DO OTTERS TARGET THE SAME FISH SPECIES AND SIZES AS ANGLERS?

A CASE STUDY FROM A LOWLAND TROUT STREAM IN THE CZECH REPUBLIC

ROMAN LYACH* and MARTIN ČECH**

*Institute for evaluations and social analyses, email: roman.Lyach@inesan.eu, ** Institute for Environmental Studies, Charles University

INTRODUCTION

- Eurasian otter *Lutra lutra* is a an important piscivorous predator on smaller streams in central Europe (Czechia, Slovakia, Poland)
- Intensive restocking with brown trout *Salmo trutta* and rainbow trout *Oncorhynchus mykiss* is common fisheries practice on smaller streams in central Bohemia
- Restocked salmonids are often more vulnerable to predation than wild fish (Fritts et al. 2007)
- Anglers and fisheries managers complain that otters compete for „their“ restocked fish

RESEARCH QUESTION

- Do otters and anglers target and catch similar fish species and similar sizes of fish?

RESEARCH HYPOTHESIS

- We expected to find mostly different fish species and sizes of fish in otter diet in comparison to angling reports.

MATERIALS AND METHODS

- Otter spraints (n = 281) were collected in winter on the Chotýšanka stream in central Bohemia (Czechia, central Europe)
- Otter dietary analysis was done using fish bones and remains (Figure 1)
- Length-weight equations were used to estimate sizes of fish eaten (source: FishBase)
- Mandatory angling logbooks of anglers were used to analyze fish killed by anglers (source: Czech Fishing Union)
- Restocked trouts were hatched in local fish hatcheries

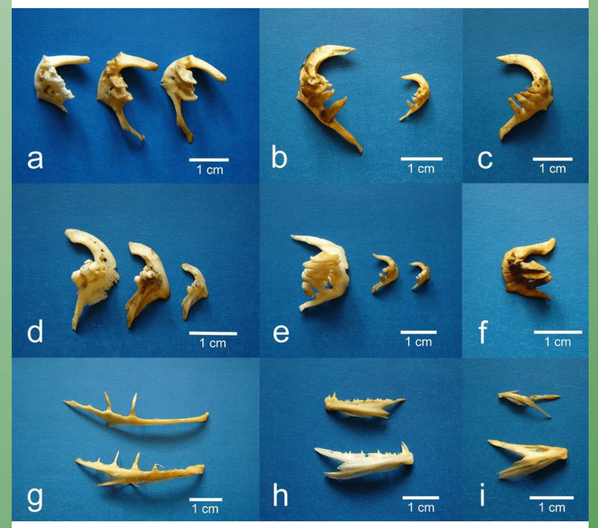

Figure 1: Examples of diagnostic bones of selected fish species : pharyngeal bone (*os pharyngeum*) of (a) Grass Carp (*Ctenopharyngodon idella*) – reconstructed fish size 31, 37 and 34 cm LT (from left), (b) European Chub (*Squalius cephalus*) – 32 and 14 cm LT (from left), (c) Ide (*Leuciscus idus*) - 32 cm LT, (d) Common Carp (*Cyprinus carpio*) - 22, 17 and 10 cm LT (from left), (e) Roach (*Rutilus rutilus*) - 35, 17 and 11 cm LT (from left), (f) Nase (*Chondrostoma nasus*) – 30 cm LT, lower jaw (dentale) of (g) Northern Pike (*Esox lucius*) - 40 and 38 cm LT (from up), (h) Zander (*Sander lucioperca*) – 24 and 26 cm LT (from up) and (i) European Perch (*Perca fluviatilis*) - 17 and 21 cm LT (from up). Photo: M. Čech

RESULTS

- Otter diet was dominated by gudgeon *Gobio gobio* (90 % by number) – a dominant fish species in the ecosystem with no angling value because of its small body size
- Anglers caught mostly rainbow trout – a non-native restocked fish species of high angling value and no ecosystem importance
- Otters caught small fish (median 10 g) while anglers caught large fish (median 300 g)
- Fish dominated in otter diet, but otters also caught frogs *Rana* sp. and crayfish *Astacus fluviatilis*
- Restocked brown and rainbow trout made 11 % of otter diet by biomass

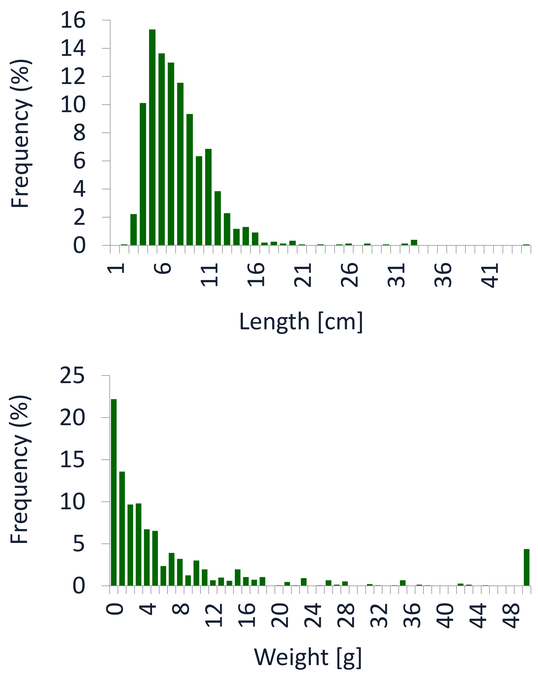

Figure 2: frequency distribution of fish (n = 1 532) in otter diet by length (upper) and biomass (lower)

CONCLUSIONS

- Anglers and otters targeted and caught different fish species and sizes
- The competition for fish between recreational anglers and otters is likely small
- Otters are likely not a threat to local fisheries sector

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Fritts, A. L., Scott, J. L., & Pearsons, T. N. (2007). The effects of domestication on the relative vulnerability of hatchery and wild origin spring Chinook salmon (*Oncorhynchus tshawytscha*) to predation. *Canadian Journal of Fisheries and Aquatic Sciences*, *64*(5), 813-818.