

Hull Fouling Survey on Recreational Crafts

Mariusz Zabrocki (BSH), Katja Broeg (BSH), Nicole Heibeck (BfG), Annika Krutwa (BSH)

Scope of Survey

As part of the departmental research BMVI Network of Experts the Federal Institute of Hydrology (BfG) and the Federal Maritime and Hydrographic Agency (BSH) started a preliminary survey to collect information on the biofouling situation of recreational crafts in German waters. Further, the study provided the Federal authorities with practical knowledge and experiences.

The major goals of the project were the quantification of invasive species in hull fouling communities by using scrap samples, finding possible correlations of usage and maintenance profiles and the fouling extend, the assessment of knowledge concerning the IMO Biofouling Guidance¹ and the development of appropriate actions to minimize the transfer of invasive aquatic species. In total, 21 different locations, including marinas and shipyards of the Baltic Sea coast and in inland waters, were selected for this study (Fig. 1).



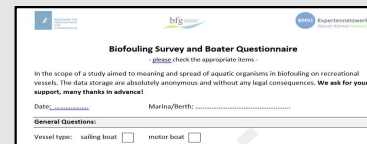
Fig. 1. Overview of sampling locations between 2017 -2018.

Fig. 2. The total number of recreational crafts divided into five ranks of hull fouling (Floerl et al. (2005)).

Questionnaire For Owners of Recreational Crafts

A questionnaire regarding boat type, frequency of boat usage, anti-fouling system and the familiarity of owners with the introduction of invasive species as well as with the IMO Biofouling Guidance¹ was sent to selected marinas in Germany. In addition, individual meetings with owners were arranged to sample their boats.

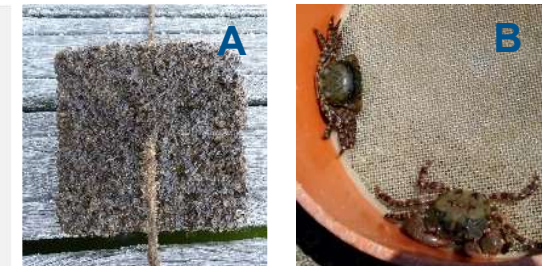
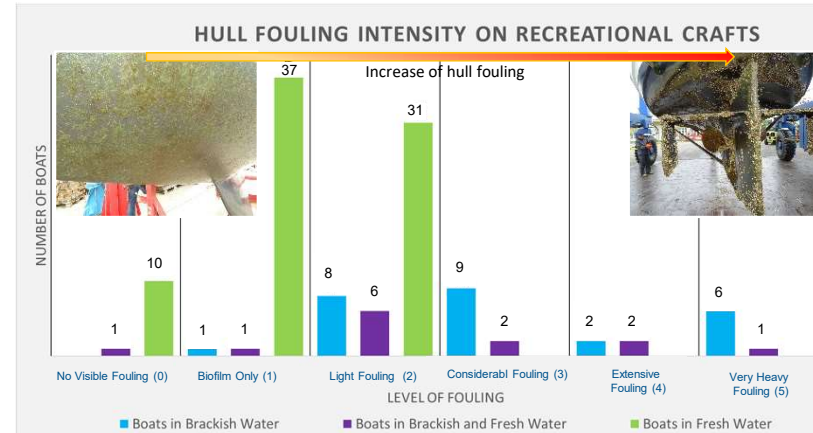
The Main Conclusions of the Questionnaire:



The German Sailing Association has published a translation of the Biofouling Guidance¹ into German.

Hull Fouling Scrap Samples

During the 2-years study a total of 116 hull fouling samples from recreational crafts were collected at 21 different locations in brackish and fresh water. In order to determine the composition of the fouling community and to assess the fouling pressure at sampling sites 6 settlement plate sets (n=18) were deployed in 3 different marinas (Wedel, Neustadt, Kroeslin). Hull fouling intensity measurements following Floerl et al. (2005)² showed increased hull fouling on boats operating in brackish water (Fig. 2).



Crafts with very heavy fouling experienced impaired manoeuvrability and speed. In these cases, the anti-fouling system was unknown or the boats had been used infrequently. Especially in niche areas and on settlement plates *Hemigrapsus sp.* was found.

Public Awareness Campaigns and Tailored Approaches are Key!