School net IN.F.E.A

Regione Siciliana

The Oreto river, ecological aspects and quality of its waters

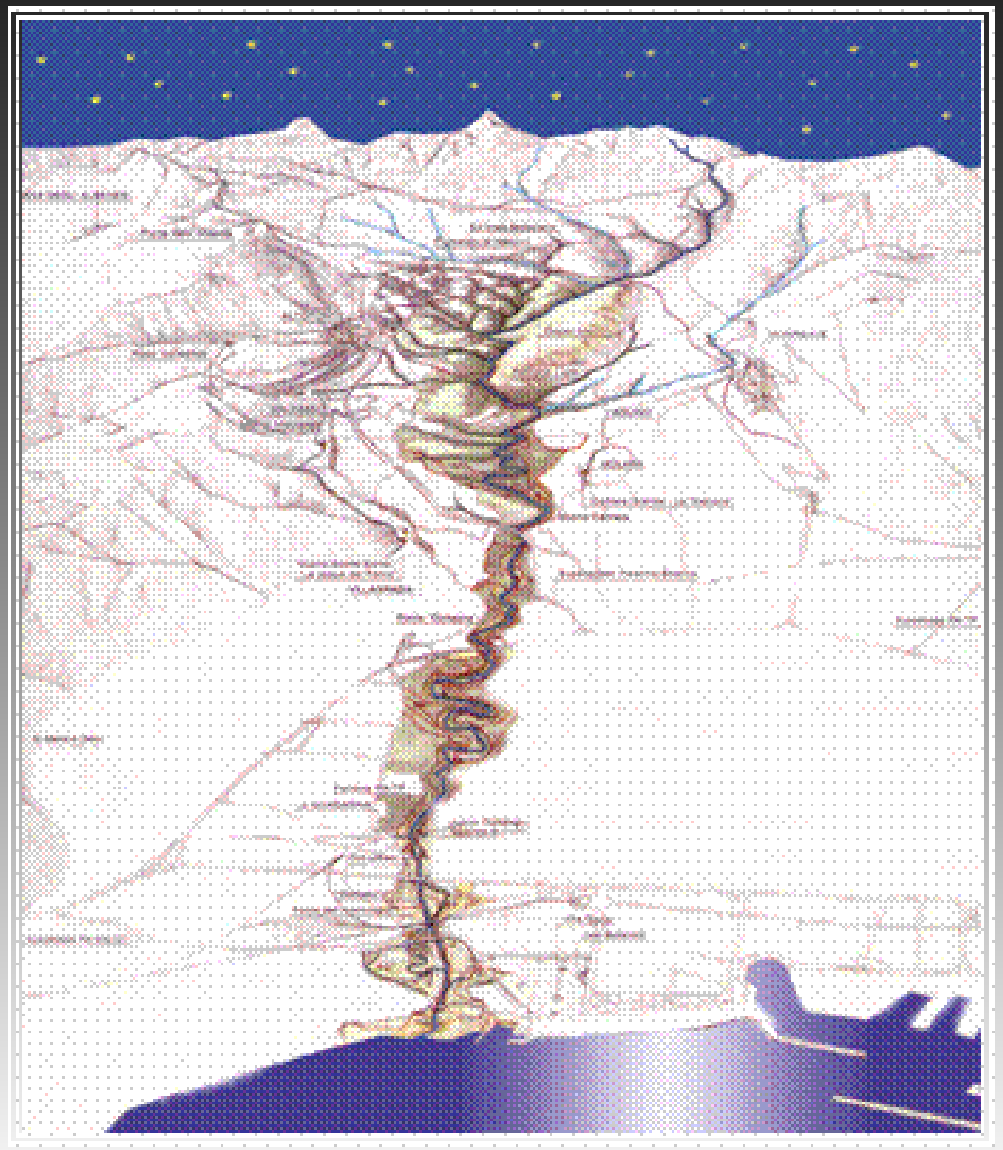
Comprehensive School "Maredolce" Palermo

INTRODUCTION

In order to evaluate water quality of the Oreto river, organisms were used as biological indicators, in particular benthic macroinvertebrates, that is to say organisms living in close contact with the river bed.

The type of macroinvertebrates varies according to the characteristics of the aquatic habitat and changes as result of pollution, this is because the macroinvertebrates, living on the river bed, have a very limited ability to move and suffer from the effects of any possible kind of pollution.

SAMPLING AREA



The sampling area is situated near the river source “Api” at Pioppo, a little town not far from Palermo.

MATERIALS AND METHODS

The samples were collected using :

- Hand net to sample macroinvertebrates
- Rubber boots
- White plastic basins
- Entomological forceps
- Polyethylene bottles, with tops, to transfer the collected samples to the laboratory
- Field forms and pencils to record data
- Systematic keys
- Lenses
- Rubber gloves
- Cleaning solution and disinfectant
- Coolbags

COMPILATION OF THE FORM

Sampling place

River: S.Elia Location: Pioppo

Duration: about 20 minutes

Date: 05.12.07 Time : 11.05 Operator: C.Leone
River: Water Width(m): 2 Water Depth(m): 0,3
Colour: Clear Smell: unpleasant
Air Temp.(°C):18 Water Temp. (°C): 6,5
Aquatic Plants: (1) Floating (2) submerged (3)cane field

Bank

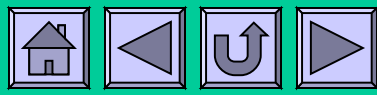
Slope: (1) vertical slope (2) steep slope (3) flat slope

Vegetation: (1) no vegetation (2) herbaceous vegetation (3) shrubby vegetation (4) arboreous vegetation
Characteristics of the bank: (1) natural (2) gravel (3) cement

Landscape:

Path of the river: (1) rich of meanders (2) sinuos (3) straight (4) artificially modified

Surroundings: (1) loans and pastures (2) fields (3)uncoltivated areas (4) wood (5) town



Collection of macroinvertebrates

Sampling of macroinvertebrates was carried out with the help of the hand net moving sideways and upstream, scraping the bottom and turning over the stones to collect them.

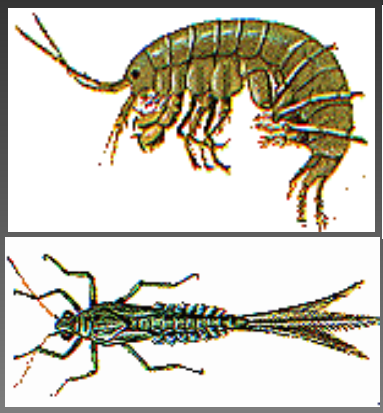
The organisms were removed from the stones where they were tightly attached.

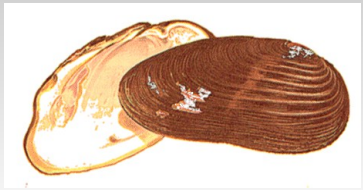
The content was emptied periodically into the collection container. The sampling operation lasted about 20 minutes.

Laboratory analysis

Separation of the samples

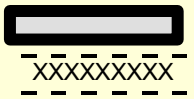
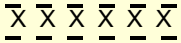
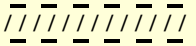
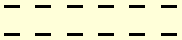
The collected samples were transferred to the Comprehensive School "Maredolce" in the afternoon of the same day, examined and classified with the help of dichotomous keys.





organsmes	En champ	présence	En laboratoire	présence
Plécoptères (espèce)				
Éphémères (espèce)			Baetis	1
Trichoptères (famille)			Rhyacophilidae	1
Gastéropodes (famille)	Paludinide	8	Paludinide Limnide Physidae Ancyilidae	13 1 4 1
Hétéroptères (famille)				
Croustaces (famille)	Gammaridae	15	Gammaridae	18
Bivalves (famille)				
Irudines (famille)	Herpobdellidae	1	Herpobdellidae	2
Oligoches (famille)	Lumbricidae Tubificidae	3 4	Lumbricidae Tubificidae	8 5
Total U.S.			10	

Data collection

QUALITY CLASS	EVALUATION B.E.I.	QUALITY EVALUATION	COLOUR AND/OR SYMBOLS RELATED TO QUALITY CLASS	
Class I	10-11-12-...	Unpolluted enviromnent or not contaminated significantly	**light blue**	
Class II	8-9	Enviromnent with moderate symptoms of pollution or lightly contaminated	**green**	
Class III	6-7	Polluted enviromnent or contaminated	**yellow**	
Class IV	4-5	Very polluted enviromnent or very contaminated	**orange**	
Class V	1-2-3	Heavily polluted enviromnent or highly contaminated	**red**	-

Conclusions

A single species of Ephemeroptea and ten systematic units were found. The result is that the value of B.E.I. is 6 and therefore it can be classified as Class III, yellow, which means that the environment is polluted or contaminated.