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Turning fish into 0's and 1's: building a digital twin of North Sea fish movement

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Marine ecosystems are under enormous pressure from anthropogenic activities. Adequate management and protection of marine ecosystems in the context of a sustainable "blue economy" requires that we understand where animals move, what habitats they need, and how their movements are affected by offshore developments. However, our knowledge is insufficient, even in well-studied systems such as the North Sea. Digital Twins (DT) can support our understanding of animal movements, by playing a key role in learning more about the functioning of our marine ecosystems, exploring future scenarios and supporting decision-making and policy development. Furthermore, the study of animal movements is currently undergoing a big data revolution and a wealth of data is now being obtained on the movements of animals underwater where individual animals can be tracked for years. The DTO-Track project will develop a prototype DT of the North Sea for animal movements. The project will use the European Tracking Network (ETN) database and other existing European DTO infrastructures such as EDITO-Infra to support the development of the DT. In addition, DTO-Track will coordinate the tracking of highly migratory species and provide new data for the DT, as well as mapping species movements and marine trends in the North Sea to identify overlaps. The DTO-Track project could have a lasting impact on the environment, economy and society by developing plans related to marine spatial planning, fisheries regulations, offshore development and energy and development policy in the North Sea.

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