

Climate resilience on the beach

Results of Workshop II: "Understanding challenges, recognizing opportunities, acting together" on 11 March 2025












Coastal tourism in the Baltic Sea region is increasingly affected by climate change. Rising sea levels, coastal erosion, and extreme weather threaten the stability and attractiveness of beaches. To capture these developments, a practical set of indicators is being developed. It will support beach managers in monitoring changes, analyzing trends, and planning targeted adaptation measures.

Methodology

In a three-stage evaluation process, 15 experts from science, tourism, administration and NGOs evaluated a selection of physical and socio-economic indicators according to criteria such as relevance, measurability and applicability.



Results

| Indicator | Relevance | Measurability |
|---|-----------|---|
|  UV-Radiation | ↑↑ | Established methods (e.g., UV index), directly measurable and applicable, easily communicated |
|  Bathing Water Quality | ↑↑ | Established methods, directly measurable and applicable, vibrio analysis possibly costly |
|  Storm Surge | ↑↑ | Established methods, data collected by authorities, economically feasible, directly applicable |
|  Bathing Water Temperature | ↑↑ | Easily measurable with little effort (e.g., automatic loggers), high data availability, fixed locations |
|  Sand Temperature | ↑ | Easily measurable, directly usable, well communicable |
|  Drinking Water Quality/Amount | ↑ | Established methods, measured by water providers, no direct beach connection |
|  Perceived Temperature | ↑ | Realistic depiction using combined weather data, but influenced by subjectivity and higher effort |
|  Recovery Time | ↑ | High survey effort, long-term data needed, experts required, limited short-term applicability |
|  Visitor Numbers | → | Measurable via e.g., spa taxes, staff-intensive |
|  Biodiversity Loss | → | High data collection effort, long-term data, experts required, limited short-term usability |
|  Beach Area Loss | → | Costly and complex surveys needed (e.g., laser scans of coastal processes) |

Conclusion

- Practical and easily measurable indicators are essential for assessing the impacts of climate change on Baltic Sea beaches.
- Municipalities need simple, directly usable indicators; more complex data collection and the definition of threshold values should take place at the state or federal level.
- Clear metrics and thresholds provide guidance and support adaptation strategies.
- Combining large-scale and locally differentiated data increases the significance of the results.
- Already established indicators such as UV radiation, bathing water temperature, or storm surges can be used directly.
- More complex indicators, such as biodiversity loss or recovery time, require further coordination for the definition of measurement parameters.
- The selected indicators cover both physical and socio-economic aspects; they are being tested at pilot beaches