



TO

Cindy van Damme  
cc to Sieto Verver, Tammo Bult and researchers IMARES

FROM

Karen van de Wolfshaar

### **Report of the Working Group on the Value of Coastal Habitat for Exploited Species (WGVHES)**

WGVHES met in Amsterdam, 27 June-1 July 2016, and was chaired by Josianne Stottrup, Rochelle Seitz and Karen van de Wolfshaar. The meeting was attended by 11 scientists from 7 countries. Karen van de Wolfshaar attended and chaired the meeting on behalf of IMARES, funded by KBWOT. IMARES PhD Marjolein Post also attended the meeting.

The ToR's of the working group are:

- a) Continue synthesizing and reviewing available information for quantifying the ecosystem service value of coastal habitat for exploited species.
- b) Demonstration of the importance of habitats for exploited species on regional scales using modelling and case study approaches.
- c) Characterising the relation between habitat, individual processes and population responses.
- d) Investigate how habitat considerations can be incorporated into quantitative tools used in the management process.

This year's meeting consisted of an update of progress over the past year, introduction of new members and their expertise, progress of work started during the 2015 meeting and lively discussions on a new topic to be tackled: What defines a nursery?

#### **Nursery habitat**

A subgroup was formed to deal with the nursery question to (i) define examples of critical coastal habitats (nursery habitat) quantitatively and (ii) produce a framework for incorporating nursery habitats into ICES (International Council for the Exploration of the Sea) management decisions and actions. The initial subgroup was comprised of Marjolein Post and Andreas Dänhardt, but other working group members will participate on this manuscript.

#### **Plaice**

The plaice sub-group paper (Karen van de Wolfshaar, Hakan Wennhage and Josianne Stottrup) was published in MEPS during fall 2015 (Van de Wolfshaar KE, Tulp I, Wennhage H & Stottrup JG. 2015 Modelling population effects of juvenile offshore fish displacement towards adult habitat. MEPS 540: 193-201). The manuscript deals with the offshore migration of large juveniles and the possible population dynamical consequences of such a shift. The results indicate that a short duration shift in habitat of large juveniles to the deeper habitat increases their biomass due to lower resource competition in the deeper habitat compared to the shallow habitat. Increased fishing intensity promotes higher juvenile biomass through overcompensation and differences in habitat productivity may quantitatively affect the population dynamics of plaice. Shifts in habitat may have an effect on the management of species as bycatches may increase. In addition, management of the spatial location of marine protected areas might need reconsideration.

### **Memo**

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Wageningen UR (Wageningen University and various research institutes) is specialised in the domain of healthy food and living environment.

IMARES, part of Wageningen UR, is a leading, independent research institute that concentrates on research into strategic and applied marine ecology.

### **Dependence of coastal habitat**

A quantification of the dependence of coastal habitat use based on life history strategies, initiated at the 2014 meeting, was continued and at the end of the meeting a manuscript was ready for submission to the ICES Journal of Marine Science.

We reviewed the literature for existing evidence of both coastal dependency in exploited finfish and effects of human-induced (excluding direct fishing mortality) loss and changes in coastal habitats on populations of these coastal-dependent species. We focused on coastal fish species of the Northeast Atlantic which are under advice by ICES. About half of the ICES-advice species are coastal-dependent (i.e. present coastal dependency for at least one life stage, especially juvenile), representing 75% of the commercial landings. Twenty-two out of 24 coastal ICES advice species are impacted by an anthropogenic activity at least during one coastal-dependent life stage. Human pressures most commonly shown to impact coastal ICES-advice fish species were toxicants and pollutants (63% of the species). Invasive species as well as eutrophication and hypoxia both affected 54% of these species, followed by physical coastal development, and finally indirect fishing impacts (f.e. changes to habitat; not bycatch) (17%). The reported impacts of habitat alterations were mostly but not always negative, and were mostly documented at individual and local level. Knowledge of effects at the population level is less often reported, since its assessment is often impaired by insufficient data on connectivity and population dynamics at relevant scales.

### **Natural and anthropogenic hard bottom habitats**

Other subgroups in this working group are working on the characteristics and function of natural and anthropogenic hard bottom habitats for fish and invertebrates in coastal waters, and on a DEB model for shellfish, but IMARES is currently not actively involved in these two.

### **Benthic sampling**

When exchanging sampling methods among group members some alternatives for benthic sampling in shallow waters were exchanged using suction, one of which might be of interest for IMARES. Marjolein Post is inquiring about options.

### **Personal remarks**

The meeting in Amsterdam was inspiring and productive with finalizing a paper for submission and starting an important new topic on the definition of a nursery that will aid in addressing questions from the Dutch Government in the future. The date for the next meeting is set to the last week of June 2017. The location for next year still has to be confirmed but current options are Malta and Sweden.