NINTH INTERNATIONAL CONGRESS OF EUROPEAN ICHTHYOLOGISTS (CEI9) "Fish Biodiversity"

To review the history and present status of the world's fish-fauna, by multidisciplinary approaches

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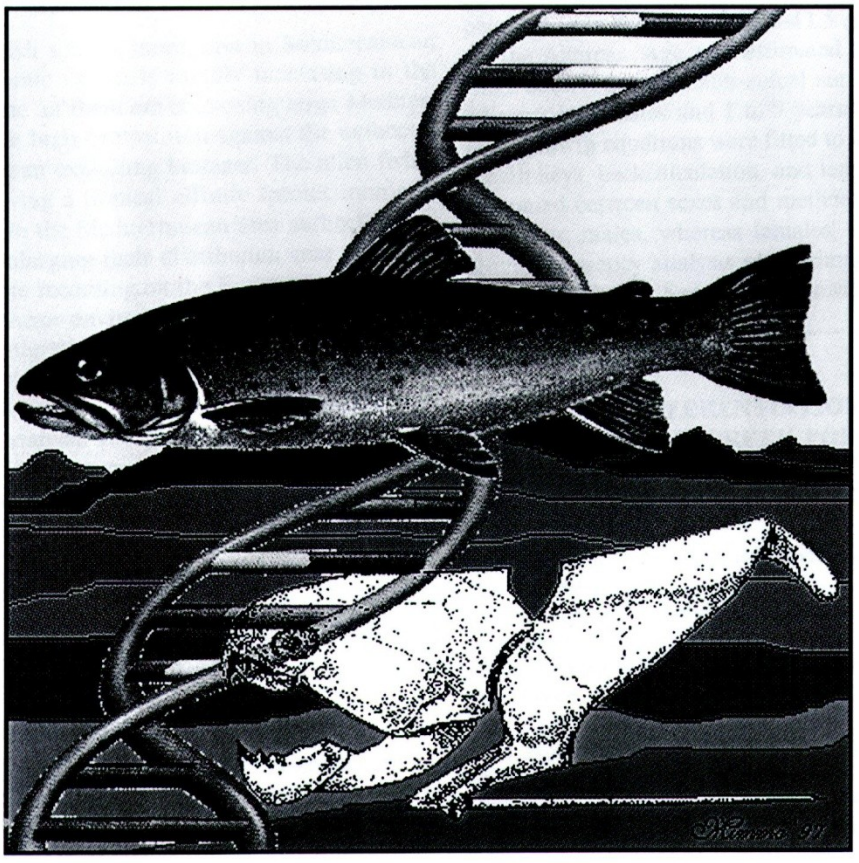
Book of Abstracts



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with the collaboration of

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of Cr was apparently different and seemed to be inconsistent. The distribution and accumulation of heavy metals is discussed in relation to concentration in the ambient water and sediments.

Conservation & Fishery: **oral**

FRESHWATER FISH CONSERVATION IN SPAIN

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Conservation status of Spanish freshwater fish was reviewed in 1986 and 1992. A new Red List using the IUCN categories of 1994 is now presented, comprising 41 species of freshwater and diadromous fish. 24 species are proposed to be included in categories of threat: seven species are considered Critically Endangered (CR), seven species are Endangered (EN) and ten species are Vulnerable (VU). The other 17 species are catalogued at Lower Risk (LR). Threatened Spanish freshwater fish are protected by some national and international regulations on preservation and management. Thus, one species is listed in Appendix I of CITES. One species is included in Annex II and 25 species more in Annex III of the Bern Convention. Likewise, the Council Directive of the EU on the Conservation of Natural Habitats and Wild Fauna and Flora includes 17 Spanish species in Annex II (two of them as priority species), three species in Annex IV and 11 species in Annex V. However, only seven species are protected at a national level in the Spanish Catalogue of Threatened Species. On the other hand, at least twenty (perhaps twenty-two) fish species have been successfully introduced into Spanish fresh waters. These aliens are an important factor of threat for the native species. Some conservation programmes for certain endangered fish like Lebias ibera and Valencia hispanica are already under way, but many others should be initiated.

Ecological Genetics: **oral**

HIGH ALLOZYMIC DIVERGENCE BETWEEN CLOSE POPULATIONS OF *Cottus* IN SOUTHERN FRANCE: FAST EVOLUTION, STRONG BOTTELNECK, OR HYPER SEDENTARITY EFFECTS? (COTTIDAE)

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Cottus gobio is a Cottidae broadly distributed in European fast flowing rivers and limpid lakes, and locally present in all principal basins of France. By means of external morphological characters, a variant of *Cottus* was described in the southern France in 1964 as the species *Cottus petiti*. Endemic to the headwaters of the River Lez, this species exhibits small sized adults with abundant and particular shaped spiniform scales. In order to better define geographical and genetical entities, and to discuss the taxonomic position of *Cottus petiti*, a complementary genetic approach was realized. Seven populations of Sculpins caught in the south-eastern quarter of France, were studied by protein electrophoresis on starch gel. This enzymatic approach allowed to distinguish each population with a specific genetic pattern. Indeed, the allozymic results expressed a more complex situation than expected : weak degrees of heterozygosity in each popu- ion with frequent allelic fixations, and surprisingly great population diversity with high Nei's distances. Cottus petiti peared as a differentiated taxon among several, not in agree- with its exceptional morphological characters. These ri- could be related to some biological characteristics of the pins, like a discontinuous geographic distribution in streams near the sources, and inequality of males in the fe- mate choice. So it could be hypothesized that the Cottus "g- group includes several neighbour close species or subsp- isolated by both geographical and ecological factors.

General Biology / Ethology: **poster**

EUROPEAN CONTRIBUTION TO THE STUDY OF A- AND GROWTH OF BLUEMOUTH *Helicolenus dactylo- rus* FROM THE AZORES (SCORPAENIDAE)

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Helicolenus dactylopterus, Bluemouth, is a benthic (200-1 m) fish species common in the Atlantic Ocean from Norw South-Africa, Azores, Madeira and Canaries, and in the M- terranean Sea. It is one of the three scorpaenid species c- creasing economic value captured by the artisanal fleet dir- towards the Blackspot Seabream, *Pagellus bogaraveo*. mouth age and growth were studied by whole-view examin- of left *sagitiae* (n=401) obtained from specimens (14-47 c- total length) caught off the Azores. Opaque rings observe- the anti-sulcal surface of *sagittae* were enumerated as age- mates. Ages ranged from 3 to 14 years in males and 3 years in females. Von Bertalanffy growth equations were f- to average length at age data, and compared between sexes methods (direct examination of otoliths, backcalculation length-frequency analysis). No important differences found. Results are different from published literature for th- gion. The causes and implications of the results are discusse-

Endocrinology & Reproduction: **uncertain attendance**

THE ROLE OF ANTIBODY-SIMILAR SUBSTANCES MORPHOGENESIS AND HYPOTHESIS OF THEIR LE IN IMMUNE SYSTEM EVOLUTION IN TEL- STEAN

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It is assumed that immune system arise in phylogenesis o- basis of Cell-Adhesion Molecules (CAM) (Edelman, 1987) necessery to test the hypothysis of possible participatio- hydrophilic lectins in teleost fishes morphogenesis. It is su- sed that immunocytes receptor molecules of invertebrates similar to agglutinins of celomic liquid, therefore it shoul- supposed that they may be similar also to lectins. This su- stion is confirmed by the fact, that in invertebrates thge mec-