

# Proposal Submission Form



**EUROPEAN COMMISSION**  
7th Framework Programme on  
Research, Technological  
Development and Demonstration

**Collaborative Project**  
**Small or medium-scale**  
**focused research project**

# A1: Content

Proposal Number

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Proposal Acronym

Fish4Knowledge

## GENERAL INFORMATION ON THE PROPOSAL

Proposal Title

Supporting humans in knowledge gathering and question answering  
w.r.t. marine and environmental monitoring through analysis of multiple video streams

Duration in months

36

Call identifier

FP7-ICT-2009-5

Topic code(s) most relevant to your proposal

ICT-2009.4.3

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Free Keywords

Data intensive computing, video workflow analysis, marine biology, intelligent query interfaces

Abstract (max. 2000 char.)

The study of marine ecosystems is vital for understanding environmental effects, such as climate change and the effects of pollution, but is extremely difficult because of the inaccessibility of data. Undersea video data is usable but is tedious to analyse (for both raw video analysis and abstraction over massive sets of observations), and is mainly done by hand or with hand-crafted computational tools. Fish4Knowledge will allow a major increase in the ability to analyse this data: 1) Video analysis will automatically extract information about the observed marine animals which is recorded in an observation database. 2) Interfaces will be designed to allow researchers to formulate and answer higher level questions over that database.

The project will investigate: information abstraction and storage methods for reducing the massive amount of video data (from 10E15 pixels to 10E12 units of information), machine and human vocabularies for describing fish, flexible process architectures to process the data and scientific queries and effective specialised user query interfaces. A combination of computer vision, database storage, workflow and human computer interaction methods will be used to achieve this.

The project will use live video feeds from 10 underwater cameras as a testbed for investigating more generally applicable methods for capture, storage, analysis and querying of multiple video streams.

We will collate a public database from 2 years containing video summaries of the observed fish and associated descriptors. Expert web-based interfaces will be developed for use by the marine researchers themselves, allowing unprecedented access to live and previously stored videos, or previously extracted information. The marine researcher interface will also allow easy formulation of new queries. Extensive user community evaluations will be carried out to provide information on the accuracy, ease and speed of retrieval of information.

Similar proposals or signed contracts?

a) Has this proposal (or a very similar one) been previously submitted  
to a call for proposals of the 7th EU RTD Framework Programme?

no

IF YES

- please give the call identifier

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- please give the proposal or contract number (if known)

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b) Is this proposal (or a very similar one) currently being  
submitted to another call under FP7?

no

IF YES please give the call identifier

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