

# Relocation of European eel (*Anguilla anguilla*) juveniles from the Miño River International Stretch

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## ABSTRACT

In order to reduce the anthropogenic mortality of European eel (*Anguilla anguilla*), objective included in the Regulation (EC) 1100/2007, we started in 2011 relocation works of eel juveniles (post-elvers, 8-14 cm) in tributaries of the River Miño lower part. About 80 Km from Miño's mouth the eels find the first insurmountable obstacle, named the Frieira Dam. At that place thousands of post-elvers accumulate every summer at the base of the dam. Until 2010 some of them were moved upstream the dam. From 2011 to 2017 a total of 3 tonnes of eel juveniles (more than one million individuals) were caught and moved from Frieira Dam to several tributaries of the Miño River placed downstream the dam and free of obstacles to eel downstream migration.

## RESUMEN

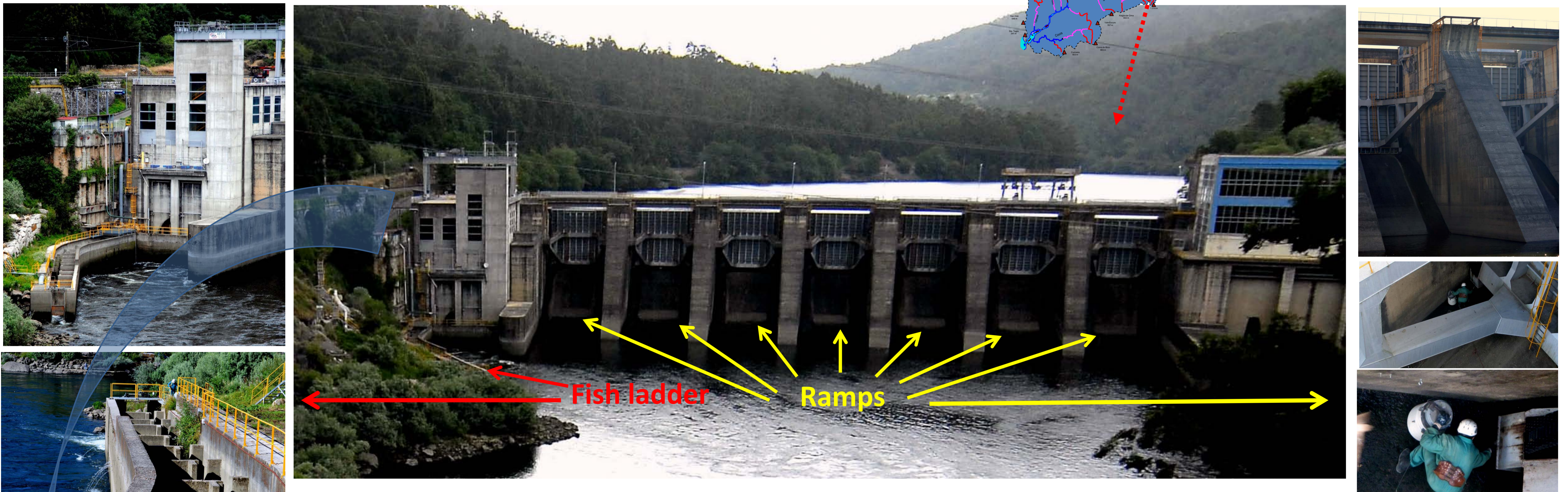
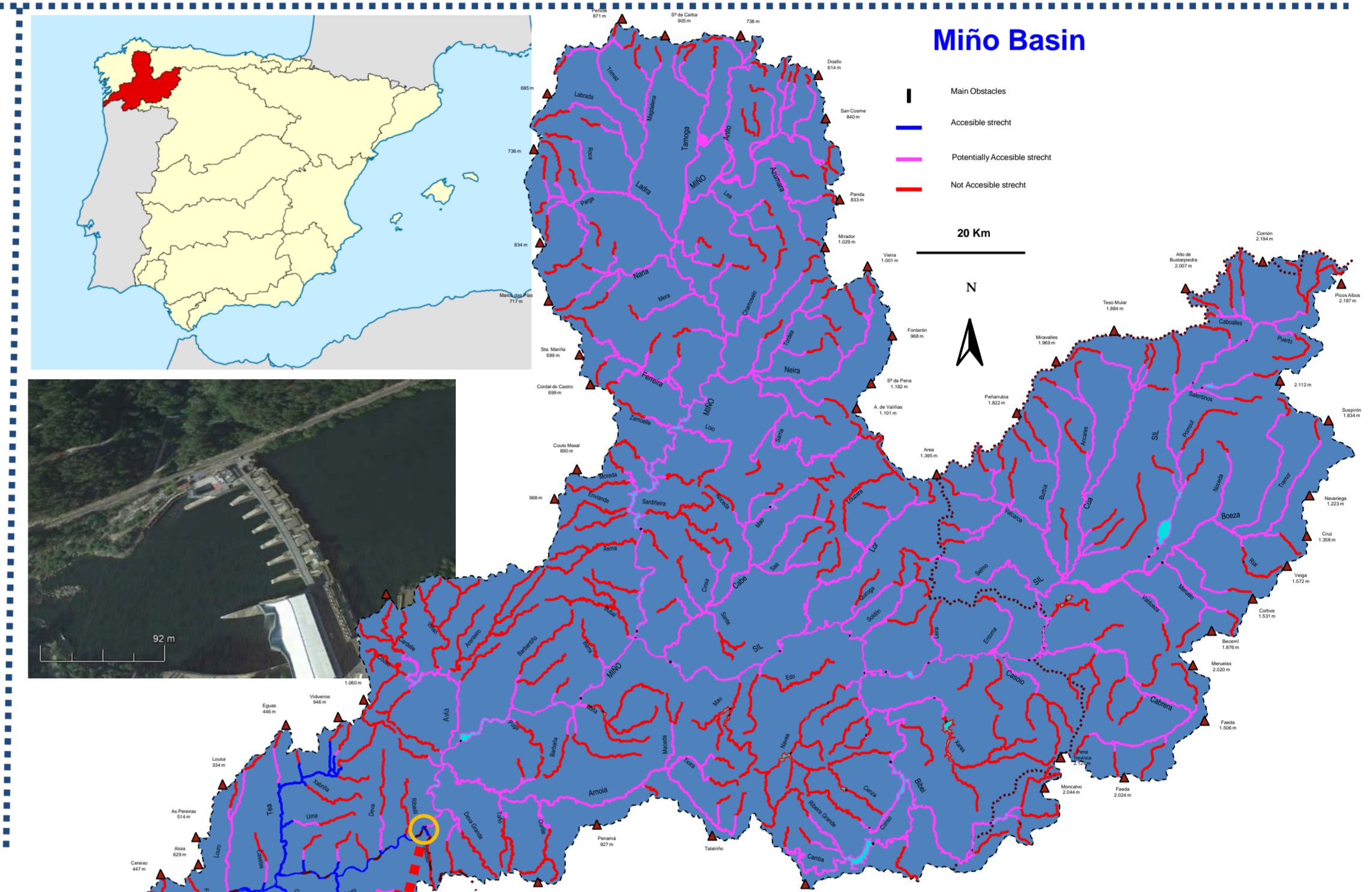
Con el propósito de reducir la mortalidad antropogénica de las Anguilas europeas, objetivo incluido en el Reglamento (CE) nº 1100/2007, en 2011 se comenzaron trabajos de recolocación de juveniles de anguila (post-angulas, 8-14 cm) en los tributarios de la parte baja del río Miño. A unos 80 km de la desembocadura del Miño, las anguilas encuentran el primer obstáculo infranqueable, llamado Presa de Frieira. En ese lugar, todos los veranos se acumulan miles de post-angulas (angulones), algunas de las cuales hasta 2010 eran trasportadas aguas arriba de la presa. De 2011 a 2017 fueron capturadas y trasladadas 3 toneladas y más de un millón de anguilas de Frieira a afluentes del Miño situados aguas abajo de la presa y libres de obstáculos para el descenso de las anguilas.

## INTRODUCTION

Miño River is 307,5 Km long and has a watershed surface of 17.027 Km<sup>2</sup>. From 1955 to 1970 five large hydroelectric dams (from 30 to 132 meters high) were built on its main channel. Around 80 km from the river mouth and very close to the Portuguese-Spanish border is located the Frieira Dam, a big dam (33 m high) built in 1970. Thousands of post-elvers (from 8 to 14 cm) accumulate each summer at the dam's ramps in their upstream migration. From the 90's these eels were moved upstream to maintain the recreational fishery. Since 2011 with the implementation of the Portuguese-Spanish Miño Eel Exploitation Management Plan derived from the Regulation (EC) 1100/2007, relocation of these elvers has been done trying to enhance the eel juveniles survival.

## MATERIAL & METHODS

Eels were caught at two places at the base of the dam: at the ladder and at the ramps (see photo). When post-elver migration is detected (between July and August), fish are caught each 2 or 3 days and transported in a fish tank vehicle to some tributaries placed downstream the dam where obstacles doesn't prevent the eel migration to the sea. Each of those days a sample of 60 eels from each catching area were measured (to the nearest mm) and weighed (0,1 g).



## RESULTS

The differences detected between eels caught in the fish ladder and ramps are shown in Figure 1. A total of 4.897 eels were measured and weighed (1.693 from ramps and 3.204 from fish ladder). Eels caught at fish ladder are, on average, 4 cm longer and they weigh 3 g more than those caught at ramps. These data suggest that eels ascending the ramps are mainly eels that just enter freshwater (zero continental years), while the eels caught at the fish ladder should also include specimens that arrived to the Miño river the year before.

Figure 2 shows the number and weight of post-elvers moved to the Miño tributaries from 2011 to 2017. In those 7 years 3250 Kg and more than one million of individuals were relocated in the tributaries. Since the implementation of the Migra Miño-Minho Interreg project in 2016 ([www.migraminho.org](http://www.migraminho.org)), eels relocation is being also conducted in the Portuguese tributaries of the Miño River (see Map below) and researchers of the "Encoro do Con" Hydrobiological Field Station (University of Santiago de Compostela) are carrying out a monitoring program of these practices.

