Can IMO-Regulations Initiate Innovations?
- Swiss Climate and Ahrenkiel Shipmanagement show their experience with the implementation of the SEEMP and the EEOI

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The consultancy company Swiss Climate supported Ahrenkiel Shipmanagement in implementing the SEEMP for Ahrenkiel's Fleet.
Shipping is by far the most energy efficient way to transport goods. Nevertheless, the bunker con-sumption is enormous - and so is the potential to save costs and energy. Until now, environmental aspects have not been a major concern to the maritime industry. This will certainly change in the near future. The International Maritime Organization (IMO) is about to approve and implement appropriate laws to decrease the emissions of carbon dioxide. The following figure shows the new environmental regulations and their expected time when they come into effect:

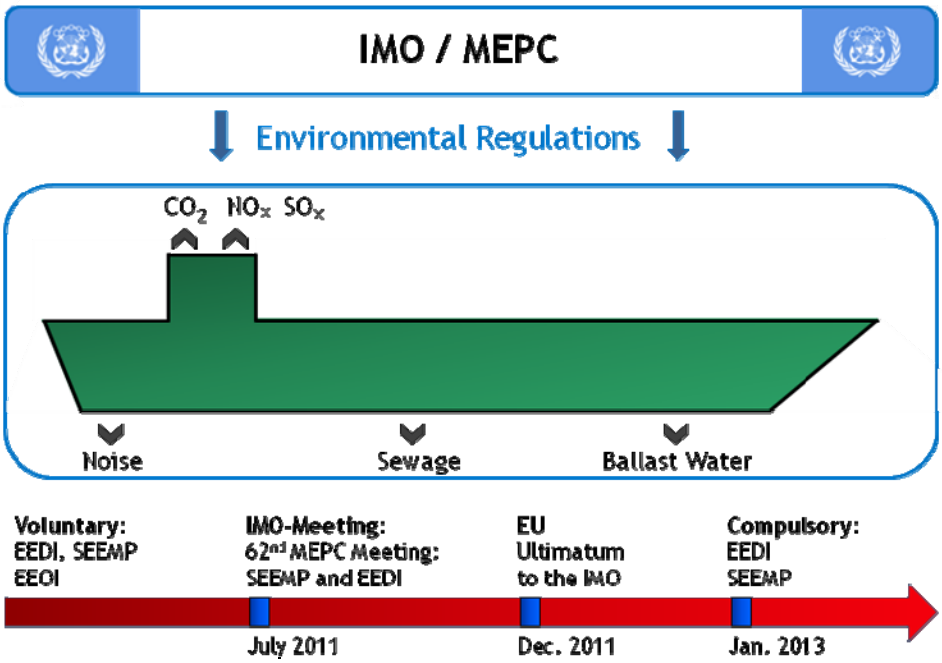

Figure 1. Future Regulations of the IMO

The Energy Efficiency Design Index (EEDI), the Ship Energy Efficiency Management Plan (SEEMP) and the Energy Efficiency Operational Indicator (EEOI) and are the new major IMO-Guidelines. On the meeting of the Marine Environmental Protection Committee (MEPC) in July 2011 the IMO has decided that the EEDI and the SEEMP will have to be implemented on a compulsory level in January 2013.

SEEMP
The Ship Energy Efficiency Management Plan (SEEMP) is developed by the IMO as a guidance document to support the ship manager in his choice regarding the appropriate measurements.

The SEEMP consists of five steps:

1. Planning
2. Implementing
3. Monitoring
4. Goal
5. Evaluation

The following picture shows a typical development of the SEEMP after an audit.

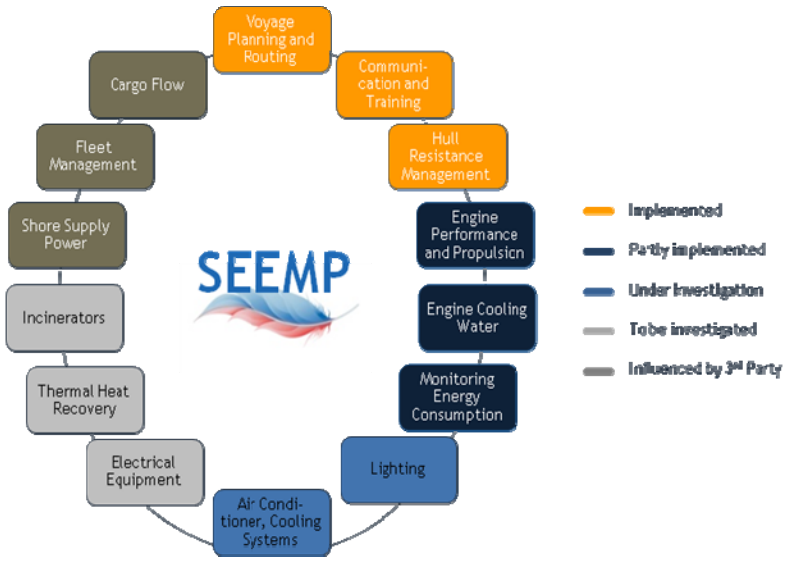

Figure 2. Graphical illustration of the development of the SEEMP

EEDI

The Energy Efficiency Design Index (EEDI) determines the expected specific amount of carbon dioxide in dependence of the travelled distance and the transported cargo. The EEDI is a fixed value which is calculated by the ship's characteristics. Therefore, it does neither include operational measurements nor environmental influences. The EEDI is the most important indicator for newbuildings regarding environmental aspects.
The following figure shows the proposed EEDI-Baseline of the IMO for newbuildings and the EEDI-values of different single ships.

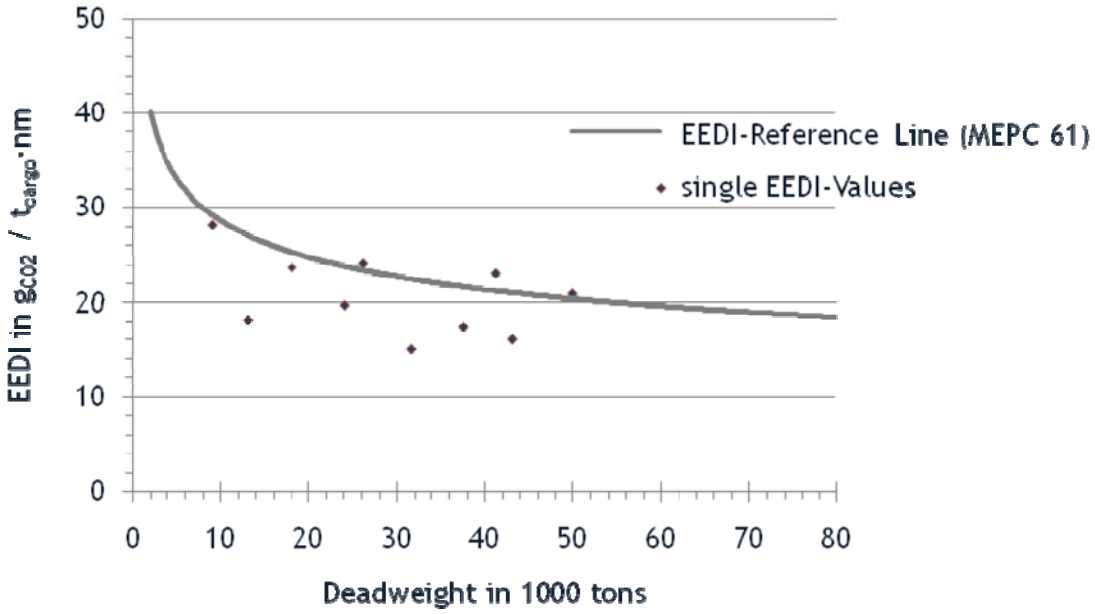

Figure 3. EDDI-Baseline and different EEDI-Values

EEOI

The EEOI determines retrospectively the real specific amount of carbon dioxide in dependence of the travelled distance and the transported cargo (MEPC.1/Circ.684). The following illustration shows a typical graphical expression of the results.

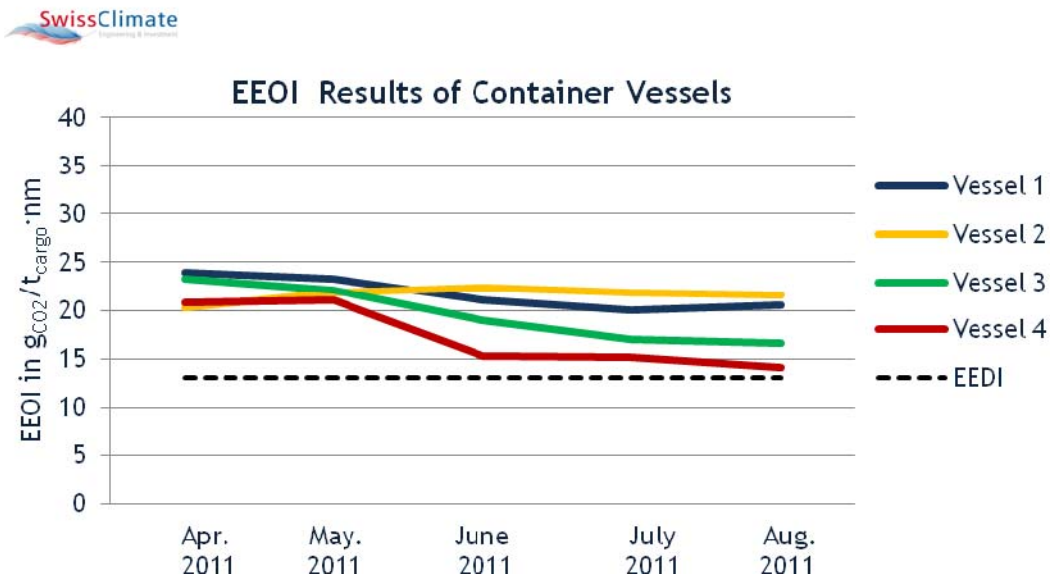

Figure 4. Example of a typical graphical illustration done by Swiss Climate

Robert Derksen *joined* ***Swiss Climate AG*** *in 2009. Responsible for the Shipping Division he support ship management units in developing processes related to new environmental regulations such as SEEMP, EEOI, ESI etc. He graduated from the Hamburg University of Technology with a master's degree in mechanical engineering.*

Captain ***Christian Suhr*** *is Managing Director of* ***Ahrenkiel Group's*** *fleet and responsible for the ship management, presently consisting of 44 vessels. His responsibilities include technical and nautical ship management, crewing, safety and quality, vetting as well as technical controlling for wet and dry tonnage. Christian Suhr looks back at 14 years of sea experience as mate and master on Ernst Russ and Ahrenkiel vessels. In 1977 he finished his Masters Foreign Going License and Diploma in Economics and Engineering at the Maritime Academy of Hamburg. Joining the Ahrenkiel Group ashore he has passed many career steps in different offices worldwide since 1980.*