



The project is co-funded  
by the European Union,  
Instrument for  
Pre-Accession Assistance



## Strengthening of Centers for Aquaculture production and Safety surveillance in Adriatic Cross-border Countries

# FINAL PROJECT BROCHURE

[www.caps2.eu](http://www.caps2.eu)



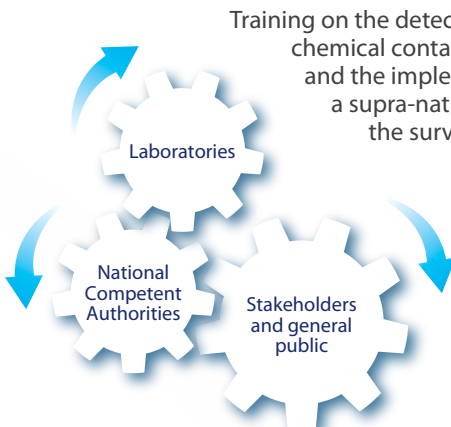
## THE PROJECT IN BRIEF

The fishery sector is of strategic importance for most of the Adriatic Cross-border Countries. The Adriatic Sea and the Adriatic coasts themselves represent a relevant economic resource for the production of a high-quality fishery and aquaculture products. Cooperation among Adriatic Countries is needed to safeguard these resources, mitigating, in particular, the risk of contamination of fish, shellfish, and aquaculture products by microbiological hazards, viruses, chemical contaminants like heavy metals, benzopyrene and other Polycyclic aromatic hydrocarbon (PAH) and biotoxins.

In this field, the CAPS2 project provides technologies and opportunities for training and research to laboratories and National Competent Authorities of the Adriatic Region to promote surveillance of fish and mollusc safety and the alignment of national policies with the European Union (EU) legislation in this sector.

**CAPS2 is the acronym of the project “Strengthening of Centres for Aquaculture Production and Safety surveillance in the Adriatic cross-border Countries”. The initiative is co-funded by the European Union, Instrument of Pre Accession Assistance (IPA), Secondary call launched by the IPA Adriatic Cross Border Cooperation Programme 2007-2013.**

Starting in October 2012, CAPS2 concludes in June 2016 after 44 months of execution. CAPS2 primary objective is to strengthen safety surveillance of seafood in the Adriatic Area by acquiring brand new technology and promoting knowledge sharing among partner countries: **Albania, Bosnia and Herzegovina, Croatia, Italy and Montenegro**. CAPS2 contributes to the development of research and innovation, competitiveness and capacity building promoting opportunities for cooperation in the Adriatic Region.

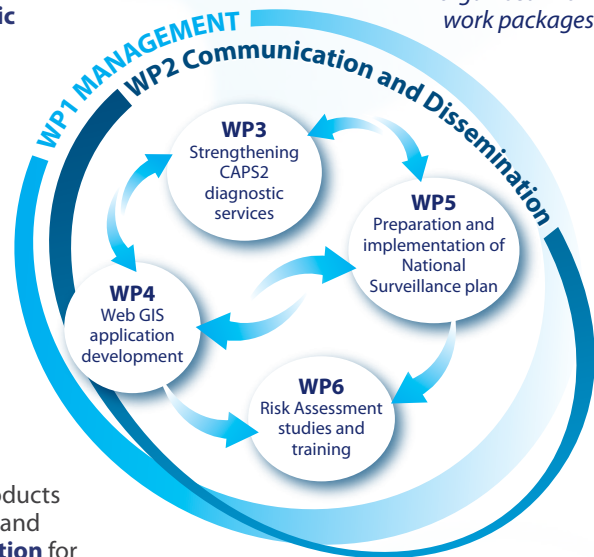


Training on the detection of biological and chemical contaminants on fishery products and the implementation of national and a supra-national **web GIS application** for the surveillance of fish and mollusc safety in Adriatic Area favour **the definition of national surveillance plans** on the production areas.

A **risk assessment** is used to evaluate the level of consumers exposure to contaminants in the consumption of fish and shellfish products in the Adriatic Area of reference.

A consortium of Ministries (National Competent Authorities) and Laboratories of partner Countries cooperate to implement the CAPS2 project, and to spread the results to a broad public of stakeholders and citizens.

*CAPS2 project structure is organised in six work packages*



## CAPS2 PARTNERS



### CROATIA

- ▶ Ministry of Agriculture, Department of Fisheries - MAFRD
- ▶ Croatian Veterinary Institute, Regional Veterinary Institute Split - CVI-RVIS



### BOSNIA AND HERZEGOVINA

- ▶ Ministry of Foreign Trade and Economic Relation, Veterinary Office of Bosnia and Herzegovina - VOBiH
- ▶ Veterinary Faculty Sarajevo, Department of Food Hygiene and Technology - VFS



### MONTENEGRO

- ▶ Centre for Ecotoxicological Research of Montenegro - CETI
- ▶ Administration for Food Safety, Veterinary and Phytosanitary Affairs - AFSVPA



### ITALY

Experimental Zooprophyllactic Institute of Abruzzo and Molise Regions 'G. Caporale' - IZSAM



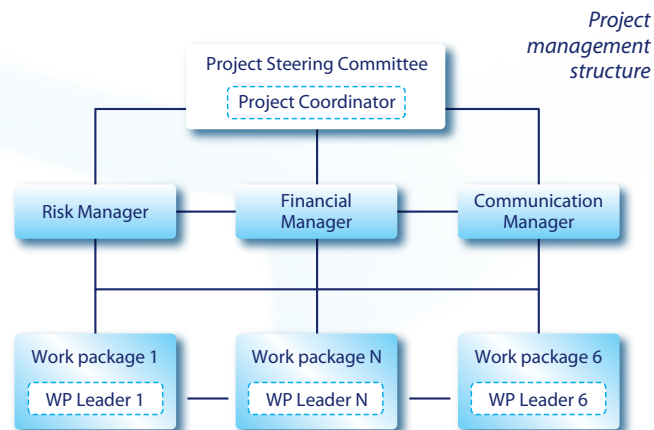
### ALBANIA

Food Safety and Veterinary Institute - FSVI

# CROSS BORDER PROJECT MANAGEMENT AND COORDINATION

Effective project management and coordination are essential elements to ensure cross-border cooperation and to exploit the opportunities tackled by the CAPS2 project.

The **management structure** and procedures were set up at an initial stage to run the project efficiently and to achieve the project objectives fully. The Steering Committee (SC), established during the kick-off meeting held in Teramo (Italy) in December 2012, is the decision-making body of the consortium and it includes representatives of all partners. It is responsible for: decisions about techniques to use, problem solving and conflict resolution, supervision of progress, results and outputs of the project. The chairperson of the fourteen SC members is the Project Coordinator, Dr Eddy Listeš from the Croatian Veterinary Institute, the lead beneficiary of the project. During the eight SC meetings organised twice per year, the project implementation has been analysed concerning achievement of project results, respect of the timeline and budget. Adequate attention has been paid to documenting project outputs, with particular reference to the biannual **project progress reports** submitted to the Joint Technical Secretariat and Managing Authority of the IPA Adriatic CBC Programme 2007-2013.



In accordance to the **IPA subsidy contract**, signed between the Lead beneficiary and the Managing Authority, the Lead Partner is responsible for the overall project implementation, meaning for the entire coordination of implemented activities on both sides of the border. All other partners have to fulfil their obligations listed in the **Partnership Agreement**. Moreover, they carry out their tasks and take all necessary actions allowing the Lead Partner to meet the obligations provided in the subsidy contract.

*Sixth Steering Committee Meeting in Split (27 - 28 October 2015)*



A broad range of tasks and functions, concerning technical and managerial aspects, have been appointed to specific roles, namely Project Financial Manager, Communication Manager, WP leaders and Risk Manager, in order to regularly monitor the project progresses.

Selected by the Lead Beneficiary, the Financial Manager is responsible for an adequate financial reporting and managing of the total budget. He supervises each partner interim reports, comprising of a narrative and financial section, regularly submitted to the Contracting Authorities for the approval.

The Communication Manager defines, implements and monitors the communication strategy of the CAPS2 project, ensuring visibility of the project at local, national and (inter)regional level.

The Work Package leaders ensure the timely delivery of the work programmes and the transmission of the outputs to the Project Coordinator.

Considering the scope and the complexity of CAPS2, a Risk Manager was appointed by the Lead beneficiary at the beginning of the project. A specific risk management process is implemented within CAPS2 to identify, assess and adopt measures to reduce risks. Procedures, tools, roles and responsibilities are established within the **risk management plan**. Quarterly risk assessment reports are produced for the implementation of internal audit control. The project increases in this way the chance to early identify risks and maximise the possibility to achieve established goals and objectives.

*Fifth Steering Committee Meeting at Saranda, Albania (27 - 28 May 2015)*



## TRAINING ACTIVITIES FOR SAFETY AND SURVEILLANCE OF FISHERY PRODUCTS

The project aims at strengthening diagnostic capabilities and know-how of the partner laboratories in relation to biotoxins, heavy metals, benzopyrene and other Polycyclic aromatic hydrocarbon (PAH) contamination, as well as the identification of *Vibrio* spp. and other food contaminants, Norovirus and the Hepatitis A virus on fish and shellfish produced in Adriatic Sea. Specific technologies and operational capabilities were improved to ensure the alignment to the European Union sectorial legislation and to contribute to safety and surveillance of fishery products. As regards detecting marine biotoxins in live bivalve molluscs, CAPS2 implemented the technique of liquid chromatography (LC) mass spectrometry (MS) as chemical testing methods, alternatively to the biological one (mouse bioassay), applying the measures of the Commission Regulation (EU) No 15/2011 in due time.

Following a preliminary identification of technological and knowledge gaps, a **training plan** was developed to manage training activities on methods for biotoxins, Norovirus and Hepatitis A virus, chemical contaminants and food contaminants detection. According to the different level of preparedness, the existing know how and their own experiences, project partners agreed on a series of training activities organised mainly at Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale" (IZSAM) laboratories.

While technologies and equipment were acquired and distributed, technicians coming from project Countries travelled to Teramo, Italy, to participate in study periods with the IZSAM technicians and experts. Aims of the study periods were the knowledge sharing and acquisition of skills on validation methods and the application of Standard Operating Procedures (SOP) for the detection of contaminants of viral, chemical, microbiological origin and biotoxins. Following the residential training, technicians experimented the "on the job training": they implemented the analytical methods in the labs of origin and IZSAM experts were available for distance learning support and assistance during such experimental period of study, execution of exams and analysis.

The CAPS2 training process was structured as follow:



The objectives of this project component were to strengthen partners diagnostic capabilities for Norovirus and Hepatitis A virus detection; to develop knowledge and skills in order to apply innovative molecular methods for the identification of pathogenic determinants in *Vibrio* strains and other food pathogens; to improve knowledge and capability for the determination of biotoxins in shellfish applying chemical methods; to reinforce capacity on the heavy metals, benzopyrene and other Polycyclic aromatic hydrocarbon (PAH) detection in seafood aligning the EU legislation.

*Training on Norovirus and Hepatitis A virus (9 - 20 June 2014)*



Partners were involved in training activities having a very practical approach. Their delegates met in groups of 4-6 people to attend the study periods of two or four weeks organised at the IZSAM labs. The training period usually opened with a theoretical session in classroom concerning the analysis of the EU legislation, of the national and international legal framework for intervention and the discussion on the state of the art of the diagnostic activities in partner laboratories. Subsequently, an intensive training week in the lab was organised, allowing participants to share the same working environment.

Study periods in Italy were divided as showed in the following table.

*Study periods in Italy from January to October 2014*

| Partner                      | Training area   | N. trainees                 | Total training day per trainee |
|------------------------------|---|-----------------------------|--------------------------------|
| FSVI (Albania)               |   |                             |                                |
| VFS (Bosnia and Herzegovina) | Chemical contaminants: Heavy metals and PAH                         | 7 (Heavy metals)<br>9 (PAH) | 10 x 7                         |
| CVI Rijeka (Croatia)         |   |                             | 10 x 9                         |
| CVI Split (Croatia)          |   |                             |                                |
| CETI (Montenegro)            |   |                             |                                |
| FSVI (Albania)               |   |                             |                                |
| VFS (Bosnia and Herzegovina) | Biotoxins   | 11                          | 20 x 11                        |
| CVI Rijeka (Croatia)         |   |                             |                                |
| CVI Split (Croatia)          |   |                             |                                |
| CETI (Montenegro)            |   |                             |                                |
| FSVI (Albania)               | Microbiological tests for <i>Vibrio</i> and other food contaminants | 8                           | 5 x 8                          |
| VFS (Bosnia and Herzegovina) |   |                             |                                |
| CVI Rijeka (Croatia)         |   |                             |                                |
| CVI Split (Croatia)          |   |                             |                                |
| FSVI (Albania)               | Virology: Norovirus/ Hepatitis A determination                      | 6                           | 10 x 6                         |
| VFS (Bosnia and Herzegovina) |   |                             |                                |
| CVI Split (Croatia)          |   |                             |                                |
| <b>Total</b>                 |   | <b>41</b>                   | <b>480</b>                     |

*Training on Vibrio spp. detection at CVI - Croatia (20 - 24 April 2015)*



Additional training weeks were organised in Croatia on microbiology and *E. coli* determination and in Albania as concerns biotoxins determination.

Moreover, a specific training period on *Vibrio* spp. detection was held at the Croatian Veterinary Institute (CVI) of Split. An expert from the "EURL – CEFAS – Centre for Environment, Fisheries and Aquaculture Science" was invited to attend coordinate an advanced training on *Vibrio* PCR methods, namely real-time PCR and end point PCR. The participants came from CVI, Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale" of Teramo and Food Safety Veterinary Institute of Albania.

CAPS2 promoted various occasion of networking and knowledge exchange among partners: the study periods and the training represented an opportunity for group work and effective cooperation.



*Every single piece of equipment, purchased by CAPS2, was labelled with a specific sticker*



*Training on Biotoxins at IZSAM - Italy (13 - 24 October 2014)*



*Training on Benzopyrene and other PAHs at IZSAM - Italy (6 - 10 October 2014)*

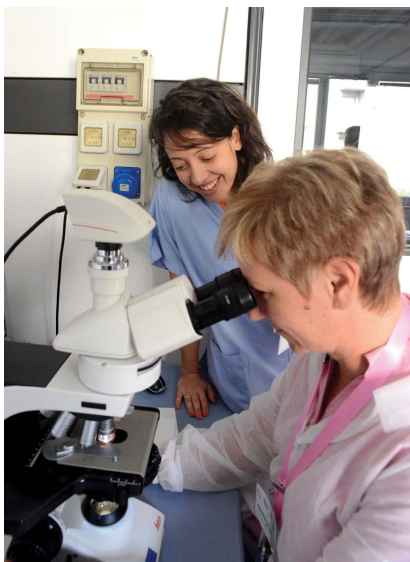
*Training on Heavy metals at IZSAM - Italy (17-21 February 2014)*



*Training on Vibrio spp.  
detection  
at IZSAM - Italy  
(13 - 17 October 2014)*



*Training on Vibrio spp. detection  
at IZSAM - Italy (22 - 26 September 2014)*



*Training on  
Norovirus and  
Hepatitis A virus  
at IZSAM - Italy  
(19 - 23 May 2014)*



*Training on Biotoxins  
at IZSAM - Italy  
(13 - 24 October 2014)*

# INFORMATION SYSTEM AND WEB GIS APPLICATION IN AQUACULTURE

Activities within the project led to the creation of an Information System and a web GIS to collect, manage and share surveillance data in the Adriatic Sea. The System wants to contribute to the harmonization and standardization of sea and aquaculture field controls, with the final aim of classifying production and relaying areas according to the Regulation EC no. 854/2004: class A-areas from which molluscs may be collected for direct human consumption; class B- areas from which molluscs may be collected but may be placed on the market for human consumption only after treatment in a purification centre or after relaying; class C- areas from which molluscs may be collected but may be placed on the market only after relaying over a long period (at least two months), whether or not combined with purification.

The developed Information System provides the users with all the relevant data collected in field and tested in laboratories and it is accessible using a common web browser.

The CAPS2 Information System, available at <http://www.caps2.eu/caps2/>, involved the development and management of a database in which data are stored and a Web GIS for data querying and visualization. The database is populated by authorized users in accordance with the privileges assigned to each profiles (see the following table). In particular, the Competent Authority fixes the location and the boundaries of production and relaying areas and defines their classification; the System Administrator identifies the users and their role and manages the Database application; Laboratory role is assigned to operators of microbiology and chemistry laboratories that feed the database with test results.

*Training on the Information System and Web GIS during the Third Steering Committee Meeting (27 - 28 May 2014)*



*Profiles and possible actions for each profile*

| Profiles             | Web GIS and Web applications |           |              |                    |                |          |
|----------------------|------------------------------|-----------|--------------|--------------------|----------------|----------|
|                      | User                         | Samplings | Test results | Geographical units | Classification | Database |
| Competent Authority  | ⊙                            | ⊙         | ⊙            | ✓                  | ✓              | ✗        |
| System Administrator | ✓                            | ⊙         | ⊙            | ✓                  | ⊙              | ✓        |
| Laboratory           | ✗                            | ✓         | ✓            | ✗                  | ✗              | ✗        |
| Sampling Operator    | ✗                            | ✓         | ⊙            | ✗                  | ✗              | ✗        |
| Guest                | ✗                            | ⊙         | ⊙            | ✗                  | ✗              | ✗        |

Actions: ✓ insert and view data | ⊙ view data | ✗ not insert and not view data

The Information System has two levels: a supranational and a national level.

The Supranational Web GIS application displays **production and relaying areas'** classification in the Adriatic Sea, according to the EU regulation.

The National level web applications are composed by a set of functions that have been developed to provide the user with effective and easy tools to manage all the relevant data collected in field and laboratory.

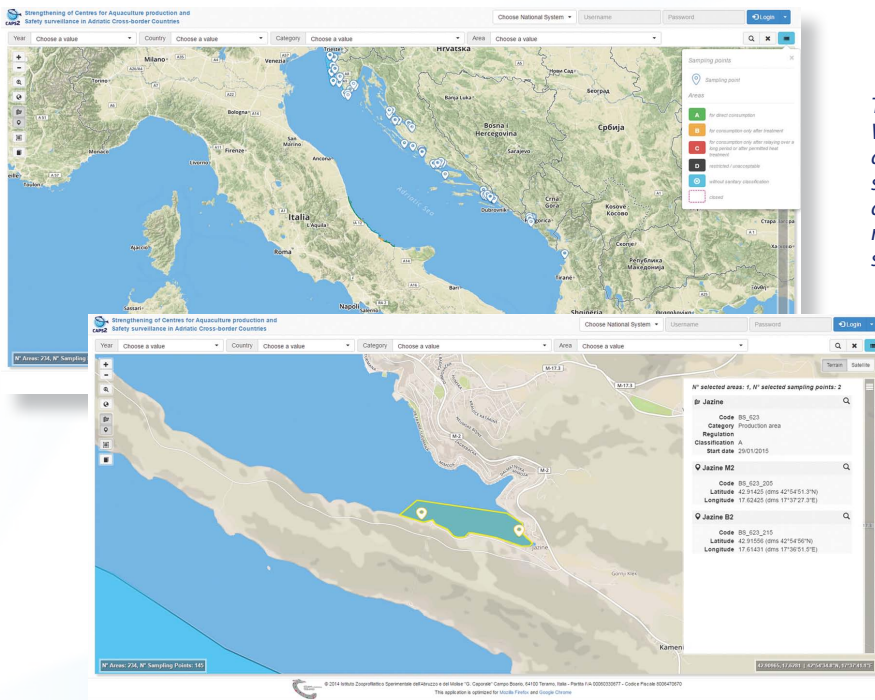
All partners participated to specific training activities on the use of the Information System and the Web GIS, with particular reference to the data entry and spatial management of the areas.

Video tutorials on the use the different tools of the Information System, were also made available to the users.

The Information System and the web GIS application **support the project partner competent authorities to establish and keep up to date a list of approved production and relaying areas, disseminating all the relevant information to all interested parties as foreseen by the Regulation EC no. 854/2004.**

*Training on the Information System and Web GIS (25 - 26 February 2015)*





The Supranational Web GIS application allows to display the sanitary information about production and relaying areas and sampling points

## Test results management

SEARCH RESET

| Samplings with test results |   |               |         |  |   |                         |                   |             |  |
|-----------------------------|---|---------------|---------|--|---|-------------------------|-------------------|-------------|--|
| Edit/View                   | Sampling code                               | Sampling date |         |  | Area  | Point                   |                   |             |  |
| +                           | 2015_TH_1430                                | 28/12/2015    |         |  | IT_148 - Silmar                                       |                         |                   |             |  |
|                             | Parameter                                   | Material      | Species | Contaminant                                      | Result  | Unit                    | Text interpretato | Result date |  |
|                             | Microbiology parameters (Microbiology Lab.) | Molluscs      | Mussel  | E. coli  | 20  | MPN/100g                | U                 | 28/12/2015  |  |
|                             | Microbiology parameters (Microbiology Lab.) | Molluscs      | Mussel  | Salmonella spp                                   | Assente   | presence/absence in 25g | C                 | 28/12/2015  |  |
| +                           | 2015_TH_1427                                | 28/12/2015    |         |  | IT_149 - Acquachiaia                                  |                         |                   |             |  |
|                             | Parameter                                   | Material      | Species | Contaminant                                      | Result  | Unit                    | Text interpretato | Result date |  |
|                             | Biotoxins (Chemistry Lab.)                  | Molluscs      | Mussel  | Yessotoxins                                      | 0,244   | mg/kg                   | C                 | 04/01/2016  |  |
|                             | Biotoxins (Chemistry Lab.)                  | Molluscs      | Mussel  | Okadaic acid, dinophysistoxins and pectenotoxins | 179 ± 42  | µg OA eqv / kg          | C                 | 04/01/2016  |  |
|                             | Biotoxins (Chemistry Lab.)                  | Molluscs      | Mussel  | Paralytic Shellfish Poison (PSP)                 | Non quantificabile ( tempo di sopravvivenza > 40 min) | µg AZA eqv / kg         | C                 | 28/12/2015  |  |
|                             | Biotoxins (Chemistry Lab.)                  | Molluscs      | Mussel  | Azaspiracids                                     | Non quantificabile (<40,0)                            | µg AZA eqv / kg         | C                 | 04/01/2016  |  |
|                             | Biotoxins (Chemistry Lab.)                  | Molluscs      | Mussel  | Amnesic Shellfish Poison (ASP)                   | Non rivel.( <0,1)                                     | µg/g                    | C                 | 28/12/2015  |  |
| +                           | 2015_TH_1432                                | 28/12/2015    |         |  | IT_148 - Silmar                                       |                         |                   |             |  |
| +                           | 2015_TH_1434                                | 24/12/2015    |         |  | IT_397 - Posidonia / Mibilmare                        |                         |                   |             |  |
| +                           | 2015_TH_1413                                | 18/12/2015    |         |  | IT_359 - Foce Fiume Vallelunga 2                      |                         |                   |             |  |
| +                           | 2015_TH_1414                                | 17/12/2015    |         |  | IT_358 - Foce Fiume Vallelunga 1                      |                         |                   |             |  |
| +                           | 2015_TH_1411                                | 17/12/2015    |         |  | IT_355 - Foce Fiume Pescara 1                         |                         |                   |             |  |
| +                           | 2015_TH_1412                                | 17/12/2015    |         |  | IT_356 - Foce Fiume Pescara 2                         |                         |                   |             |  |
| +                           | 2015_TH_1403                                | 19/12/2015    |         |  | IT_267 - Lagmar Scarl e Mittermoli srl                |                         |                   |             |  |
| +                           | 2015_TH_1398                                | 14/12/2015    |         |  | IT_397 - Posidonia / Mibilmare                        |                         |                   |             |  |

The "Test results management" application is used to manage the laboratory results performed on samplings

## NATIONAL SURVEILLANCE PLANS PREPARATION AND IMPLEMENTATION

CAPS2 encourages the development of National Surveillance Plans in partner countries to progressively achieve the EU standards and comply with the specific EU legislation in this field. In particular, the Work Package 5 (WP5) of CAPS2 project is focused on “Preparation and implementation of National Surveillance Plans”.

**National working groups in Montenegro, Bosnia and Herzegovina and in Albania were established.** They were constituted for the analysis of the relevant national and international legislation in force and for the identification of the existing gaps between the national laws and the EU regulations. A document was elaborated with the aim to analyse the outcomes of the country reports produced by Competent Authorities (CA) of Bosnia and Herzegovina, Montenegro and Albania.

*Shengjin, Albania, sanitary survey*

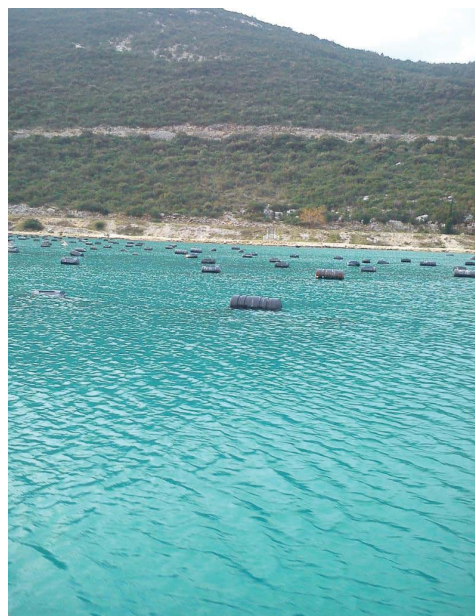


of Tirana (AL) conducted a sanitary survey in Albania at Shengjin bay (Lezha). The shellfish harvesting areas were defined taking coordinates for GIS application. Moreover, the possible sources of pollution in shellfish harvesting areas and the sampling points for *E. coli* and biotoxins analysis were defined. In July 2014, the sanitary survey was

In February and March 2014, the Veterinary Office of Bosnia and Herzegovina and the Administration for Food Safety, Veterinary and Phytosanitary Affairs of Montenegro, in conjunction with the Project Coordinator, conducted a **national sanitary survey**, respectively, in the coastal town of Neum (BH) and in the Kotor bay (ME). After having collected all information and data, production areas were identified. Permanent sampling points for the monitoring of biotoxins and phytoplankton composition of seawater and its geographical coordinates were defined. Moreover, the points for the tests on heavy metals, benzo(a) pyrene and other PAH and monitoring of microbiological quality (*E. coli*) of bivalve shellfish were also identified.

During the first week of May 2014, the Food Safety and Veterinary Institute

*Neum, Bosnia and Herzegovina, sanitary survey*



also conducted in the estuary of Butrinti Lagoon (AL) in order to evaluate the potential use of this area as bivalve mussels' production site.

At the end of each survey, it was held a meeting with interested local groups and other stakeholders of the aquaculture sector to introduce the CAPS2 project, its activities and objectives.

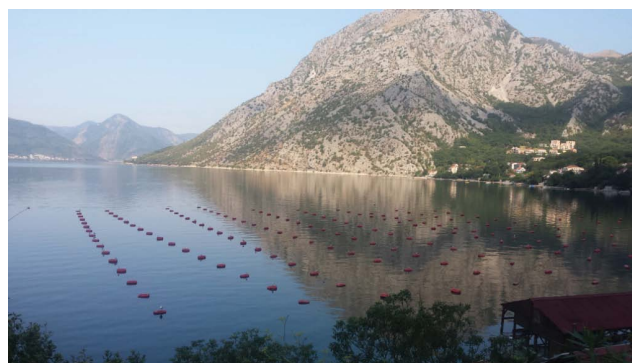
The implementation of official controls started in each country as planned in the project. Samples are collected according to the geographical coordinates established during the sanitary surveys. Each laboratory partner of the project conducted chemical and microbiological analyses and uploaded results in the CAPS2 web GIS platform (WP4). By now, the total number of lab testing registered in the web GIS is 8,469.

Two **cross country meetings** on WP5 were held in Podgorica (29/04/2015) and in Split (01/03/2016) to discuss the state of the implementation of national surveillance plans in each country.

*Drazin, Montenegro, sampling of molluscs*



*Ljuta, Montenegro, sampling of molluscs*



*Starting dates of the national surveillance monitoring plans*

| Country                | Starting date |
|------------------------|---------------|
| Albania                | January 2015  |
| Bosnia and Herzegovina | January 2015  |
| Montenegro             | November 2014 |

*CAPS2 production areas/zones*

| Country                              | No. production area/zone |
|--------------------------------------|--------------------------|
| Italy<br>(Abruzzi and Molise region) | 145                      |
| Albania                              | 3                        |
| Croatia                              | 78                       |
| Bosnia and Herzegovina               | 2                        |
| Montenegro                           | 6                        |

The final aim was to establish a **national surveillance plan** in Bosnia and Herzegovina and in Montenegro for monitoring the seawater and bivalve shellfish quality in production areas and relaying areas for live bivalve shellfish. Moreover, the project extends to other areas the surveillance plan in Albania.

*Bay Mali Ston, Bistrina zone, Croatia*



*Tivatska solila, Montenegro, sampling of molluscs*



*Chieti, Italy,  
production area*





## RISK ASSESSMENT

CAPS2 foresees the risk assessment studies and related training in the work package 6 (WP6). This activity is linked to the implementation of National Surveillance Plans (WP5) and the web-GIS application functioning (WP4), data retrieval and proper analysis in the Partner Countries involved. This study provides relevant information for decision makers on contamination or risks thereof, and appropriate prevention and mitigation strategies.

The first discussion on data properness useful for the risk assessment studies was conducted during the Steering Committee meeting held in Budva (Montenegro) from 26 to 27 November 2014. Scientific characteristics of data were defined such as the minimum number of sampling months, WEB GIS data registering systems, etc.

The first plenary meeting “WP6 - **Training course on risk analysis approaches in food safety**” was held in Podgorica from 27<sup>th</sup> to 29<sup>th</sup> April 2015. The Administration for Food Safety, Veterinary and Phytosanitary Affairs of Montenegro organised this training course in Montenegro with the scientific support of IZSAM.

Partners and target participants coming from involved countries, mainly belonging to National and Local Competent Authorities and laboratories dealing with sampling and food safety issues, were involved in a training course. The aim of this course was to develop basic knowledge and skills for a risk analysis approach to be implemented in the process of data collection and when addressing the contamination of food products. The primary goal of the training course on “risk analysis approaches in food safety” was to transfer basic knowledge on risk analysis process, to support the proper implementation and management of national surveillance plans.

*Plenary meeting on risk assessment, Split, Croatia (1 - 2 March 2016)*



*Training course on risk analysis approaches in food safety, Podgorica, Montenegro (27 - 29 April 2015)*



The Ministry of Agriculture of Croatia, with the scientific support of IZSAM, organised from 1<sup>st</sup> to 2<sup>nd</sup> March 2016 in Split, Croatia, a specific plenary meeting on risk assessment. Project partners were involved in this event to analyse the preliminary data available from WEB GIS to establish definitive joint criteria for risk assessment study.

The tables show some examples of the data collected by the National Surveillance Plans to be used in the risk assessment.

To provide the data needed to perform an assessment of the health risks for the consumers of mussels from the study areas of the involved countries, a set of pilot studies have been planned in each country.

Number of samples positive or negative for *Vibrio cholerae* and *Vibrio parahaemolyticus*

| Country                        | Negative | Positive | %    | 95% C.L.     |
|--------------------------------|----------|----------|------|--------------|
| <i>Vibrio cholerae</i>         |          |          |      |              |
| Albania                        | 4        | 0        | 0.0% | 0.0% - 52.2% |
| Bosnia and Herzegovina         | 2        | 0        | 0.0% | 0.0% - 70.8% |
| Italy                          | 8        | 0        | 0.0% | 0.0% - 33.6% |
| <i>Vibrio parahaemolyticus</i> |          |          |      |              |
| Albania                        | 4        | 0        | 0.0% | 0.0% - 52.2% |
| Bosnia and Herzegovina         | 2        | 0        | 0.0% | 0.0% - 70.8% |
| Italy                          | 8        | 0        | 0.0% | 0.0% - 33.6% |

Results of the analysis performed for potentially toxic metals by country and by concentration of the metal in the sample

|                     | Albania  | Bosnia and Herzegovina | Croatia  | Italy     | Total     |
|---------------------|----------|------------------------|----------|-----------|-----------|
| <b>Cadmium (Cd)</b> | <b>2</b> | <b>2</b>               | <b>1</b> | <b>15</b> | <b>20</b> |
| ≥ 0.1               |          | 1                      | 1        | 6         | 8         |
| 0.01-0.09           |          | 1                      |          | 6         | 7         |
| N.D.                | 2        |                        |          | 3         | 5         |
| <b>Lead (Pb)</b>    | <b>2</b> | <b>2</b>               | <b>1</b> | <b>15</b> | <b>20</b> |
| ≥ 0.1               |          |                        | 1        | 1         | 2         |
| 0.01-0.09           | 2        | 2                      |          | 10        | 14        |
| N.D.                |          |                        |          | 4         | 4         |
| <b>Mercury (Hg)</b> |          | <b>2</b>               | <b>1</b> | <b>15</b> | <b>18</b> |
| ≥ 0.1               |          |                        |          | 1         | 1         |
| 0.001-0.009         |          |                        |          | 4         | 4         |
| 0.01-0.09           |          | 2                      | 1        | 1         | 4         |
| N.D.                |          |                        |          | 9         | 9         |
| <b>Total</b>        | <b>4</b> | <b>6</b>               | <b>3</b> | <b>45</b> | <b>58</b> |

**Pilot studies** have been conducted in specific production areas for relevant contaminants in each country involved in CAPS2. Risk assessment data are discussed during the final conference of the project.

The **final study** will be provided within the end of the project, assessing the level of consumers exposure to contaminants in the consumption of shellfish products in the whole Adriatic area of reference of the project.

# COMMUNICATION ACTIVITIES

The communication strategy implemented within CAPS2 started with the definition of the project logo symbolising a fish in a round shape and embracing all the Countries involved in this Adriatic network, devoted to aquaculture and fishery product safety and surveillance.

The logo inspired the visual identity of the project that was officially launched through the website [www.caps2.eu](http://www.caps2.eu) in March 2013. The site is a powerful tool to ensure the communication among partners involved and to inform the public about the project and its progresses.

The web site is conceived to allow the dissemination of CAPS2 relevant data and the exchange of information and documents among partners using the website reserved area.

News and events were constantly published and a colourful photogallery was updated with relevant images of training, meetings and other project activities.

The website recorded about 57,000 visits, with more than 7,900 visits in Europe.

CAPS2 communicated with multimedia tools: these are videos available at <https://www.youtube.com/user/CAPS2Project>. The videos were presented during project meetings and other international events when project partners illustrated the CAPS 2 initiative.

This YouTube channel is available to share project videos in the web; the website "Publication" section contains indeed informative materials as leaflet and brochures.

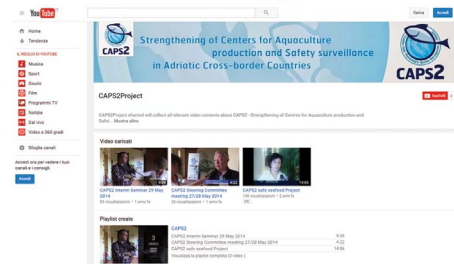
Traditional leaflet and brochures were printed and distributed in partner countries.

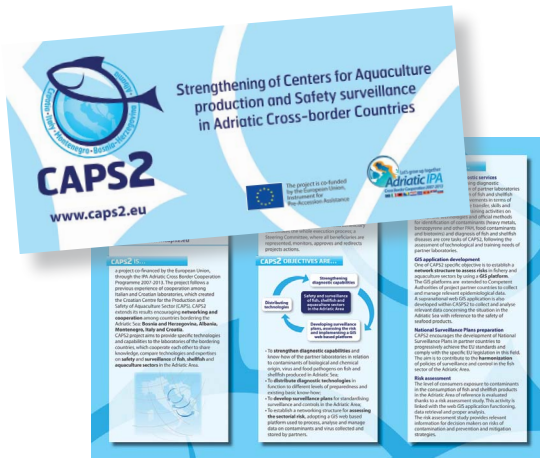
CAPS2 web site: home page, photogallery and YouTube channel



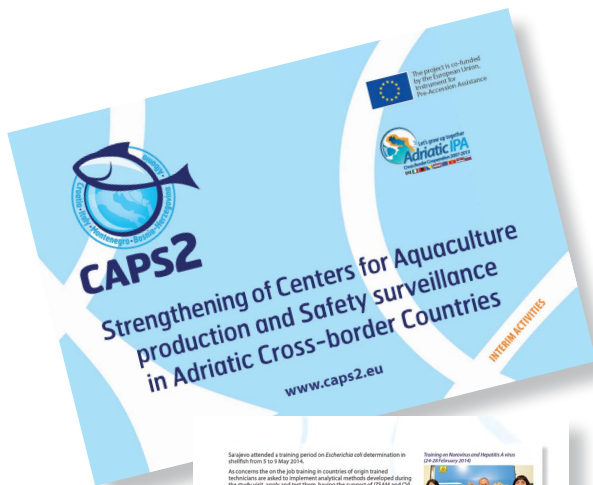
## Data on printed leaflets and brochures

| Communication product                        | Printed copies |
|--|----------------|
| CAPS2 leaflet to promote the project         | 1000           |
| Brochure with interim activities and results | 1000           |
| Leaflet on CAPS2 webGis                      | 1000           |
| Final brochure                               | 1000           |





CAPS2 leaflets and interim activities brochure



Six experts attended a training period on Echinacea cell determination in shellfish from 5 to 15 May 2014.

Accompanying the on-site training in countries of origin trained technicians are asked to implement analytical methods developed during the study visits apply and test them, bearing the support of GDA and CCI experts.

Within CAPS2 exchange of technical/scientific expertise, transfer of knowledge and capacity building are crucial measures to improve research capacity by contributing to competitiveness and increasing the development of the Adriatic area.

Training on cell determination



Training on cell determination

#### GET TO KNOW CAPS2

The project "Strengthening of Centers for Aquaculture Production and Safety surveillance in the Adriatic cross border Countries" with the acronym CAPS2, is co-funded by the European Union, instrumented for the Adriatic cross border Countries, in the framework of the priority "Economic, Social and Institutional Cooperation" measure 1.1 "Research and Innovation" of the Second Treaty of Call, funded by the IPA Adriatic Cross Border Cooperation Programme 2007-2013. The three-year project started in October 2012; the project goal is to contribute, through economic, social and institutional cooperation, to the development of research, strengthening of competences and innovative capacity, development and application of knowledge in the Adriatic area.

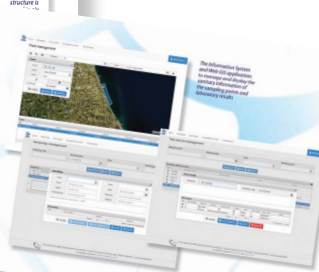
CAPS2 activities and demands to other Adriatic Countries the actions successfully carried out in two previous cross-border CAPS2 - Phase projects through which the International Centre for Food Safety and Risk Analysis (ICFSRA) and the Coastal Centre for Aquaculture Production and Safety (CAPS) were established. Three Adriatic and five partner laboratories operating from Albania, Bosnia and Herzegovina, Croatia, Italy and Montenegro joined CAPS2; the project aims to strengthen safety surveillance of seafood in the Adriatic area by acquiring brand new technology and promoting knowledge sharing.

The training and exchange of know how among experts of partner Countries contribute to enhancing the levels of competences in the detection of biological and chemical contaminants in fish and shellfish produced in Adriatic sea.

The preparation and implementation of national surveillance plans provide official templates to analyse and manage through WEB GIS application, at national and supra national level. Risk analysis of collected data enables decision makers to adopt prevention and mitigation strategies on risks of contamination.



CAPS2 project structure is:



CAPS2 was also presented in the BENV - National Veterinary Epidemiological Bulletin, Number 23, January 2016. An article titled "The Information System for the management of aquaculture data in the Adriatic Sea: the CAPS2 experience" is available online.

CAPS2 organised also two international seminars to present the project activities and achievements, and to promote cooperation in the area: the interim seminar was held in Teramo, Italy, in May 2014 and the final conference took place in Split, Croatia in May 2016.

These events stimulated exchange of knowledge and experiences in the field of aquaculture production and safety surveillance among partner Adriatic countries and encouraged future cooperation initiatives.



## A STEP FORWARD

The new EU Strategy for the Adriatic and Ionian Region (EUSAIR) is a macro-regional strategy adopted by the European Commission and endorsed by the European Council in 2014. The Strategy was jointly developed by the European Commission, together with the Adriatic-Ionian Region countries and stakeholders, in order to address common challenges together. The Strategy aims at creating synergies and fostering coordination among all territories in the Adriatic-Ionian Region.

In the EUSAIR Action Plan, the European Commission recognised CAPS2 as «**a project that could aim at strengthening diagnostic capacities of laboratories, for contamination of fish and shellfish and to develop concrete improvements of diagnostic competences in terms of equipment and knowledge, skills and capacities.**»

In the European programming period 2014-2020, the Action Plan of the Strategy will be implemented by mobilising and aligning all available EU, international, national and private funding.

In the next period, CAPS2 will have many occasions and financial instruments to valorise its achievements and results.

By now, three projects for the capitalisation of CAPS2 results have been submitted in the “targeted call on EUSAIR” funded by IPA Adriatic CBC programme 2007-2013 and in the first ordinary call for proposal of ADRION INTERREG programme 2014-2020.

These new projects aim to develop further research and innovation in the aquaculture sector that should be economically sustainable and environmentally-friendly, supplying healthy food products in accordance to the EU and the international legislation in this field.



## CAPS2 FACT SHEET

**TITLE:** Strengthening of Centres for Aquaculture production and Safety surveillance in Adriatic Cross-border Countries

**ACRONYM:** CAPS2

**PROJECT CODE:** 2nd ord./0216

**STARTING DATE:** 1/10/2012

**ENDING DATE:** 30/06/2016

**TOTAL BUDGET:** € 3.488.483,07

**WEB SITE:** [www.caps2.eu](http://www.caps2.eu)

**CONTACTS:** [info@caps2.eu](mailto:info@caps2.eu)

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[www.adriaticpacbc.org](http://www.adriaticpacbc.org)

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