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Field-testing of otter-safe fykes in Northern Germany
Cost-benefit analysis

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History

The drowning of Eurasian otters (*Lutra lutra*) in fykes is regarded as a major cause of death a.o. [1]. Yet data varies among countries and most references are outdated for Germany and neighbouring countries [2]. Previously developed exit traps [based on 3] showed both, a high success rate of captive otters being able to free themselves [4], as well as retention of fish [5] in controlled experiments. Now, these modified fykes were tested under field conditions in cooperation with fishermen in Schleswig-Holstein (SH), Germany.

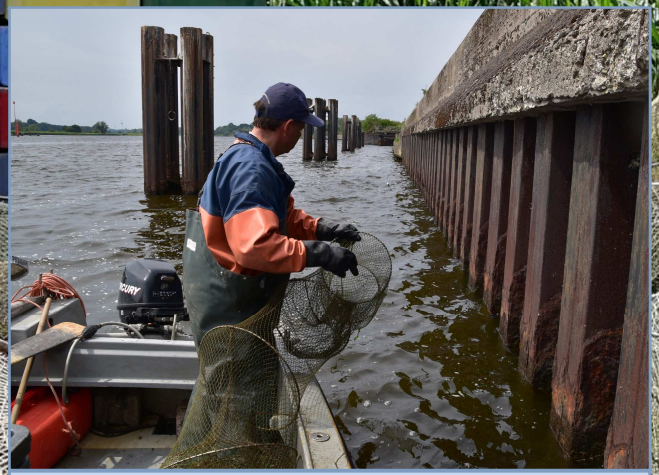

Fig. 1: Fisherman B. Kühn sets a chain of fykes along an old pier at the river Trave, Gothmund.

Methods

- Test sites: rivers Trave (Fig. 1) and Sly Firth (Schlei), due to high natural currents
- Trial conduction: May – October, to account for varying abiotic factors
- Fyke setup: regular and modified fykes together in predefined chains
- Experimental setup: recording of setting/hauling time, entanglements within the mesh
- European eels (*Anguilla anguilla*) >45cm length as indicators for total catch
- Statistical analyses were conducted with the programme R (Version 4.0.3)

Results

- The modification of fykes with otter exits, their service (e.g. cleaning, latex lacing replacement) and maintenance (replacing lost springs, fixing torn mesh, etc.) is time-consuming and labour intensive.
- Handling of modified fykes took significantly longer compared to regular fykes: fyke setting +40-87 sec, hauling of fykes +16.5-28.5 sec (both depending on exit type).
- Steel hoop exit option: most time consuming, most entanglements (Fig. 2).
- River Sly Firth: regular fykes caught significantly more eels >45cm; all other differences among catches in both rivers not statistically relevant.

Challenges: Covid19-Pandemic and subsequent restrictions, only temporal sporadic availability of fishermen, high abundances of invasive species and eel predation by birds.

Fig. 2: The metal hoop got entangled in the fyke mesh.

Video: Metal loop gets entangled in fyke mesh.

Discussion

- Otter-safe fykes seem to catch fish almost as good as regular fykes.
- Previously documented trapping performance [5] was confirmed: fish most likely don't escape via otter exits, even if subjected to changing currents (strength/direction).
- Many entanglements, especially by the steel hoops, demand for technical improvement of the tested exit options.

Necessity of otter exits in SH`s fisheries remains questionable:

– Otters can be found almost all over SH nowadays [6].
– Major cause of otter death in SH is roadkill.
– SH inland fisheries (mostly small family businesses) declined continuously for decades [2] and are low in numbers.
– Additional labour and expenses need to be determined and appropriate compensation paid to the fishermen for mandatory use of otter-safe fykes.

→ A mandatory implementation of otter-safe fykes should be carefully evaluated

Acknowledgements & References

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