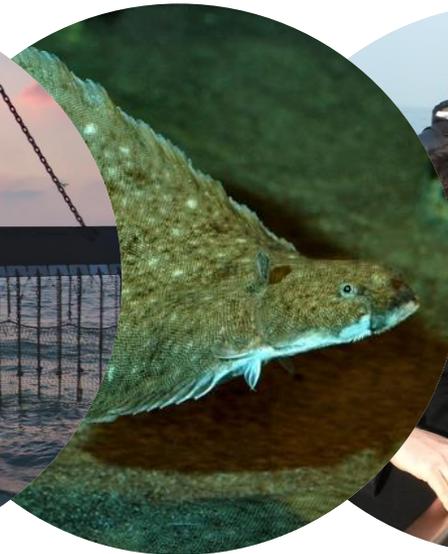
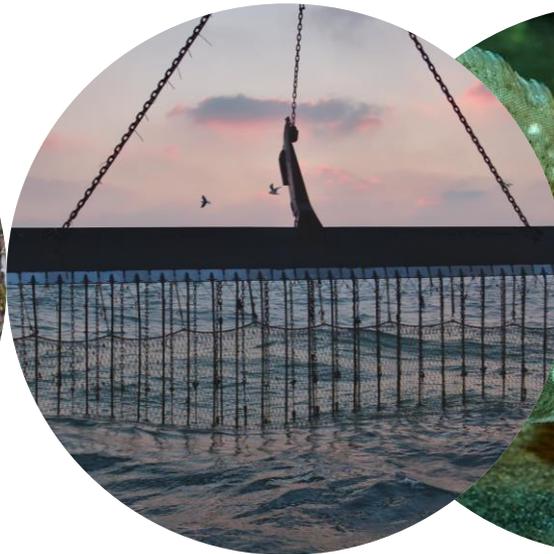


Fisheries innovation processes: Lessons from the pulse ban and other fisheries

NSAC/EAPO Symposium on Innovative Fishing "Precision-fishing: re-imagining bottom-trawling through innovative gear"

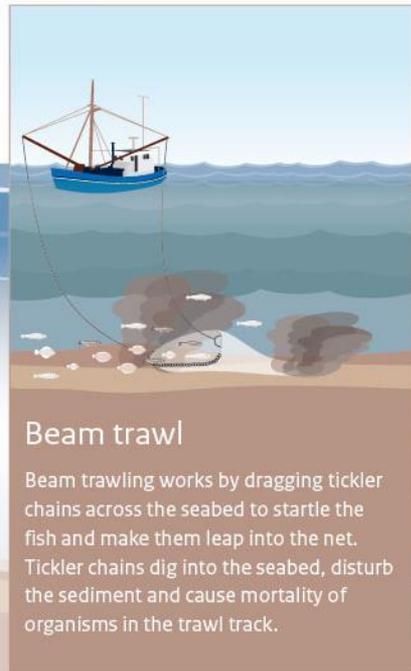
7 March 2024, Nathalie Steins





Pulse Fishing

Pulse trawling as a promising alternative to beam trawling



Beam trawl

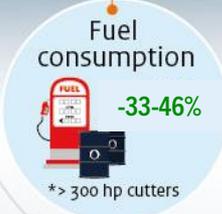
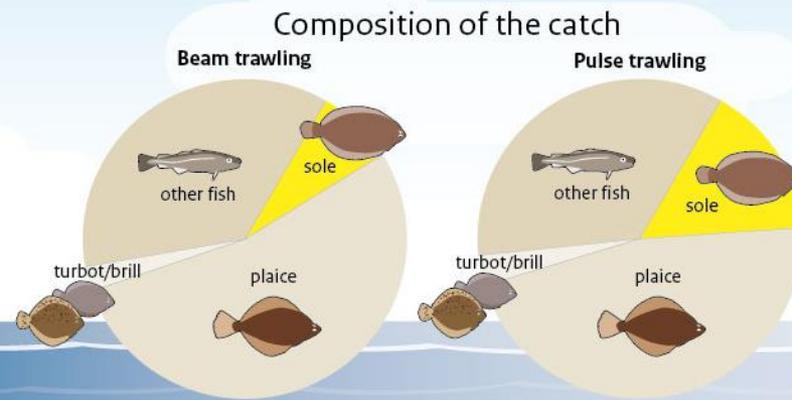
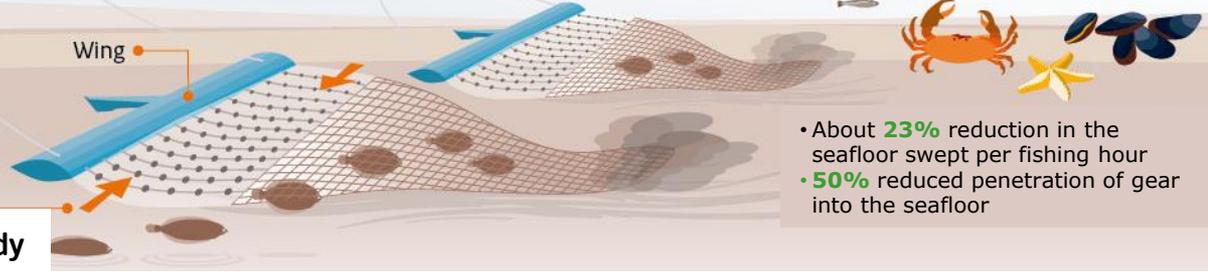
Beam trawling works by dragging tickler chains across the seabed to startle the fish and make them leap into the net. Tickler chains dig into the seabed, disturb the sediment and cause mortality of organisms in the trawl track.



Pulse trawl

- Improved selectivity of sole.
- Reduced fuel consumption.
- Reduction of discarded benthic fauna and undersized fish.
- Lower mechanical injuries, except for cod.
- Indication of higher survival of discarded sole and plaice.

Electric pulses make the fish leap into the net.



Main findings multi-annual ecosystem impact study

- Improved selectivity of sole
- Reduced fuel consumption
- Reduced discards of benthic invertebrates and undersized fish
- Pulse-induced injuries are restricted to cod with negligible population level impact
- Reduced mechanical injuries and higher survival of discarded plaice and sole
- No adverse effects of pulse stimulation could be detected on biogeochemistry and benthic invertebrates



What happened?



Home News Agriculture EU parliament calls for ban on electric pulse fishing

EU parliament calls for ban on electric pulse fishing

SUBAN TV.com with AFP @ 1/11



FALSE

Bloom says:
'MARINE ORGANISMS ARE KILLED AND DAMAGED BY PULSE FISHING'

TRUE

Research shows:
'WEAK PULSES DO NOT HURT OR KILL THE MARINE ORGANISMS'

On the contrary: unwanted catch is reduced by 50% (Wijnborg et al. 2017), and survival of unwanted catch has increased (van der Reyden et al. 2017).

FALSE

Bloom says:
'DAB ARE DAMAGED BY PULSE FISHERY'

TRUE

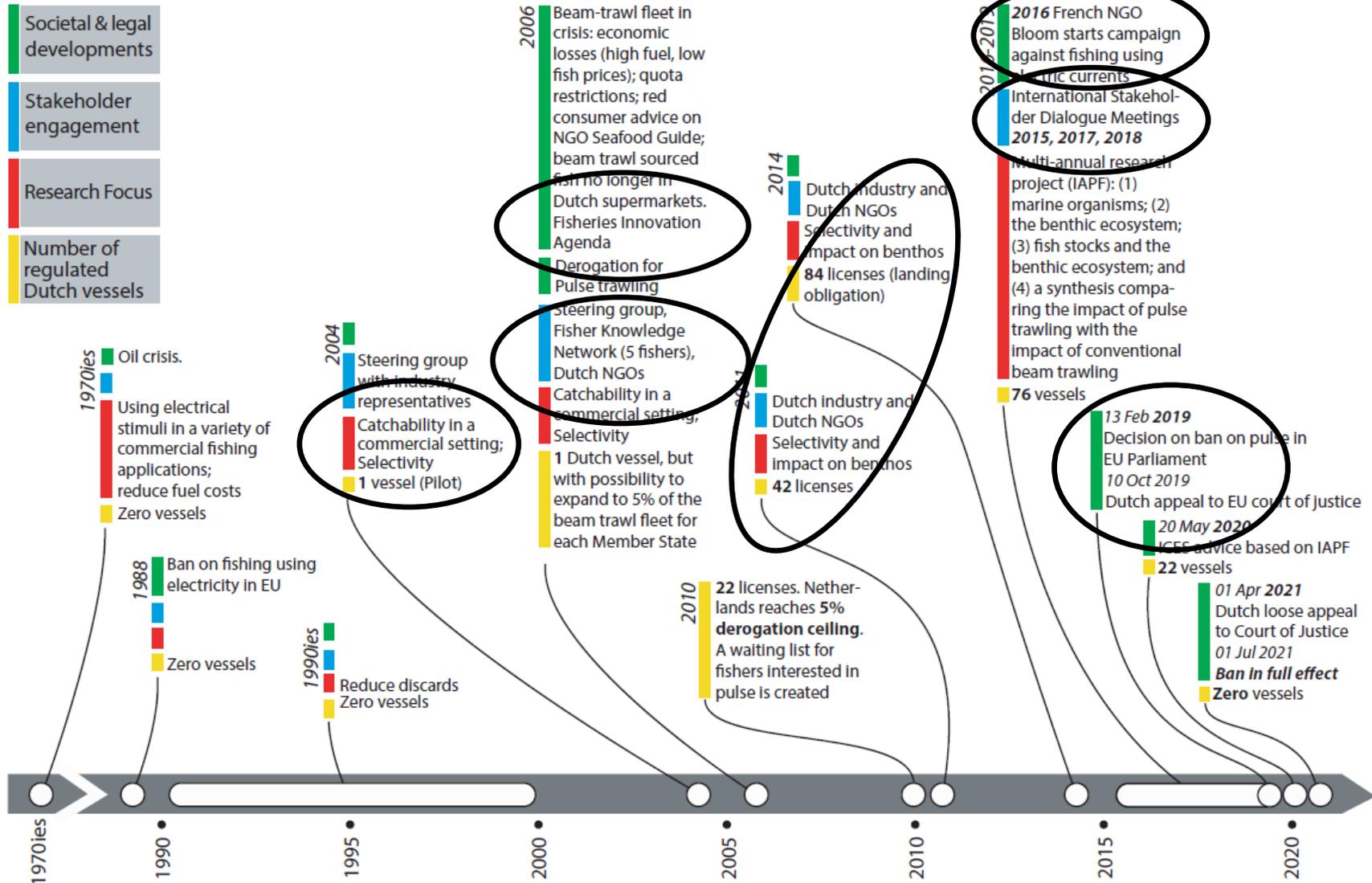
No scientific study shows that pulse fishing causes injuries on dab **'SKIN LESIONS OR HAEMORRHAGES ATTRIBUTABLE TO PULSE EXPOSURE WERE NOT OBSERVED IN THE EXPERIMENTS'**

Pulse trawl fishing: The effects on dab (Limanda limanda) Dick de Haan et al. 2015. There are multiple causes like pollution, extreme temperatures, viral infections or small infected wounds.



You have an important voice in the future of sustainable pulse fishing by Voting for Pulse on January 16th. A lot of fake news is incirculation about pulse fishery. With this newsflash we inform you about what is false and what is true!

Contact:
VisNed: Pim Visser 0031 653146220 - Nederlandse Vissersbond: Durk van Tuinen 0031 642408572



Combination of factors influenced the pulse innovation process



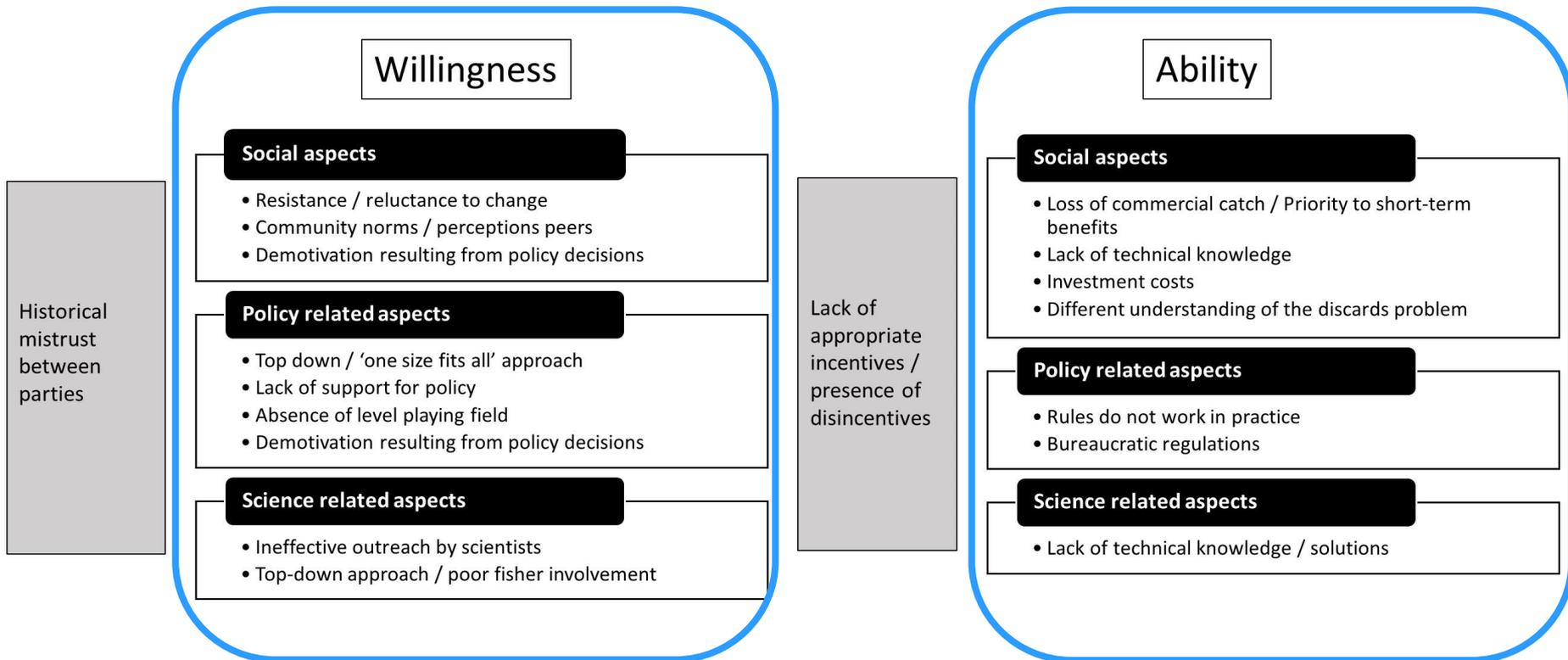
Overall:
“consistent failure to recognise adequately the importance of addressing social and economic impacts on actors other than those directly involved in the innovation process”

Sources:

- Figure: istockphoto.com
- Citation: Delaney et al., 2022, doi: 10.1080/23308249.2022.2047886



Reasons for low uptake of proven gear or net innovations



General lessons from proof-of-concept to fishing practice

- Bottom-up approach
- Fisher Knowledge Network
- Compensation for revenue loss
- Be aware of PESTEL
- More focus on 'willingness' as a driver



Additional lessons for transformative* or disruptive* gear innovation processes

(lessons from Delaney et al., 2022)

- Independent oversight
- Social Impact Analysis (SIA)
- Co-produce adaptive research
- (If needed) Define limits and stick to them



Caution



“shared understanding and co-production of knowledge throughout the process does not automatically guarantee successful science-based introduction of innovations, as the political decision-making process is also influenced by lobby, political interests and (potentially) court cases”

Thank you for your attention

Further reading gear
innovation processes:



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