Adaptation of Inland Waterway Transport to Climate Change

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via donau – Österreichische Wasserstraßen-Gesellschaft mbH

- Owned by: BMVIT – Federal Ministry for Transport, Innovation and Technology
- Founded: 2005
- Employees: around 350
- Turn over 2013: around €54 Million EUR

Responsible for 378 km of waterways
Activities considering climate change

- Eu projects:
  - www.ecconet.eu
  - http://ewent.vtt.fi/
  - www.mowe-it.eu

- Permanent Task Group on Climate Change of PIANC
Impacts of weather events on IWT

- Drought => low water
- Precipitation, snow melt => high water, floods
- Low temperatures => ice
- Fog => reduced visibility
- Wind => forces acting on vessels

Source: Aker Arctic
Climate change projections

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Period</th>
<th>Middle Rhine</th>
<th>RMD² canal</th>
<th>Upper Danube</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low water</td>
<td>1950-2005</td>
<td>positive effect</td>
<td>no effect*</td>
<td>positive effect</td>
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<tr>
<td></td>
<td>Middle of 21ˢᵗ century</td>
<td>no effect</td>
<td>unknown</td>
<td>negative effect*</td>
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<td></td>
<td>End of 21ˢᵗ century</td>
<td>negative effect</td>
<td>negative effect*</td>
<td>negative effect*</td>
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<tr>
<td>High water</td>
<td>1950-2005</td>
<td>no effect</td>
<td>no effect</td>
<td>no effect</td>
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<td></td>
<td>Middle of 21ˢᵗ century</td>
<td>negative effect</td>
<td>no effect*</td>
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<td></td>
<td>End of 21ˢᵗ century</td>
<td>negative effect</td>
<td>no effect*</td>
<td>unknown</td>
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<tr>
<td>Ice formation</td>
<td>1950-2005</td>
<td>positive effect</td>
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<td>positive effect</td>
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<td></td>
<td>Middle of 21ˢᵗ century</td>
<td>no effect*</td>
<td>positive effect*</td>
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<tr>
<td></td>
<td>End of 21ˢᵗ century</td>
<td>no effect*</td>
<td>positive effect*</td>
<td>positive effect*</td>
</tr>
<tr>
<td>Visibility (fog)</td>
<td>1950-2005</td>
<td>positive effect</td>
<td>positive effect</td>
<td>positive effect</td>
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<tr>
<td></td>
<td>Middle of 21ˢᵗ century</td>
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</tbody>
</table>

Source: ECCONET

- Rhine-Main-Danube corridor: No decrease in the performance of IWT due to climate change till 2050
Adaptation measures

• **MOWE IT:**

• **Infrastructure:**
  - Improved maintenance
  - Provision of information
  - River engineering (groynes, training walls)
  - Consideration of environment – integrative approach