Trout 2010 – Stakeholder Participation in Brook Restoration

Wolfram Hammer & Dr. Ludwig Tent

1. First remarks

Urban streams in their present day situation are still characterised by heavy construction work of the past. Lying deep and trapezoidally shaped in their surroundings a vast amount of them is nearly not to be recognised as an exciting living sphere for a wide variety of organisms. On the other hand, for about two decades engaged citizens have tried to improve part of these streams as habitats. The Boroughs of the Free and Hanseatic City of Hamburg, esp. the Borough of Wandsbek, offer these citizens the opportunity to be active as adopt-a-brook groups ("Bachpaten", Tent, 1998).

In the year 2000 the Water Framework Directive came into action and with it the good ecological status is a goal to be achieved for all of our watercourses. Indicators whether this is successful are ab-original inhabitants like invertebrates and fish.

2. General characteristics

The glacial ages formed the landscape of the North German Lowland with moranes and dunes as two characteristic features. Lively streams of the moranes in former times washed out sand and finer material, leaving gravel and boulders as ground being the habitat basis of the brooks` biota. Construction work over the centuries resulted in deep incised flow channels being overwide by erosive development in most cases. Thus sand and mud are deposited in the cross section, moving during high discharge, giving an impression as if the watercourse were a sand brook.

In urban situations road effluents and other diffuse sources aside the structural deficits characterise the situation.

Denmark, with the same geohistorical background, over decades showed how to improve streams and transported good examples via information and education (Madsen, 1995, Hansen & Madsen, 1997, 1998).

With this background the idea arose to restore Wandse Beck as a pilot trout brook in the middle of the urban Hamburg surroundings.

3. Testing

First checks of temperature and chemical data revealed that it would be a worthwhile experiment. A youth group of an angling club tested the potential of the Wandse to breed brown trout eggs in WV-boxes. The project started in the

year 2000 with Friends of the Earth, Hamburg, as project manager and funding of the "Umweltstiftung der Hamburgischen Electricitäts-Werke" (Tent, 2001).

4. Stakeholder Participation

Within the project "Trout 2010" there was no formal participation process installed like e.g. in Lower Saxony with "Watercourse Development Plans" (Tent, 1999). Trout 2010 has been run primarily as an informal process.

4.1 Most important stakeholders during the project

For the project managers the adopt-a-brook groups with citizens from kids to the elderly were seen as most important stakeholders. About 1.000 persons are active along the Wandsbek watercourses, eagerly watching, investigating and improving the aquatic habitats.

During the past 5 years more than 300 t of gravel and boulders have been re-introduced into a 4 km section of the Wandse and it`s tributaries in order to re-establish a well structured home for characteristic inhabitants of these waters. With the in part narrow sites along the Wandse it was very useful to do so because machine work in many circumstances would have destroyed the remnants of susceptible wetlands.

Knowledge exchange took place during the actual work phases and as there are many schools involved, complex connections, e.g. with social day activities etc. were organised.

4.2 Knowledge within the public

During the activities of Bachpaten it was to be seen that strong interest of the public developed. Thus questionnaires have been handed out to citizens after activities in shopping malls, e.g. poster exhibitions on World Water Day, to have an overview about the perception of the river. It was interesting to see that

- most of the persons know whether there is a beck in the surroundings of their living sphere (91 %) and that
- most know the name of it (75 %).
- 50 % had realised recent improvements and
- 36 % know about the "Bachpatenschaften".

- 58 % have an imagination about causes of present day problems like waste from roads or spills after accidents,
- 45 % can tell about the danger from feeding ducks excessively.

However, as expected, most of the citizens have no clear idea where a bucket of wastewater from house-cleansing ends if it is poured out on the road. Compared

to the very low water flow during dry seasons “this” bucket may harm stream life severely. So a new information leaflet was created, not to spoil the brook via rain water pipes (Tent, 2002).

Aside “normal” information practices like oral and poster presentations co-operation with interested groups of artists gave new insights for the public and the project managers, as well. Exhibitions and other events attracted many excited visitors and new activists.

4.3 Specific actions, Giant Hogweed

During the years the presence of “alien invaders” became a topic of interest. Especially for giant hogweed, which burns large wounds into the skin once contacted during sunshine, activities to get rid of increasing populations were taken. Digging the roots over years is the only successful means to have this species eradicated. At present groups of unemployed take this role systematically.

4.4 Knowlegde exchange within “the scientific community”

Parallel to the project`s activities the implementation process of the Water Framework Directive (WFD) in the federal states of Germany is taking place. Within this one of the most important topics is the definition and description of the guiding goals for habitats being site specific. – With the wrong goal chosen, a habitat will never reach it`s “good ecological status” (or with heavily modified water bodies: the “good potential”), as longed for by the WFD.

It had to be realised that so-called sand brooks in the minds of many elaborators were identified as the goal to be achieved. The streams of the North German Lowland, however, running through morane area, were gravel / stone brooks, once (cf. fig. 1).

From experience of Trout 2010 and related outdoor projects the discussion about the correct choice of goals for streams in the North German Lowland began. As an important result it can be stated that much more stream length than before will be interpreted as potential gravel / stone brook. With this it will be possible to regain the spawning and nursery sites of many endangered species during the WFD process of the next years.

5 Results

5.1 Trout region regained

After brook improvement work the documented species change from ubiquitous invertebrates to indicator organisms of lively running waters like mayflies and caddis flies (Reusch, 1995) is a real reward for the participating citizens. And it is not only an ecological but a socio-psychological approach, as well. The new perception of waters is a real phenomenon: you can hear riffles (in german:

"Rauschen rauschen", Madsen und Tent, 2000) and where there was an overwide and sluggish, silent watercourse suddenly a murmuring brook appears.

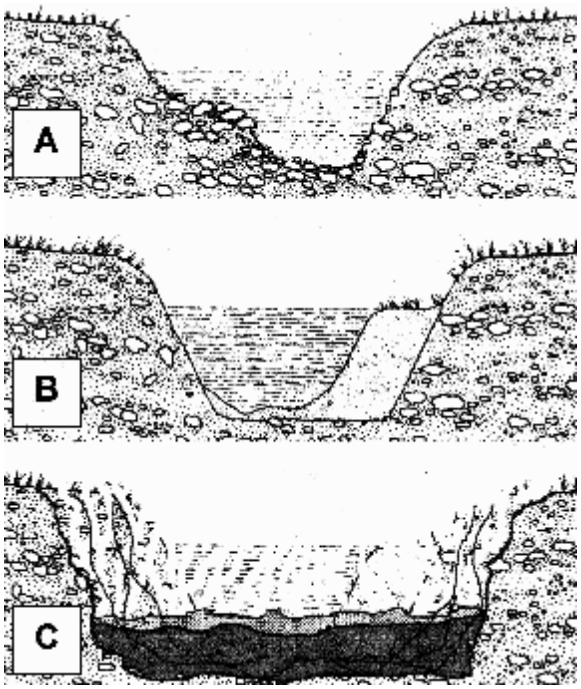

Fig. 1: Gravel brooks, misunderstood. A) the former cross section with the typical stream bottom, B) Overwide cross section after construction work, collecting sand and thus giving a false idea, C) Even wider cross section with mobile sand and mud – nothing reminds of the former lively stream (Madsen & Tent, 2000).

Self reproducing stocks of brown trout and stone loach are to be stated (ISchuFi, 2004), now. Rheophilic species like *Ancylus fluviatilis* and *Gammarus sp.* are thriving in higher abundance than in the beginning of the project. Since 2004 – for the first time ever in Wandse Beck recorded – (re-?) appearing specialists of turbulent streams like the highly endangered caddis flies *Hydropsyche saxonica* und *Tinodes pallidulus* are a rewarding aspect of the in-stream habitat improvements.

5.2 Environmental Advice urgently needed

Within the Wandse catchment live about 200.000 citizens. It is necessary to involve the habits of everyone to reach the goal of a lively river. Necessary themes for action in environmental advice are e.g.: Excessive feeding of water fowl, forbidden use of herbicides, disposing of garden waste on the shore with

consecutive leaching of nutrients or problematic plants like giant hogweed. As the Wandse has a very low water flow during summer and autumn it is also inevitable to inform about the crucial role of small amounts of waste water from e.g. house-cleansing. Each of these "tiny" problems may disturb the process of stream rehabilitation.

Within the regular maintenance processes an eye has to be kept on e.g. mowing practices: "Marauding troups of mowing personnel" destroyed habitats effectively. Thus it becomes evident that only firms with keen and educated personnel should be chosen for contracts.

6. Outlook / Vision of another future

All of this can be considered as important aspects in Agenda 21 activities and support for the improvement of the urban society. As such it is part of best practices for the „Metropolitan Region of Hamburg", covering large parts of the federal states of Schleswig-Holstein, the Free and Hanseatic City of Hamburg and Lower Saxony (Lenkungsausschuß ..., 1999).

On the long run the former ecological continuum of Wandse Beck via the Alster and the Elbe River will be restored and thus enable species like river and sea lamprey, sea trout and others to start their life cycle in the restored gravel brooks of the Wandse watershed.

7. References

Hansen, H. O. & Madsen, B. L. (eds., a) 1997, b) 1998) *River Restoration `96* - a) *Plenary lectures*, ISBN 87-7772-317-1, - b) *Session Proceedings*, ISBN 87-7772-374-0. – International Conference arranged by the European Centre for River Restoration. - National Environmental Research Institute, Denmark.

ISchuFi (Interessengemeinschaft zum Schutz und zur Förderung der einheimischen Fischfauna e.V.(2004) personal communication.

Lenkungsausschuß … (Lenkungsausschuß der Gemeinsamen Landesplanung Hamburg/Niedersach-sen/Schleswig-Holstein (1999) *Metropolregion Hamburg im Wettbewerb "Regionen der Zukunft" – Ziele, Strategien und Projekte für eine nachhaltige Entwicklung*. Hamburg, Hannover, Kiel.

Madsen, B. L. (1995) *Danish Watercourses – ten years with the new watercourse act.* – Miljønyt nr. 11. – ISBN 87-7810-344-4.

Madsen, B. L. & Tent, L. (2000) *Lebendige Bäche und Flüsse – Praxistipps zur Gewässer-unterhaltung und Revitalisierung von Tieflandgewässern*. Libri-BoD. Hamburg. – ISBN 3-89811-546-1.

Reusch, H. (1995) Planungsrelevante Aufbereitung und Bewertung faunistisch-ökologischer Daten vom Makrozoobenthon in Fließgewässern. - *Schr.-R. f. Landschaftspfl. u. Natursch.*, **43**, 31-43.

Tent, L. (1998) Urban brooks: Task and pleasure for engaged citizens. – In: *Urban Ecology*, J. Breuste, Feldmann H. and Uhlmann O. (eds.), Springer Verlag Berlin Heidelberg. – ISBN 3-540-64617-5, pp. 315-319.

Tent, L. (1999) Gewässerentwicklungsplanung an Tieflandbächen – vom Konflikt zur Realisierung nachhaltigen Gewässerschutzes. – in: *Hmb. Berichte zur Siedlungswasserwirtschaft **29*** (12. Fachtagung Weitergehende Abwasserreinigung als Beitrag zum Schutz von Nord- und Ostsee, Hrsg.: MUNF Schleswig-Holstein u.a.): 14.1-14.12. ISBN 3-930 400-27-8

Tent, L. (2001) Trout 2010 – Restructuring Urban Brooks with engaged Citizens. – In: *River Restoration in Europe; Practical Approaches*, H. Nijland, and Cals M. J. R. (eds.), Proceedings of the Conference on River Restoration, Wageningen, The Netherlands 2000. ECRR and RIZA. RIZA report nr. 2001.023, pp. 231-237.

Tent, L. (2002) Trout 2010 – Engaged Citizens Participate in Brook Restoration. – in: *Proceedings of the 13th International Salmonid Habitat Enhancement Workshop*, Irish freshwater fisheries ecology and management series, ISSN 1649-265Xp: 119-126.

8. Contact details

Wolfram Hammer

Bund für Umwelt und Naturschutz Deutschland (BUND)

Lange Reihe 29, D – 20099 Hamburg

Email: Wolfram.Hammer@gmx.de

Phone: ++49 –(0)40 - 41366955

Dr. Ludwig Tent

Bezirksamt Wandsbek, Abteilung für Umweltschutz

Robert-Schuman-Brücke 8, D – 22041 Hamburg

Email: ludwig.tent@wandsbek.hamburg.de

Phone: ++ 49 – (0) 40 – 428 81 2658

www.forelle.hamburg.de

Acknowledgements: Our special thanks go to the manifold engaged groups of Bachpaten, trout breeding and angling youth group with encouraging Dieter Spangenberg, the enthusiastic environmental advisers Helga Bahr, Angelika Gerlach and Verena Rabe, always being busy in supporting the Bachpaten, and – last but not least – the umbrella man of the project, Gerhard Fuchs, head of the administration of the Borough of Wandsbek, Hamburg.