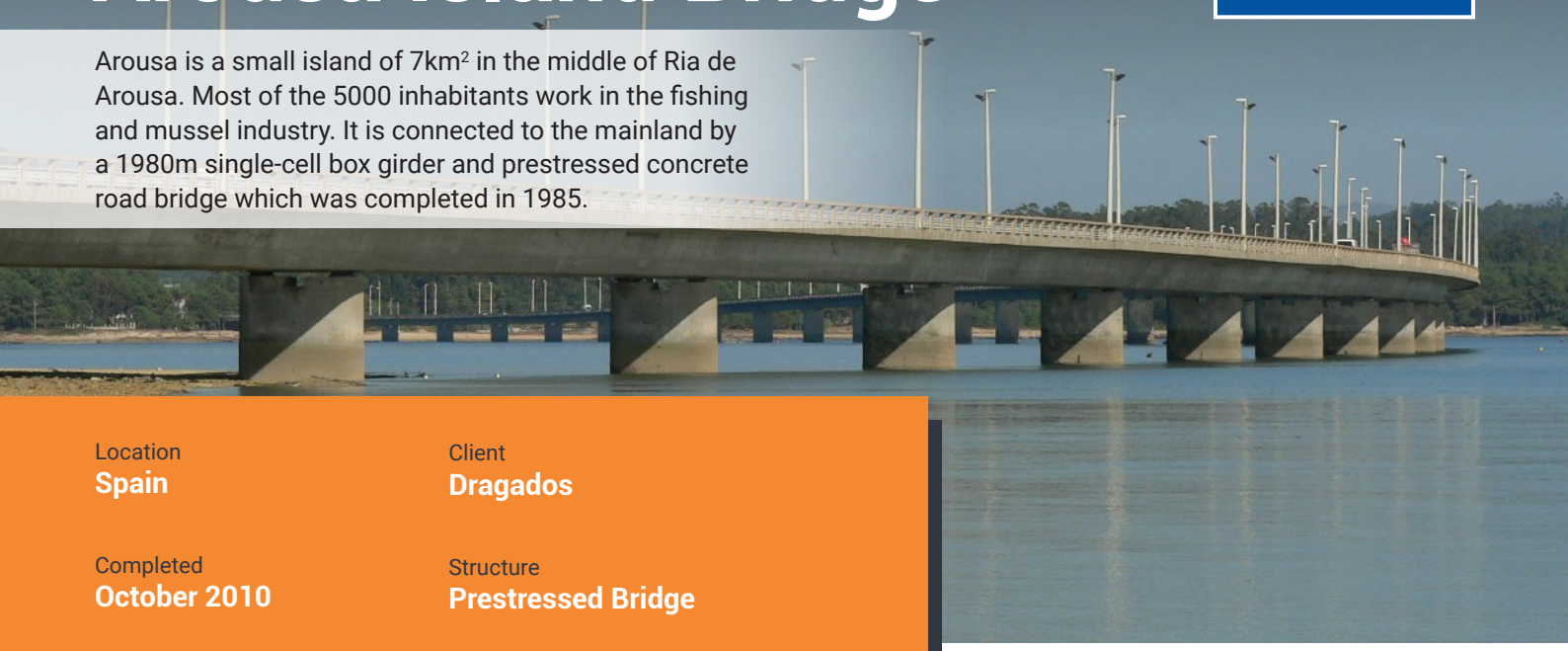
Case Study

# Arousa Island Bridge



Arousa is a small island of 7km$^2$ in the middle of Ria de Arousa. Most of the 5000 inhabitants work in the fishing and mussel industry. It is connected to the mainland by a 1980m single-cell box girder and prestressed concrete road bridge which was completed in 1985.

Location
**Spain**

Client
**Dragados**

Completed
**October 2010**

Structure
**Prestressed Bridge**

## The Problem Identified

Over the years marine salts had caused steel corrosion in the piers.

## The Solution Developed

The speed of application of concrete repairs was very important to the client due to the tidal movements around Arousa Island Bridge. CPT designed a DuoGuard hybrid anode system and over 7700 DuoGuard 500 anodes were installed in the majority of the piers. Some anodes were placed with an underwater embedding mortar DuoCrete UW, specially formulated to stay in place when installed underwater.

Using an external power source, an impressed current was applied to stop active corrosion and render the steel passive. The DuoGuard anodes were then disconnected from the power source to self-generate a galvanic current, sufficient to maintain steel passivity and control corrosion.

MN15 Reference Electrodes were installed to facilitate monitoring of the corrosion control system. The enclosed service duct which ran the length of the bridge, housed the anode and steel connections, relatively easily accessible for test purposes or future impressed current application if required.

## The Benefits Provided

Corrosion related deterioration of Arousa Island Bridge has been halted. After the initial power up period using an external power source the DuoGuard system is self-powered thus minimising future maintenance requirements and associated life costs.

*Steel corrosion in the piers*

## CPT Products Used

**DuoGuard™ 500**

**DuoCrete SD Mortar**

**DuoCrete UW Mortar**

**MN15 Reference Electrode**

ISO 9001
Cert No. 10159

**Concrete Preservation Technologies**

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