

Man-made Side Waters as Nursery Grounds for Fish in the River Mosel von

by Ch. von Landwüst (text) and R. Braden (layout)



Electrofishing



Pike use man-made side waters as spawning and nursery grounds



Juvenile roach

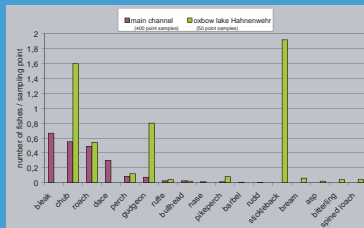


Juvenile common carp

Results

The juvenile fish assemblages in the main channel and in side channels with wide and deep connections to the main channel comprise eurytopic species like bleak and roach as well as rheophilic species like chub and dace. Limnophilic species like rudd are almost absent. Side waters with a narrow and shallow connection to the main channel

(e. g. the oxbow lake at Hahnenwehr) and harbours where boats navigate with reduced speed are characterised by comparatively high numbers of juvenile limnophilic and eurytopic fish and low numbers

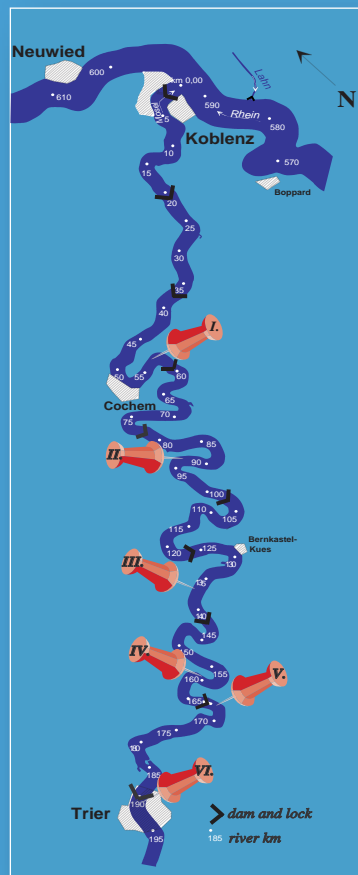


Densities of juvenile fishes in inshore areas of the River Mosel in August 2000 (main channel and oxbow lake at Hahnenwehr)

Introduction

The River Mosel is one of the busiest inland waterways in Europe. In the early 1960s it was regulated by a chain of dams and locks. In the 1990s the fairway was dredged to a depth of

3 m. To compensate for resulting negative impacts on the fish stocks man-made structures like side channels and special types of groynes were built. Their purpose is to enhance fish recruitment by protecting the vulnerable juvenile stages (eggs, larvae, juveniles) against ship waves. To evaluate the significance of the newly created inshore zones as juvenile habitats 0+ juvenile fish densities were compared in- and outside of these areas. The investigation was carried out in August 2000 by point abundance sampling using electrofishing gear which was modified for catching young/small fish.



Locations of the investigated side waters in the River Mosel

Conclusions

Man-made structures like side channels enhance juvenile fish production by increasing the length of the shoreline which is the preferred habitat of the juveniles of most fish species. To optimize inshore zones for limnophilic species it is necessary to prevent all water movements caused by ships (waves, draw-down, etc.). This can be achieved by designing the connections between side waters and main channel as narrow and shallow as possible. To increase the potential of harbours as nursery grounds it is recommended to create a few shallow inshore areas along the embank-



I. side channel at Valwig



II. side channel at Pünderich



III. side channel at Mühlheim



IV. side channel at Leiwen



V. oxbow lake at Hahnenwehr



VI. groyne structures at Trier

Federal Institute of Hydrology

Am Mainzer Tor 1
D-56068 Koblenz

Postfach 200253
D-56002 Koblenz

Tel.: +49/0261/1306-0
Fax: +49/0261/1306-5302

e-mail: posteingang@bafg.de
internet: www.bafg.de

Department: Fauna and Ecology

Head of Department: Dr. J. Koop