

The role of low-density farming (vallicoltura) for the restocking of the Eel in coastal lagoons of Northern Adriatic Sea

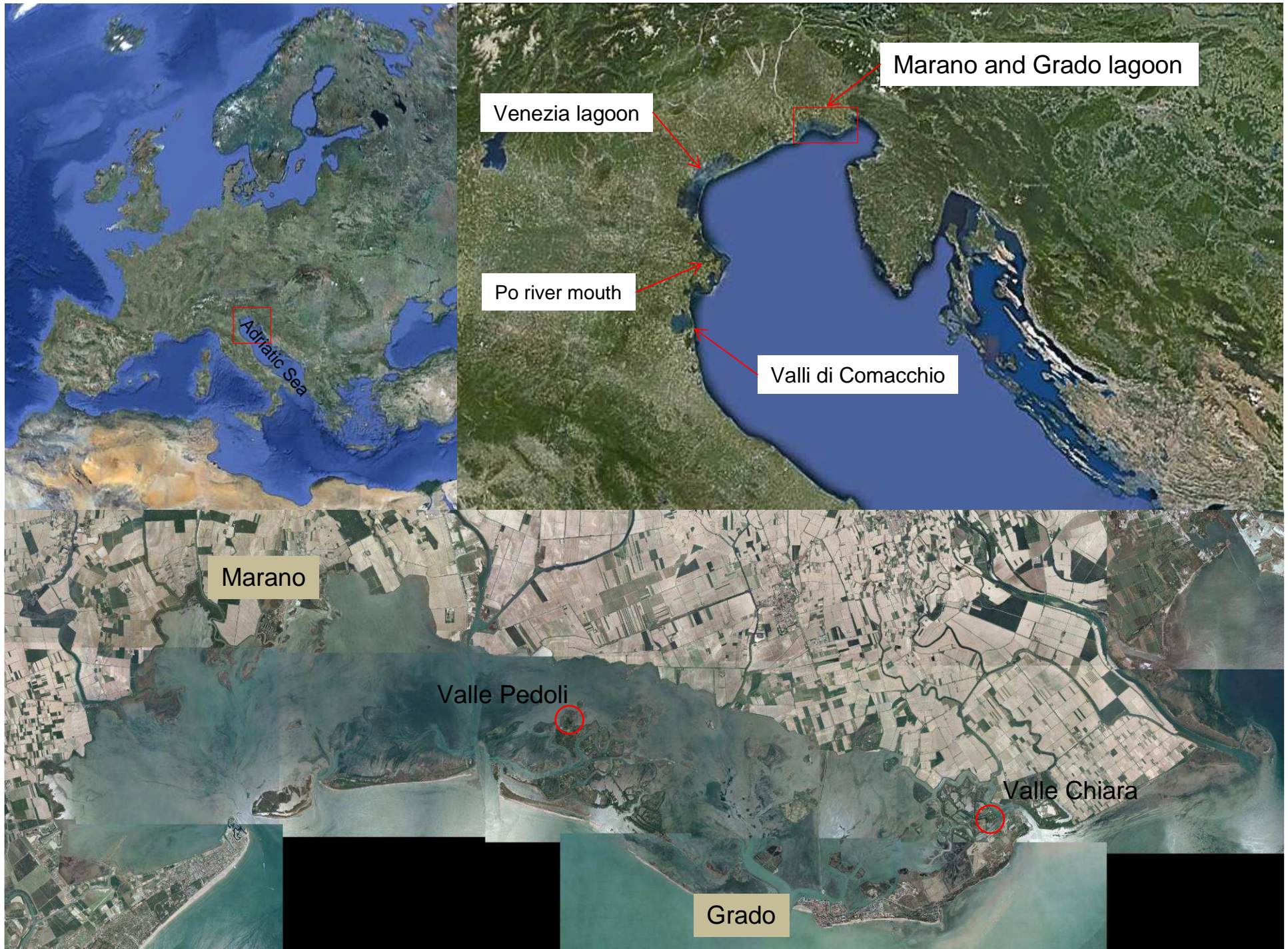
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Ente Tutela Pesca del Friuli Venezia Giulia
Laboratorio Regionale di Idrobiologia



Eel management in Friuli Venezia Giulia

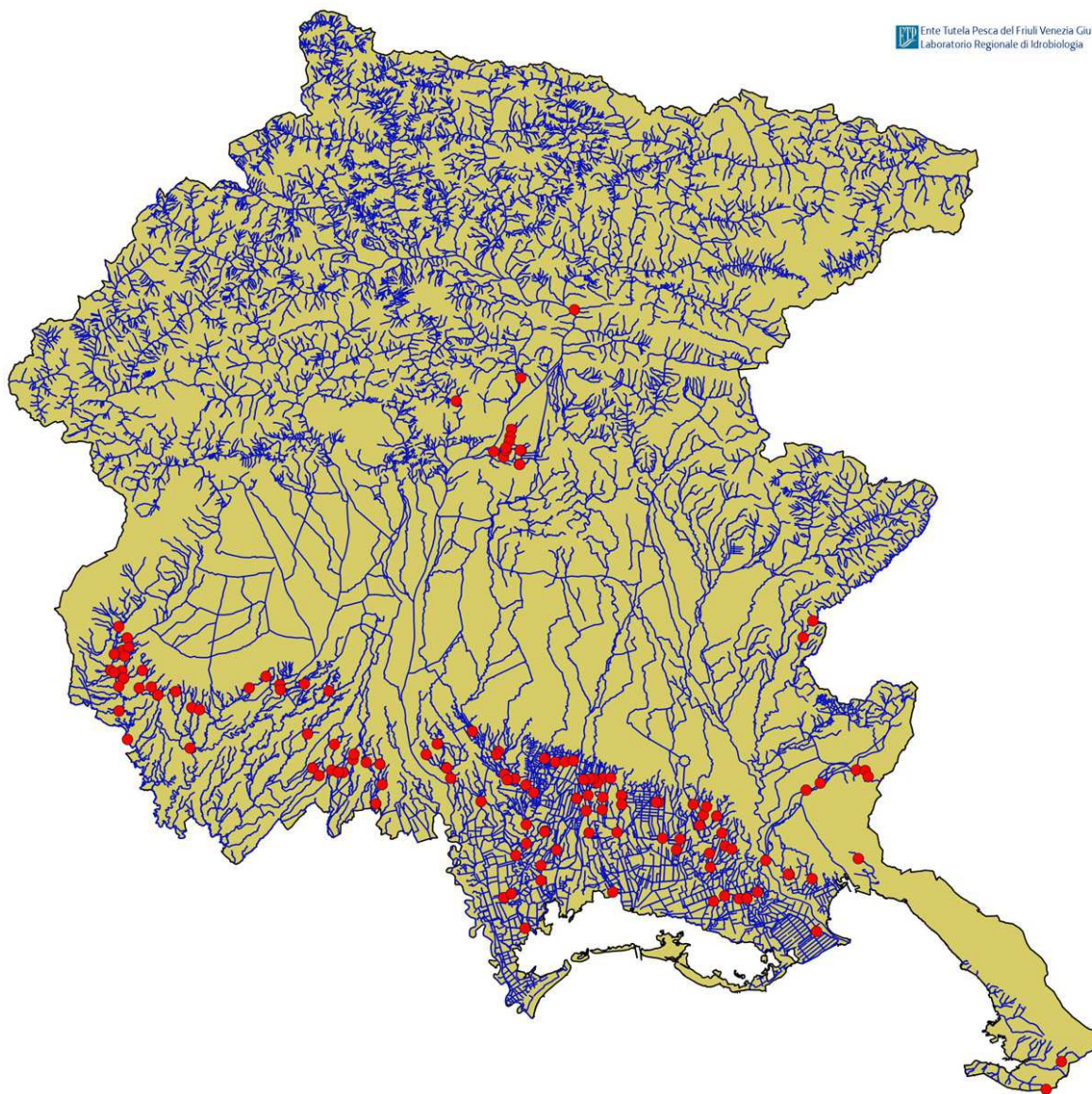
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1 Reduction of fishing effort

2 Creation and management of protected stocks in coastal lagoons and freshwater ecosystems (from glass eel to silver eel)

3 Monitoring of wild eel stock size (yellow eels)

4 Monitoring of recruitment (glass eels, elvers) and genetic migration (silvering and silver eels)



Why using traditional extensive low density farming?

- Valli da Pesca are highly productive environments
- It is possible to control totally or partially many ecological factors (water cycle, temperature, salinity, water depth)
- Valli da Pesca are enclosed areas, where nobody can fish or hunt without specific permission by the owner or manager of the farm
- It is possible to reduce mortality controlling predation (by birds and fishes)
- It is possible to monitor the state of the farmed stock during the whole growing period (growth rate, sanitary state etc).
- It is easy to monitor silvering eels migration using the traditional catching method

Features of the valli da pesca included in the project

At least 10 ha surface

No farming of predator fish (seabass)

No diseases or high eels mortality during the last 10 years recorded

Presence of deep pools protected by anti-bird nets

The owner agrees not to fish and/or sell eels during the next 9 years

The owner and personnel of the valle will allow inspections during every phase of the project and will cooperate in monitoring

Low density eel farming plan

1. Getting and checking juveniles (glass eels)
2. Breeding juvenile eels into protected pools to reduce early mortality
3. Introduction of grown up juvenile eels in enclosed lagoons
4. Monitoring of growth and stock size (6 to 9 years)
5. Catch and biometry of migrating silvering or silver eels
6. All silvering and silver eels are allowed to escape and migrate

First step: what are we stocking?

Glass eels are bought on the international fish market when available.

In any case the maximum TL of **wild** incoming juvenile eels must be 15 cm.

The Regione Friuli Venezia Giulia is buying an increasing amount of eel juveniles

1° year: 100 kg

2° year: 300 kg

3° year and following: 500 kg

Second step: increasing size of eels and reducing juveniles mortality

1. Eels are farmed in small protected pools filled with the water of the lagoon (water is filtered to avoid mortality from diseases and parasites)
2. Eels are fed with a mixture of fish meal, oil and chopped mussels
3. When size differences are higher than 30%, smaller eels are kept into separated pools
4. When glass eels turn into elvers and elvers are at least 15 cm long they are moved to large enclosed lagoons



At present we estimate a mortality of 70% in wild, while mortality in protected pools is 48%

Third step: moving eels to enclosed lagoons

Juvenile eels are introduced in large enclosed lagoon pools with a **maximum density of 10 kg /ha**.

This density is not the highest possible in the valli da pesca, but proved to be a density at which diseases and parasites do not spread rapidly, reducing mortality during growth.

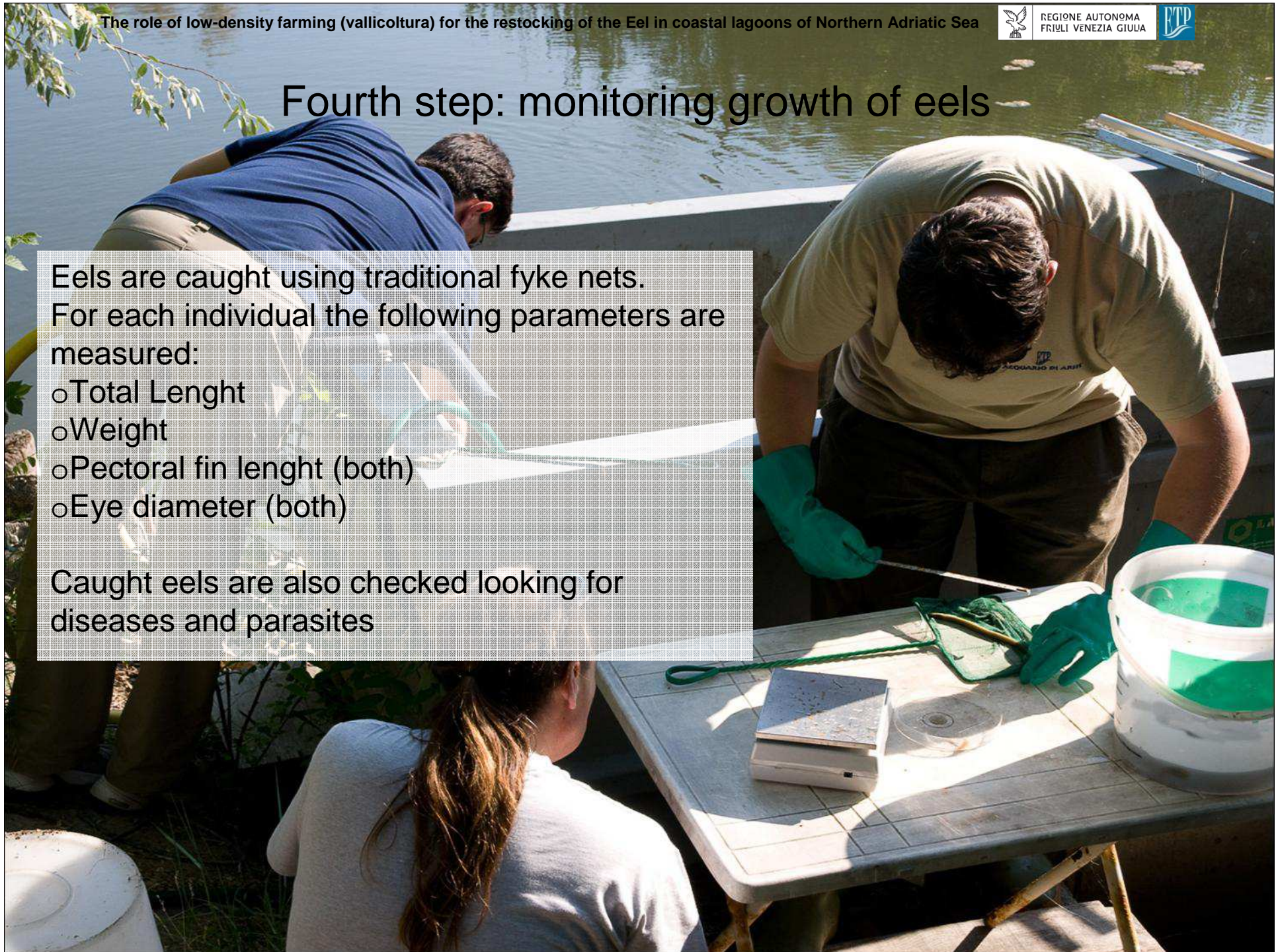


Fourth step: monitoring growth of eels

Eels are caught using traditional fyke nets. For each individual the following parameters are measured:

- Total Length
- Weight
- Pectoral fin length (both)
- Eye diameter (both)

Caught eels are also checked looking for diseases and parasites



Fifth step: catching and checking migrating eels

Silvering and silver eels escaping from the enclosed lagoon will be caught with the traditional method of the “lavoriero”.

Each individual will be measured to assess its silvering stage.



Final step: wishing a good journey

Silvering and silver eels will be free to migrate after measurement.

We hope to catch their sons after a couple of years.

Thank you for your attention



REGIONE AUTONOMA
FRIULI VENEZIA GIULIA

