

Engineering: Building with Nature MOOC

Key aspects of a solution

Case 3: Fish Manager

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General Information on the solution	
Title	Fish Migration River
Abstract	The Fish Migration River is an innovative plan to make the barrier of the Afsluitdijk passable to fish by re-connecting the Wadden Sea and the IJssel Lake. This route will allow many migratory fish species to pass between the marine and riverine environments and so reach their spawning and living areas once again.
Location	Kornwerderzand on the Afsluitdijk, Friesland, The Netherlands
Date	Construction planned medio 2017
Main problem owner	Rijswaterstaat, Province of Friesland
Companies	De Nieuwe Afluitdijk – a cooperation between the provinces of North Holland, Friesland, Hollands Kroon, Súdwest-Fryslân and Harlingen.
Costs	Planning and preparation 4,6 million euro, Construction 60 to 75 million euro
Project details	<p>The 3 kilometer long fish migration route connects the main channels in the Wadden Sea with the IJssel Lake. The direction of flow in this migratory route depends on the tide. On the ebb tide, freshwater flows from the IJssel Lake into the Wadden Sea. On the flood tide, salt water flows from the Wadden Sea into the IJssel Lake. The length of the connecting stream, and the fact that both ends can be closed off, will prevent salt water from flowing into the IJssel Lake. However, the intention is that the opening can be used by fish every day of the year. The dimensions of the opening in the Afsluitdijk will be:</p> <ul style="list-style-type: none">— Height: 10 meter— Width: 15 meter— Length: 100 meter (the width of the Afsluitdijk)— Water depth: 4 meters. <p>The opening in the Afsluitdijk can be closed under storm surge conditions.</p> <p>The migratory route includes elements such as a soft sand bank and a straight stone dike. There will be a gradual transition from marine to brackish to freshwater to allow the fish to become accustomed to water of different salinity.</p> <p>It is estimated that 300 000 tons of stone, 1 million m³ of sand and 3 000 wooden poles will be needed.</p>
Safety level	1:10 000 per year