Fish protection
and fish migration support

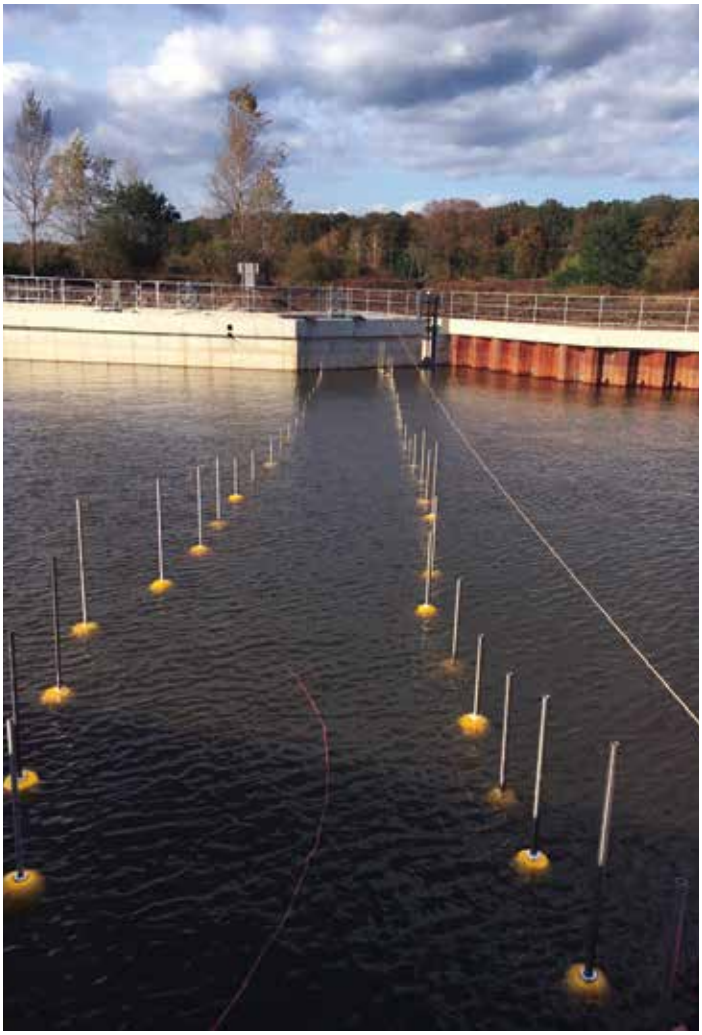
ELECTRIC BARRIERS

PROCOM SYSTEM

Why is it so important to use the fish protection barriers in the near the water engineering objects?

Water intakes in industrial plants where water is used for technological processes and hydroelectric turbines pose a huge threat to fish flowing downstream. In addition, high damming effectively limits free migration of fish to breeding sites.

The Neptun electric barriers allow to affect fish in an ecological and physically safe manner, protecting them from entering area dangerous for them, thus limiting losses in their population. In addition, through appropriate guiding to the fish pass, the barriers support their migration.



YOU CAN SEE REPORTS AND VIDEOS CONFIRMING THE EFFECTIVENESS OF THE NEPTUN ELECTRIC BARRIERS AT:

www.fishprotection.eu

Neptun - innovative technology for fish protection

The operation of the Neptun electric barrier is based on a method of generation of an increasing non-linear electric field in aquatic environment. The parameters of the low-voltage electric field affect the fish's nervous and muscular system (electroreception) thus guiding the fish in a different direction.

The right selection of the power supply in the form of low voltage current pulses and appropriate selection of parameters such as: pulse duration and frequency, enable safe impact on fish. The field generated by NEPTUN electric barrier does not paralyse fish or other aquatic organisms and it does not adversely affect their reproduction.

Positive and negative electrodes, between which the right electric field is generated, should be installed at such a distance from the water intake that ensures that fish have the time and strength to react to the field that affects them. Thanks to this approach and appropriate designing of the system, the Neptun electric fish protection barriers achieve very high efficiency.

EFFECTIVENESS CONFIRMED BY TESTS UP TO 99%

The effectiveness of the Neptun technology is confirmed by studies and tests carried out by independent scientific units:

- Instituts für Umweltstudien-IUS Weibel & Ness GmbH (Germany)
- ENBW AG (Germany)
- Wrocław University of Environmental and Life Sciences (Poland)
- The Stanislaw Sakowicz Inland Fisheries Institute in Olsztyn (Poland)
- National Marine Fisheries Research Institute in Gdynia (Poland)
- U. S. Geological Survey (USA)
- University of Minessota (USA)
- GLLFAS (Canada)
- Fisheries and Oceans Canada (Canada)
- VENTURO Consultoria Ambiental LTD (Brazil)
- Profish Technology (Belgium)

APPLICATION OF NEPTUN ELECTRIC BARRIERS

The technical parameters of each installation are selected individually to the requirements of the facility and the prevailing hydrotechnical conditions.

HYDROELECTRIC POWER STATIONS - OUTFLOW CHAMBERS

The Neptun electric barriers block fish from entering the outflow chambers during turbine shutdowns.

HYDROELECTRIC POWER STATIONS – INTAKES CHANNELS

The NEPTUN electric barriers are installed to prevent fish from entering the turbines of hydroelectric power plants, and additionally guide fish to a fish pass or other safe area.

WATER INTAKES

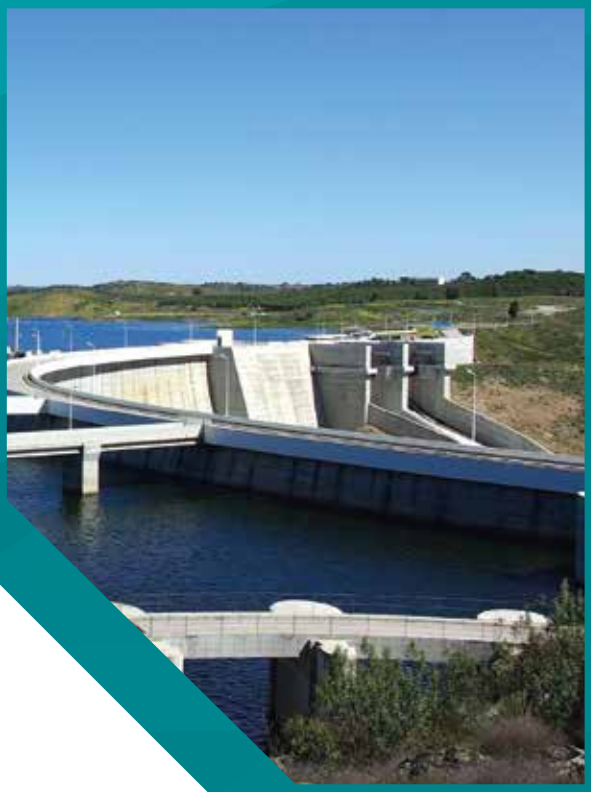
The Neptun electric barriers protect living or migrating fish populations in the vicinity of the water intakes against entering into the dangerous area for them.

FISH PASSES

The installation of Neptun electric barriers at the appropriate angle makes it easier for fish to find their way to the fish pass and enables safe migration up and down the river.

INVASIVE SPECIES

The Neptun electric barriers can be used to reduce the migration of undesirable fish to spawning grounds or guide them to trap.



We design and install Neptun electric barriers around the world

All Neptun systems are designed individually to ensure that they solve various problems that exist in different hydraulic structures, rivers or water bodies. The parameters of the barriers are selected in order to ensure the optimum distribution of the electric field in water, taking at the same time into account the need to reduce the costs of power consumption.

WE INVITE YOU TO FAMILIARIZE YOURSELF WITH SELECTED PROJECTS AT:

www.fishprotection.eu

Advantages of the Neptun electric barriers:

- High effectiveness – up to 99%
- A wide range of applications regardless of hydraulic conditions
- Easy assembly in existing and new sites
- High resistance to mechanical damage and ice conditions
- Low operation cost

neptun

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