BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

UBA/BSH Study on Scrubber Washwater
&
IMO MEPC 74 Scrubber Recap

Katrin Ewert, BSH

Status quo

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

- **IMO** (MARPOL Annex VI/Reg. 4) and the **EU** (Sulphur Directive 2016/802/EU, Art. 8) allow for the use of alternative methods in order to comply with the sulphur threshold of 0.5 % m/m (0.1 % m/m in SECAs)

  → EGCS / Scrubber

  → use of HFO will still be possible after the „Sulphur Cap“ will come into effect on 1 January 2020

Role of BSH regarding Scrubbers

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

- Monitoring of ship emissions via local **remote sensing stations** on the German coastline
- **Sanctioning** of sulphur threshold violations (> 0.1 % m/m in German territorial waters + EEZ)
- Providing **scientific research** and assessments to the Federal Ministry of Transport and Digital Infrastructure (BMVI), the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and to the IMO

UBA/BSH Study on Scrubber Washwater

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

- Initiated by the German Environment Agency / Umweltbundesamt (UBA), subordinated to the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)
- Conducted by the Federal Maritime and Hydrographic Agency (BSH), subordinated to the Federal Ministry of Transport and Digital Infrastructure (BMVI)

→ **Joint approach**

- Project term: 2016 to 2019

Project Objectives & Approach

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

- Gather information on the **chemical composition** of discharge waters from scrubbers, and
- **Estimate the total discharges** in the North Sea, the Baltic Sea and the English Channel for several scenarios.

→ **Sampling campaign** with wet scrubbers in 2017

→ Mathematical **modeling** on the basis of real AIS data

Sampling Campaign

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Ship no.	Scrubber type	Sampling points
Ship 1	Hybrid	5
Ship 2	Hybrid	5
Ship 3	Open-loop	4
Ship 4	Hybrid	9
Ship 5	Open-loop	4

- The ships with hybrid systems have been sampled under both open-loop and closed-loop conditions.

Challenges

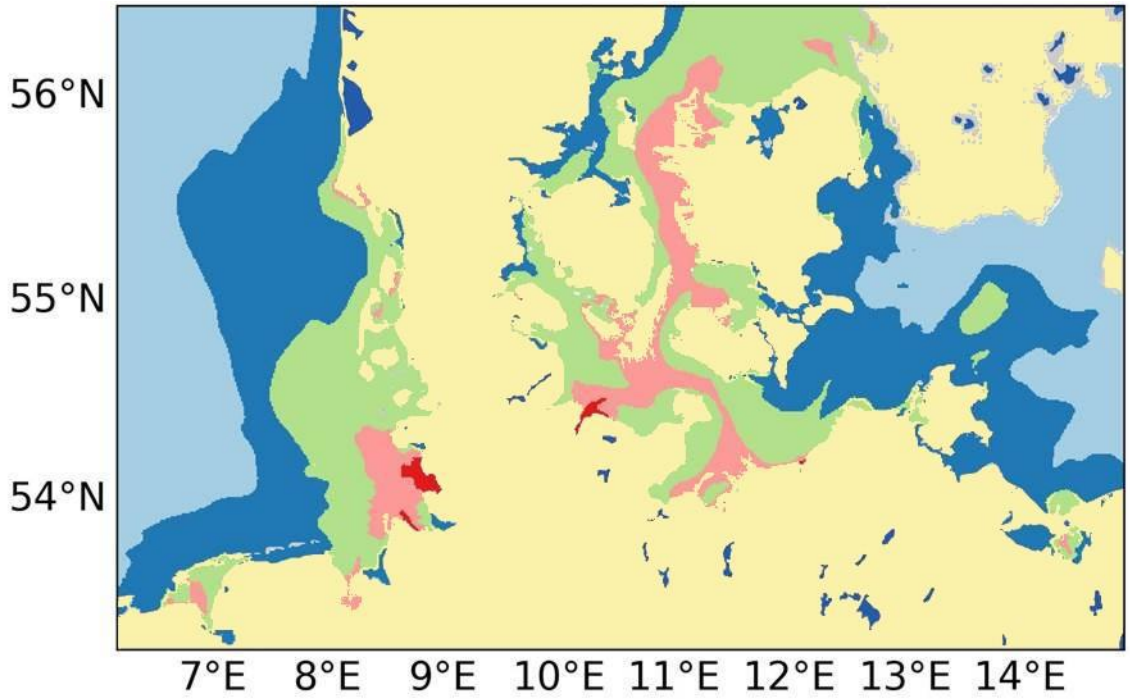
BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Fotos M. Kaste

No standards for sampling point design.

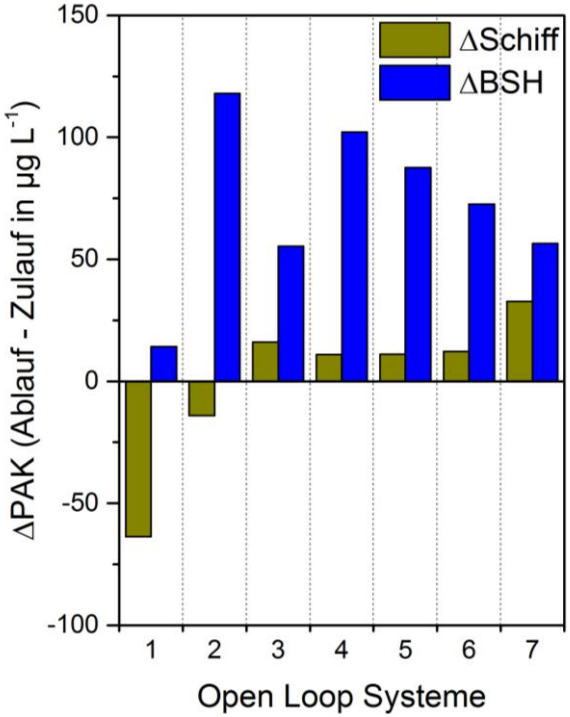
Modeling

- 2 Scenarios:
  current ships equipped with scrubbers
  and
  max. discharge by all ships for which a scrubber would be considered economically feasible



General Findings

- Differing sampling results of on-board in-situ systems and BSH measurements
- Discharge water contains PAHs and heavy metals like Vanadium in concentrations that require further tests.
- Modeling results show varying regional effects → no „master solution“ for all regions



Outlook & MEPC 74 Recap

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

- Several studies have been provided to IMO → many of them with similar / comparable chemical results
- It is the interpretation of the results that varies
- MEPC 74 has called for a joint group of independent scientific experts (GESAMP) to assess the studies
- In-depth discussions to be held at the IMO Sub-Committee for Pollution Prevention & Response (PPR) 7 in 2020
- UBA/BSH in talks about a second scrubber washwater study

Thank you!

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE