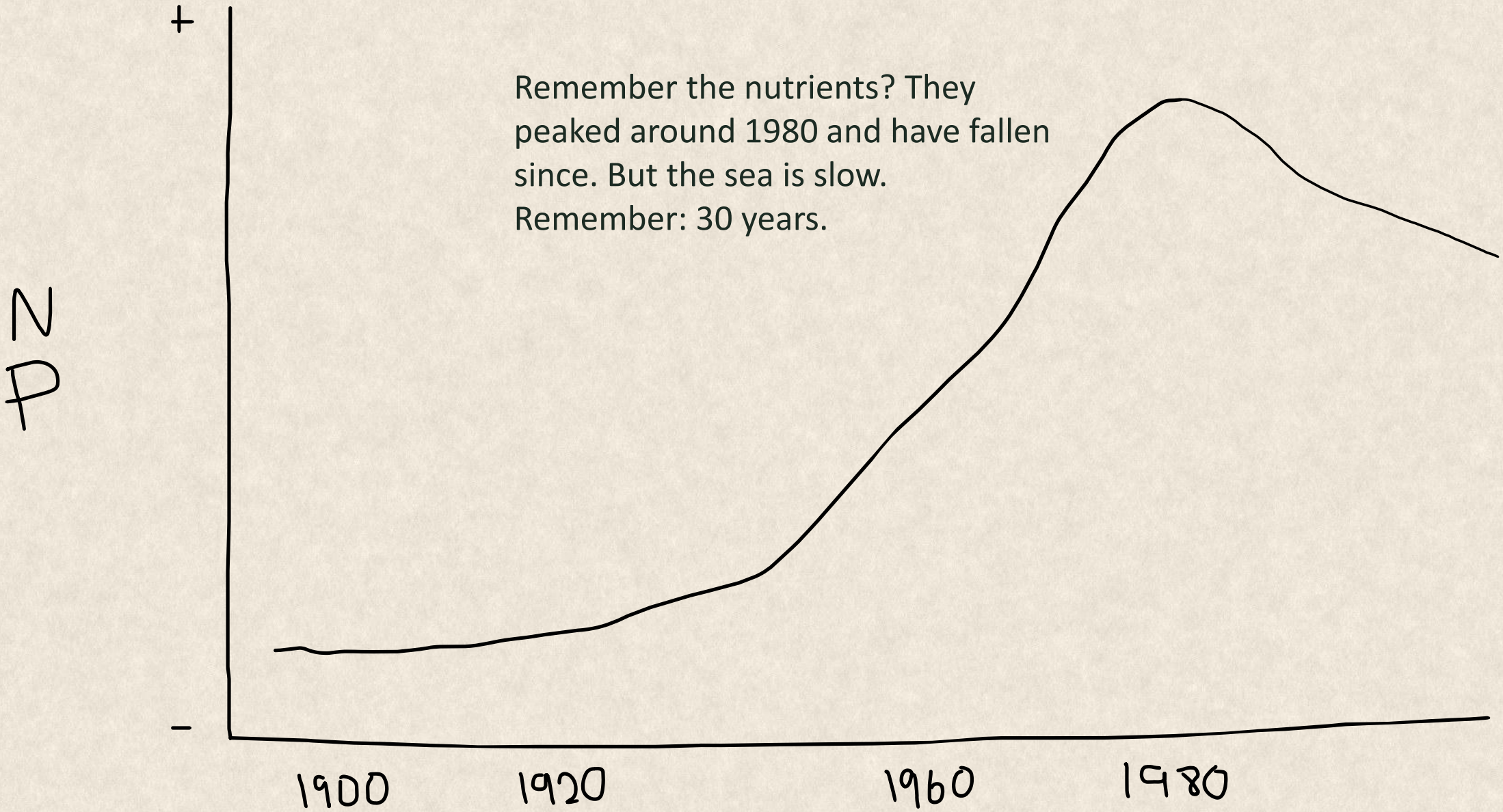
State of the Baltic Sea

Assessment every six years

Every six years, scientists from all HELCOM countries give the sea a full check-up. The latest, “State of the Baltic Sea” (2023), covers 2016–2021.



Nutrients flowing into the sea

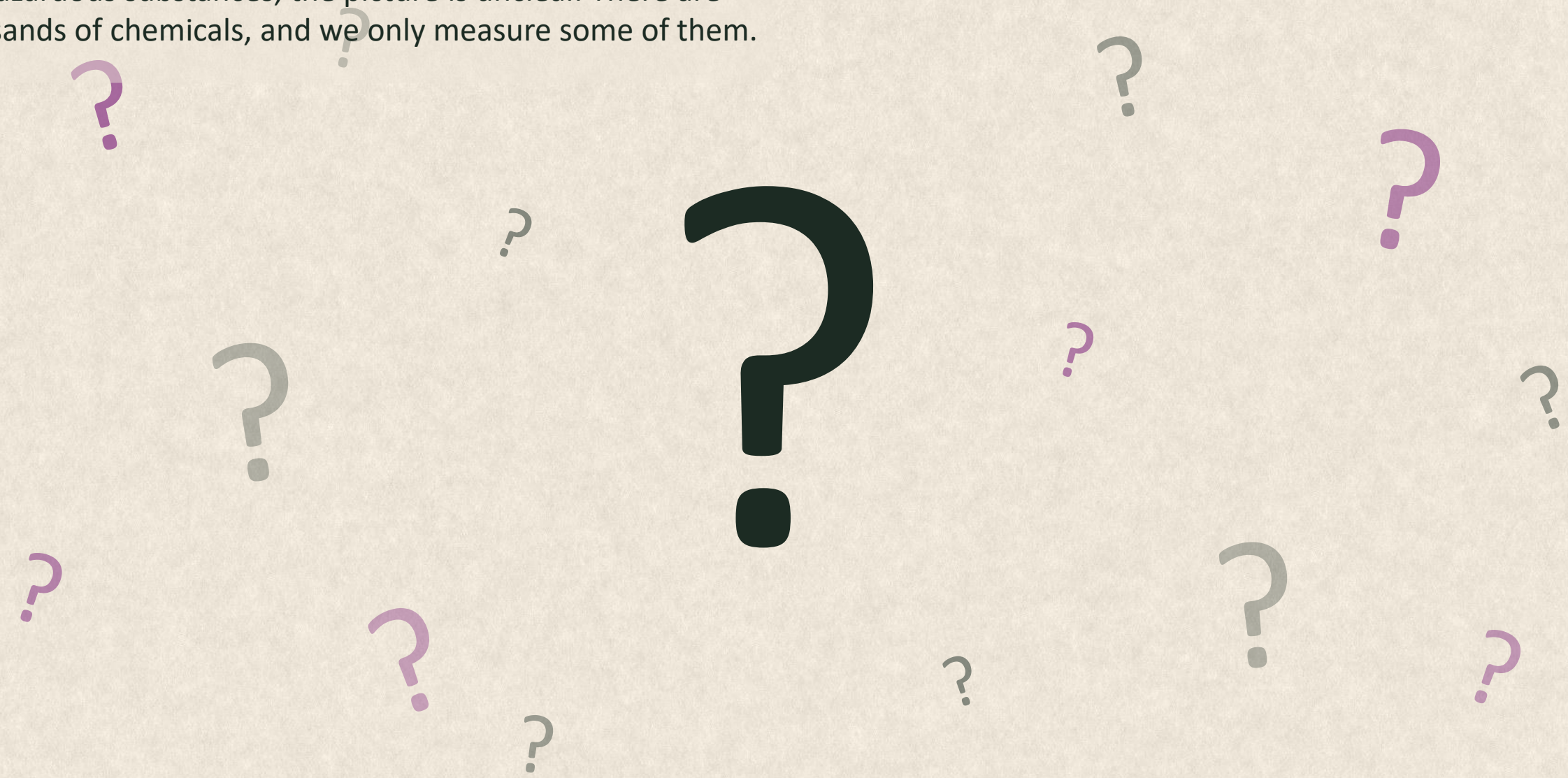


Remember the nutrients? They peaked around 1980 and have fallen since. But the sea is slow.
Remember: 30 years.

Illustration – not measured data.

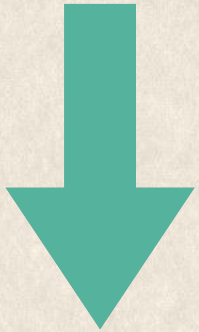
Hazardous substances

For hazardous substances, the picture is unclear. There are thousands of chemicals, and we only measure some of them.



Hazardous substances

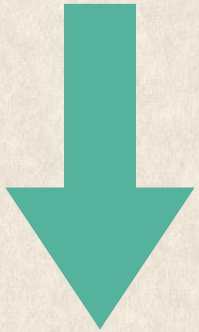
Long data series show that some bans work. But going down doesn't mean gone.



PCBs

Poisoned seals and Meri's family

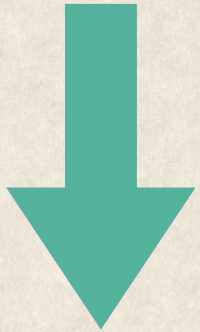
banned 1970s–80s



Cs-137

Chernobyl fallout, 1986

no new source, it decays



HBCDD

Used in house insulation to reduce fire spread

banned 2010s

Most others: no change yet.

↑ Mercury and cadmium: still rising in some places.

Trends in monitoring data series, HELCOM hazardous substances assessment (draft figure). Going down ≠ gone.

Is the situation better than 50 years ago?

YES

- Meri’s family is back
- PCBs, Cs-137, HBCDD: going down

So, is the sea better than 50 years ago? Yes.
Meri’s family is back.

Is the situation good?

NO

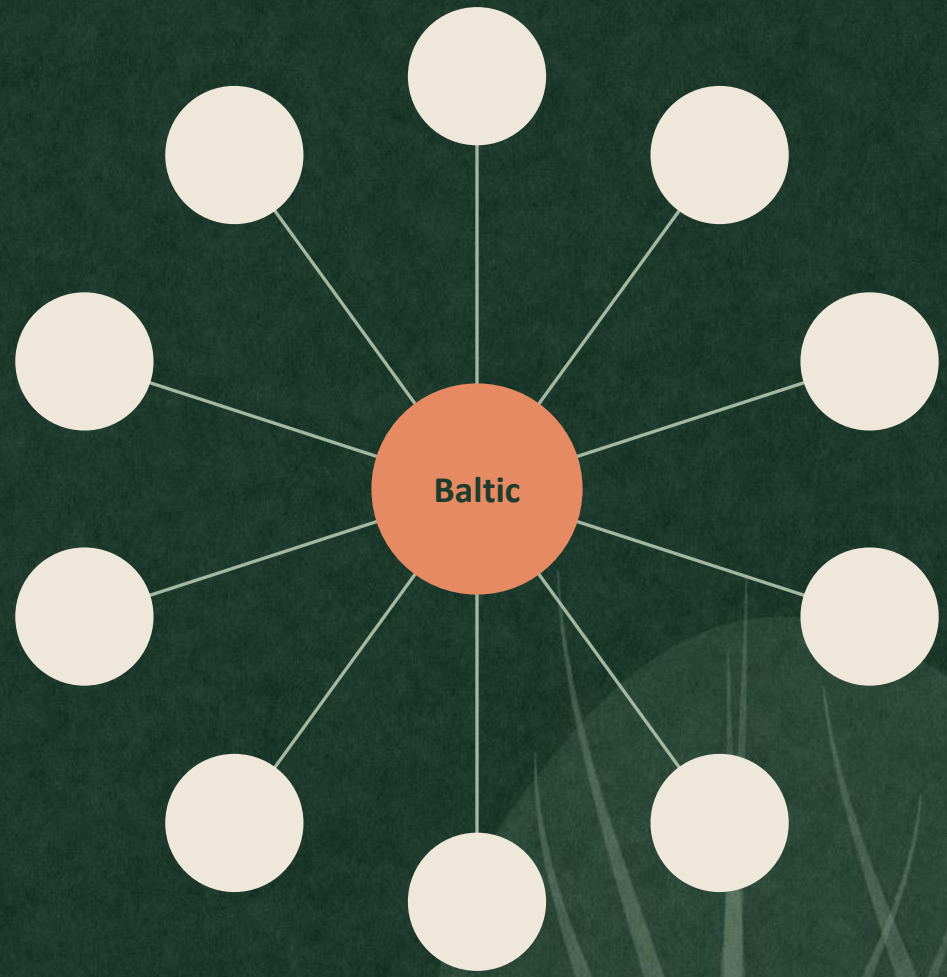
- Only 14% of BSAP actions fully done
- Most problems still unsolved

WHY?

Cooperation is hard

Different laws, different agendas, different languages. One shared sea.

Why is it so slow? Because cooperation is hard: it needs full commitment and constant work.



Measures work,

IF IMPLEMENTED

Agreed on paper → **Put into practice** → **The sea recovers**

…slowly: the water takes ~30 years to renew

Monitoring is how we know where we are.

What can YOU do?

Governments make the big changes. But you can help too.

HAZARDOUS SUBSTANCES & POLLUTION

Pick up litter before it reaches the sea.

Take batteries & electronics to recycling points.

Choose reusable bottles instead of plastic.

EUTROPHICATION

Waste less food.

Don’t feed bread to ducks - leftovers add nutrients to waterways.

Try local Baltic fish, like roach or bream.

At the cottage, keep grass clippings & leaves out of the water.

SEA-BASED ACTIVITIES

Empty toilet waste at a pump-out station.

When boating, slow down near wildlife & sensitive shores.

Keep beaches clean after picnics & swimming.

If fishing, don’t leave fishing lines or hooks behind.

BIODIVERSITY

Become an observer: photograph and identify wildlife with your phone and share it as citizen-science data.

Leave nesting birds and their chicks undisturbed.

Don’t disturb animals or damage underwater plants when swimming.

“

Countries keeping a promise is how the sea recovers.

One person keeping a promise is how it starts.

— Katja & Manuel





Photo: Hannu Ekblom / WWF Finland

Meri’s family is still here because people watched, then acted together.

Now it’s your turn.

Learn more: helcom.fi

HELCOM Baltic Marine Environment Protection Commission

About this version

This is a reader’s version of a talk that Katja Laingui and Manuel Frias (HELCOM) gave at Otaniemi upper secondary school, Espoo, on 27 October 2026, during a day about how the Baltic Sea is monitored.

On stage, the story was told with a toy eagle, sounds, videos and games. Here, the narration is written on the slides.

Sources and credits

Facts and figures

HELCOM (2023). State of the Baltic Sea – Third HELCOM holistic assessment 2016–2021 (HOLAS 3).
HELCOM (2021). Baltic Sea Action Plan – 2021 update. Implementation status: HELCOM Explorer, 3 September 2026.
HELCOM (2021). Implementation of the 2007 Baltic Sea Action Plan.
HELCOM hazardous substances assessment (trends in monitoring data series, draft figure).
HELCOM core indicator: White-tailed eagle productivity.
Baltic Earth: The Baltic Sea catchment basin (14 countries, about 85 million people).
Finnish Food Authority (Ruokavirasto): Safe use of fish.
Salinity: Britannica; HELCOM State of the Baltic Sea 2023; FAO Irrigation and Drainage Paper 29; WHO Guidelines for Drinking-water Quality 2022.

Images

Credits are given on each slide. Hand-drawn graphs are illustrations, not measured data.
Ship traffic video (AIS): youtube.com/watch?v=3CBgs5O1WPc
Title slide image: Clker-Free-Vector-Images, Pixabay.