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Eutrophication by the Odra River: Implications for Tourism and Sustainable Development of the Coastal Zone

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TOURISM AS AN ECONOMIC FACTOR ALONG THE BALTIC COAST

In most rural areas along the Baltic Sea, tourism is the most important economical factor. Already in 1993, tourism contributes to about 8 % to the national income (Feige et al. 2000) and it is likely that it has increased since then due to the fact that tourism in general has grown. In many coastal resorts in Germany as well as in Poland, tourism contributes to more than 50 % to the public income and is even the exclusive economic factor (Schernewski & Sterr in press).

After the German reunification in 1989, a sharp decline in tourism and the transformation of the entire tourist industry took place. State-run holiday hostels were rebuilt or closed down, camping sites reduced, and commercial private hotels, hostels, and sanatoriums gained importance. But since the early nineties, tourism industry recovered fast along the Baltic Coast of the federal state of Mecklenburg-Vorpommern and growth has been steady. A new record was achieved in 2001 when 19.8 million people visited Mecklenburg-Vorpommern, which means + 8.3 % regarding the previous year (Ostseezeitung, February 23rd / 24th, 2002). In 2000, an annual percentage change of + 16.9 % was noticed for the number of overnight stays per year. Nowadays, tourism intensity in Mecklenburg-Vorpommern is very high: 8,700 overnight stays per 1,000 habitants were registered in 1999 and in 2000, the number increased even up to 10,200. Since 1992, the capacity for tourism, expressed in number of tourist beds, increased from 59,900 up to 1,543,000 in 2000. The number of accommodations, like hostels and private pensions with more than 9 beds, rose from 975 to 2,485 during that period and in 2000, 4.3 million tourists visited Mecklenburg-Vorpommern (Statistisches Landesamt Mecklenburg-Vorpommern 2001). The Baltic coastal regions show not only the highest density of tourist beds but also high rates of tourism growth.

Tourist survey yield that tourists demand a high environmental standard, especially water quality. Competition beside seaside resorts becomes harder and environmental quality turns out to be one main competitive factor. From this follows that insufficient environmental quality can hamper touristic development (Tourismusverband Mecklenburg-Vorpommern 1994, 1997, 1999).

The island of Usedom is located in the Odra Estuary with an outer coast towards the Baltic Sea and an inner coast towards the large shallow Odra Lagoon (687 km² surface area, average depth 3.7 m). Due to its long sandy beaches and attractive landscape, the island has a long tourist tradition. Already in the early 20th century, Ahlbeck, Heringsdorf, and Bansin, all known as "emperor baths", were well-known spas for the international nobility and rich bourgeoisie. After the German reunification in 1990, the architecture and atmosphere have been revitalised, and the island has become a destination for mass tourism as well as a competitive holiday destination with a high international standard. Tourist development on Usedom during the last decade reflects the general pattern along the eastern German Baltic Sea quite well (Schernewski & Sterr in press). About 1 million people visited the island last year, an annual percentage change of + 9 %, and 6.6 million overnight stays were noticed (Ostseezeitung, February 20th, 2002).

The Odra Lagoon, south of Usedom Island, suffers from severe eutrophication and water quality problems due to high discharge of water, nutrients, and pollutants by the Odra River. Due to intensive water exchange with the open Baltic Sea, eutrophication effects are not that pronounced and less obvious at the seaside of Usedom and Wolin.

Especially in this region, where bathing tourism dominates, water quality is important. But there is a difference between the EU evaluation standard (European Union 2001) and what tourists subjectively regard as good water quality.

The main goal of this work is to investigate the tourists' subjective perception and assessment of beach and water quality and to detect possible differences between the tourists on Usedom Island and at the Odra Lagoon in respect of their preferences and awareness of bathing water and beach quality.

COMPARISON OF TOURISM AT INNER AND OUTER COASTAL WATERS

In August 2001, interviews with tourists at inner and outer coastal waters, exemplified by Usedom Island and the Odra Lagoon, were carried out. 256 tourists were interviewed at the seaside resorts Ahlbeck, Heringsdorf, and Bansin on Usedom Island and 193 tourists in Ueckermünde and Mönkebude at the Odra Lagoon.

General information about the tourists:

75 % of the interviewed tourists spent their annual holidays on Usedom Island as well as at the Odra Lagoon and families were dominating. Slightly more than half of the tourists (53 %) came from the five new Bundesländer (federal states). The educational background of the participants on Usedom was significantly higher.

Perception and assessment of the water quality of inner and outer coastal water by tourists:

Only 33 % of all tourists provide themselves with information about the current state of the water quality at their resort before their holidays. Only 20 % gather information about it during their stay at the resort. Differences relating to the educational level were noticed: 42 % of all tourists with A-level or university degree inform about water quality before they travel, while only 25 % of tourists with a lower educational background inform about it.

In general, higher educated tourists also assess water quality more hard and give worse marks.

The blue flag was established as an exclusive, international eco-label for high environmental standard as well as [good sanitary and safety facilities at beaches and marinas](#) (International Blue Flag Coordination 2001). Most of the interviewed tourists (81 %) do not know the blue flag and this is independent from their educational background.

In general, a good water quality is regarded to be 'important' or even 'very important' for the selection of a holiday resort but tourists on Usedom Island are more eager of it. 53 % of them voted for 'very important' and 36 % for 'important' while at the Odra Lagoon 38 % voted for 'very important' and 45 % for 'important'. But tourists consider beach quality to be even more important.

There is an obvious tendency that tourists at the Odra Lagoon are less sensitive in respect to waste at the beach, dead animals (e.g. fish and sea birds), and oil lumps although they have distaste for it. Asked how they would evaluate the water quality at their resort, 2.7 % of the tourists at the Odra Lagoon voted for 'very good', 26.4 % good, 47.8 % reasonable, 17 % acceptable and 6 % poor. In comparison to this 21.8 % of the tourists on Usedom Island voted for 'very good', 58.8 % good, 17.6 % reasonable, 0.8 % acceptable and 0.8 % poor. This suits to the water quality problems the Odra Lagoon in fact has and tourists are aware of it.

Tourists were also asked to evaluate the development of water quality at their resort during the last years. It is deemed to have improved a lot but 50 % of all tourists avoid answering. Almost the same with the beach quality, which is also regarded to be now in a much better condition, but also only 63 % were willing to evaluate.

With respect to the natural environments of the resorts, it turned out that the individual preferences are important for the tourists' selection of their holiday resort. E.g. tourists at the sheltered, brackish Odra Lagoon prefer less wind and lower waves and dislike jelly fish. This is contrary to tourists at the open Baltic Sea who rather prefer a more rough sea and a maritime atmosphere.

Assessment of coastal waters quality in different regions

The tourists were asked to assess the water quality of the Mediterranean Sea, the North Sea, the Swedish, Polish, and German Baltic Sea and the Odra Lagoon.

Altogether, the German Baltic Sea was rated best by far. Primarily, people from the five new Bundesländer contribute to this result: they consider it to be of a much better quality than tourists from the old West German states do.

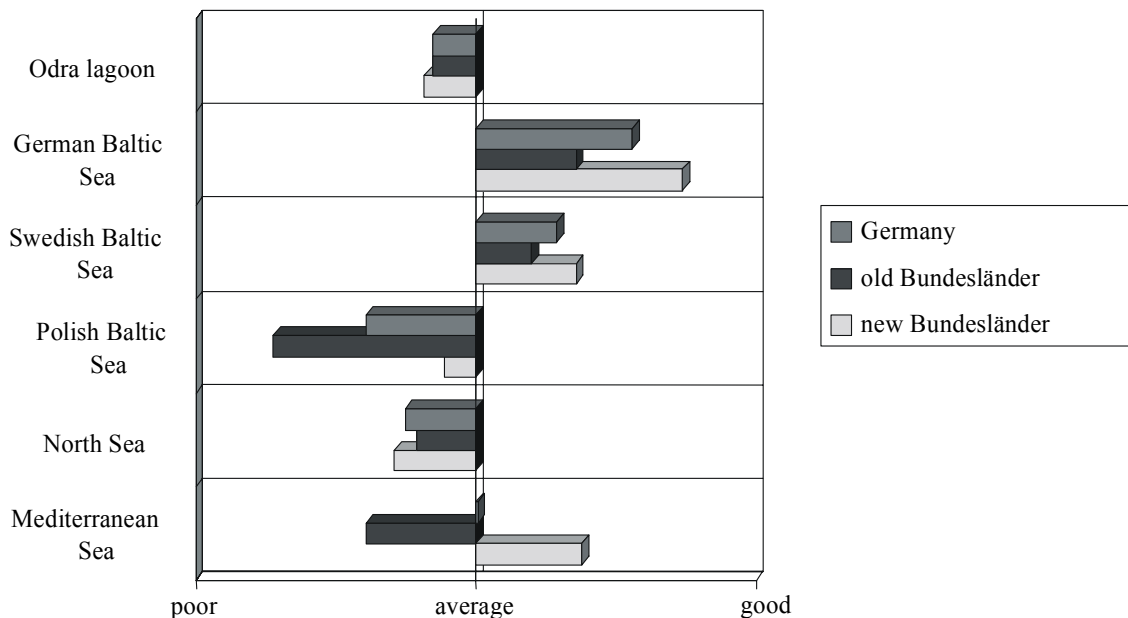
Especially in regard to the high valued German Baltic Sea, the North Sea is marked pretty hard and got a bad valuation.

The Odra Lagoon is also regarded to have a fairly poor water quality whereas the Swedish Baltic Sea is considered to be in a good condition.

Altogether, the Mediterranean Sea is marked average but having a closer look it becomes obvious that there are significant differences between the assessment by tourists from the eastern and western part of Germany. Tourists from the five new Bundesländer mark the Mediterranean Sea extremely well, while tourists from the old Bundesländer consider it to be in a fairly poor condition.

The Polish Baltic Sea is regarded to be much worse by tourists from the old Bundesländer whereas people from the new Bundesländer consider it to be not that bad.

Regarding the educational background one can say again that higher educated tourist gave significantly worse marks for the water quality.



DISCUSSION

The survey was carried out during two weeks in August and altogether 449 tourists were interviewed. The period did not cover the entire bathing season, the number of tourists that were interviewed was limited, and not all subjects can be covered in an appropriate manner. In the following discussion, previous surveys carried out in 1994, 1997, and 1999 by the tourism organization Mecklenburg-Vorpommern were also considered.

It becomes obvious that there are differences not only between perception of water quality and real water quality but also between demand and reality. The survey showed that tourists primarily evaluate bathing water quality on the basis of their visual impression like visibility, occurrence of macro algae, or foam etc. The EU bathing water directive takes only total and faecal coliforms into account. Applying the EU bathing water directive, water at the seaside of Usedom as well as in the Odra lagoon complies with guide values during the bathing season 2000 (with one exception at the Odra lagoon that once only complied with mandatory values) (International Blue Flag Coordination 2001). But tourists from their subjective point of view notice differences in bathing water quality. So the question is, if the EU bathing water directive really indicates water quality.

On one hand, people are demanding a good water quality and regard it to be essential for the selection of their holiday resort. But on the other hand, they hardly provide themselves with information about it before they travel. This can be due to the fact that local information is not available or only accessible

via Internet. It has to be further investigated whether interest is lacking or access to the Internet is not available.

The fact that the blue flag is hardly known by the tourists can have two reasons, either insufficient information demand or insufficient information provision.

When the blue flag is awarded to seaside resorts, it is one of the very few possibilities for them to appear with a positive headline in the news. It can be supposed that for seaside resorts, it is more an appreciated advertising possibility than a mark for a good environmental standard. Is the blue flag really an indicator of good environmental conditions or does it only indicate a good infrastructure?

Regarding the assessment of the coastal waters quality of different regions, there is obviously a difference between own experience and mental picture. Further research is necessary to find out the reasons. But one can assume that mental pictures are primarily based on newspapers, advertisements, reports from others, and prejudice.

The survey shows that tourists regard the water quality at the Odra Lagoon as not as good as at the seaside of Usedom Island. Nevertheless, there must be reasons attracting tourists. It can be assumed that lower price levels are the crucial factor. Unlike the rest of Mecklenburg-Vorpommern, the region around the Odra Lagoon does not share in the growing tourism, though. In fact, one can find fairly little and less developed tourism. Lower prices might be a possibility to attract at least some tourists, especially in the vicinity of Usedom Island, which is a big rival in business. However, the low number of tourists at the Odra Lagoon is not sufficient to establish sustainable and growing tourism in that region. Utilization rates below 30 % are often regarded to be problematic with respect to the profitability of accommodations and infrastructure. Utilization rates dropped from 28.2 % in 1992 to 22.5 % in 2000 in Uecker Randow County, which includes Mönkebude and Ueckermünde, whereas in Ostvorpommern County, where Usedom is located, stable rates of about 36 % - 37 % were observed (Statistisches Landesamt Mecklenburg-Vorpommern 2001).

To summarize, water quality amongst other things influences tourism growth. Water quality of the Odra Lagoon depends on the utilization of the catchment area. Sustainable management of the catchment area, e.g. reducing the discharge of nutrients, is of great importance to the development of the coastal zone. Sustainable tourism can contribute to a sustainable development for both the German and the Polish coastal zone. Since in Poland a large amount of tourist facilities (about 30%) are located along the coastal strips (EUCC 2001), this could be a point worth being considered. Due to the likely increasing interest of Polish tourists in water quality, as well as the attempt of the Polish tourism industry to attract foreign tourists, the issue of clean water will become more and more important in the near future.

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