

Influence of the seasonal change of seawater temperature on the spatial and temporal distribution of the Atlantic cod (*Gadus morhua*) in the Belgian Part of the North Sea

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The increasing temperature of different oceans and seas in the past years have shown effects on ectothermic marine organisms. Every species has a different response to these changes. Thus, it is necessary to understand how these temperature changes can alter their behavior and distribution. This study investigates Atlantic cod movements in the Belgian Part of the North Sea (BPNS) as influenced by seasonal changes in seawater temperature. These movement patterns are studied at three different habitats – offshore windfarms, coastal areas, and Scheldt estuary. Since 2010, 253 Atlantic cod were tagged with acoustic transmitters in the framework of different projects. Tagged cod have been detected in temporary arrays of acoustic receivers, as well as on the LifeWatch Permanent Belgian Acoustic Receiver Network. Since 2010, a total of 198 cod were detected, accounting for over 6 million detections in the BPNS and the Scheldt estuary. The seasonality of the movement between habitats will be analyzed. It will also be investigated how this movement pattern changes over the years. Moreover, it will be examined whether the movement pattern is related to seawater temperature. Understanding the influence of seawater temperature variation on cod movement will help predict how this species will respond in the future.