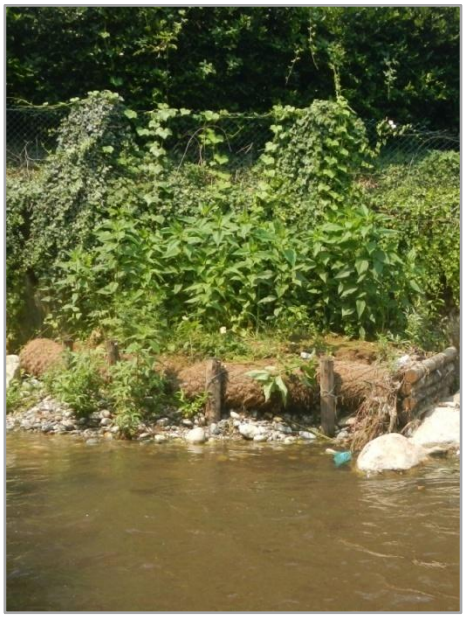
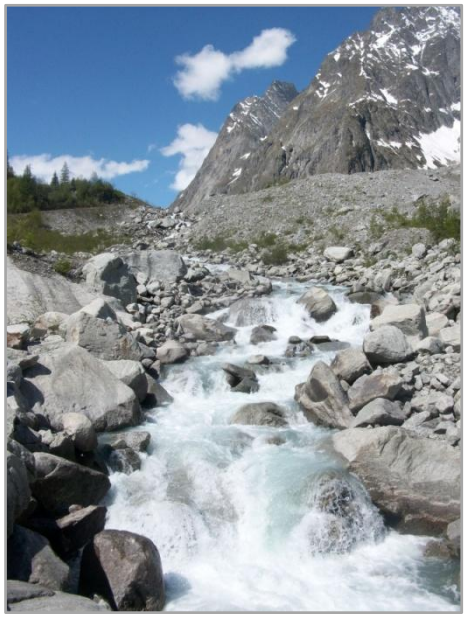
Main Projects



Company Presentation

Riverment has been active since 2007 (formerly as Prothea) and develops environmental assessment projects for governments and utilities on water resource management. The main projects carried out or in progress concern the development of innovative systems for biomonitoring, for the assessment of the ecological and hydromorphological status of water and for the environmental assessment for the construction of works. Riverment has carried out projects in Italy, Cyprus, Serbia, Canada and Mozambique.

Riverment is now working with Puglia Region to carry out the Hydromorphological Monitoring Plan of the region. It is also involved in assessing the ecological water quality of water streams in several construction works projects in Lombardia, Liguria and Veneto regions. For the Government of Cyprus it has worked to develop the ecological quality assessment system for temporary rivers for two of the BQEs foreseen by the WFD: benthic invertebrates and diatoms. Riverment was consultant for the Canadian Rivers Institute to analyze the situation concerning the Ecological Flow and to propose guidelines to define it. Recently has participated in MAES project for the development of a conceptual environmental flow model for large rivers. In Italy, for Lombardia Region, it was responsible for the evaluation of the experimentations related to the definition of the Ecological Flow, while for ARPA Lombardia it provided advice on the analysis of biological data collected during the sediments flushing events from reservoirs. For Parco Nord Milano, Riverment participated to restoration of Seveso river and has provided services related to monitoring of the situation of the river before and after the restoration. Together with the CNR-IRSA it organizes training courses related to CARAVAGGIO method for the detection of hydromorphological and habitat characteristics. Riverment has carried out dozen of applications of CARAVAGGIO in river of Italy (Perennial and Mediterranean streams) and Cyprus and dozen of applications of IDRAIM methodology (MQI) in Italian streams.

Moreover, Riverment carries out activities of citizen science and environmental education about river ecology. Riverment educational projects involve both middle and high schools' students and private companies. One of its projects has been awarded with the Mention of Honor at the Water Planet National Award.

Team Presentation

David Armanini is Science Director at the Canadian Rivers Institute and Adjunct Assistant Professor at the Western University in Ontario, Canada. He has a Ph.D. in Environmental Sciences at the University of Milan. He has carried out numerous studies of Environmental Impact Assessment for the development of infrastructures and has carried out projects in America, Africa and Europe. In the academic field he is author of 12 publications subject to peer review and has been reviewer for numerous scientific journals. He has developed and published a tool based on benthic macroinvertebrates to determine the relationship between ecological characteristics and flow types for Canada and was involved in the development of the Atlantic Canada Reference Condition Model, a method for the ecological classification of water courses based on macroinvertebrates. In Italy he is co-author of the publications related to the Italian sampling method for macroinvertebrates.

Daniele Demartini is graduated in Biological Sciences at the University of Milan and specialized in hydrobiology, river ecology and hydromorphology. Daniele is co-author of various methods for the evaluation of ecological quality included in the national regulatory framework (DM 260/2010), including the Italian method of sampling for macroinvertebrates and CARAVAGGIO method, for the detection of hydromorphological and habitat characteristics. Daniele was consultant for the Lombardy region in the context of all the experiments related to the Environmental Flow. He has many years of field work experience gained in numerous Italian and international projects, carried out with Riverment. Daniele has also been involved in scientific research for nearly ten years in collaboration with the CNR-IRSA, Water Research Institute.

Team Presentation

Federica Colombo is graduated in Biodiversity and Evolutionary biology at the University of Milan. She has done internships in some Lombardy regional parks, where she gained experience about water streams and wet lands biodiversity and complexity. Moreover, she helped to organize events of citizen science related to environmental and naturalistic topics. In Riverment Federica is gaining experience in field work such as macroinvertebrates sampling and identification and hydromorphological water bodies characterization (CARAVAGGIO). She is also involved in environmental education activities in middle and high schools.

RIVERMENT

Regione Puglia

Superficial water bodies Hydromorphological Monitoring Plan of Puglia Region – water streams and reservoirs

Client: Puglia Region

Place: Puglia - Italy

Project description: Riverment is providing scientific counselling to carry out hydromorphological and habitat characterization of Puglia region water streams. CARAVAGGIO method is applied in different seasons in order to assess hydromorphological and habitat streams quality, define a relationship between lentic-lotic river character and biocenosis (e.g. macroinvertebrates) and identify possible reference sites within the region.

Period: 2020 – ongoing

Services provided by Riverment within the project:

- Characterization with CARAVAGGIO method of 23 rivers.
- LRD (*Lentic-lotic River Descriptor*) calculation, derived from CARAVAGGIO.
- IQH (*Habitat Quality Index*) calculation, aimed to define possible reference sites.
- Development of a simplified CARAVAGGIO protocol, aimed to an easier LRD calculation.
- Technical meetings with Puglia Region and ARPA.
- Technical reporting.

RIVERMENT

Regione Lombardia

Technical support for the evaluations of the experimentations for the determination of the Environmental Flow in selected Lombard Rivers

Client: Lombardia Region

Place: Lombardia - Italy

Project description: Riverment supported the technicians of Lombardia Region for the evaluation of the experimentations related to definition of the Environmental Flow in several Lombard rivers. Riverment participated to technical panels, drafted technical reports, collected samples of biotic elements to validate data previously collected and prepared guide lines for the implementation of corrective factors of the EF formula in Lombardia.

Period: 2014 – 2017

Services provided by Riverment within the project:

- Participation to the final technical panels of the project.
- Participation to the technical meeting with technicians of Regione Lombardia for the final evaluation of the experimentations.
- Drafting of final evaluation reports containing data analysis related to biological data (i.e. macroinvertebrates, fish, diatoms, macrophytes), hydrologic data, physical-chemical data, biological model (e.g. Phabsim).
- Drafting of guide lines for the implementation of corrective factors of the Ecological Flow in Lombardia .
- Sampling of macroinvertebrates and fishes to validate data previously collected. Measurement of discharge.

RIVERMENT

Parco Nord Milano

Seveso river lamination tank construction project - Hydromorphological and habitat quality assessment

Client: Parco Nord Milano

Place: Milano (Italy) – Seveso river

Project description: Aim of the project is to monitor Seveso river hydromorphological and habitat quality before and after the new lamination tank construction work. CARAVAGGIO method is applied to 3 different river reaches in order to assess if and how much the lamination tank construction works will affect river's hydromorphological features (e.g. bank vegetation, substrates, microhabitats).

Period: 2020 – ongoing

Services provided by Riverment within the project:

- Hydromorphological characterization with CARAVAGGIO method.
- Microhabitat analysis.
- Ante and post-operam data analysis.
- Technical reporting.

RIVERMENT

Sampling, sample analysis and evaluation of biological quality elements (rivers). Diatoms and Macrophytes.

Client: The Government of the Republic of Cyprus through Water Development Department.

Place: Cyprus

Description of the project : The main objective of the project was the fulfillment of requirements of the Water Framework Directive 2000/60/EC with respect to the Biological Quality Element "Aquatic Flora Phytobenthos (Diatoms)" and "Aquatic Macrophytes" in Cyprus rivers, as far as the preparation and identification of diatom samples and the application of IPS index as the national assessment method of Cyprus.

Period: 2017 – ongoing

Services provided by Riverment within the project:

- Phytobenthos (Diatoms) samples collection.
- Preparation of permanent slides and identification of samples.
- Aquatic macrophytes samples collection.
- Identification of Aquatic Macrophytes samples.
- Calculation of indices and evaluation of ecological quality using Cyprus national assessment method.
- Pressure analysis.
- Digital photos and delivery of permanent slides (Diatoms).

RIVERMENT

ARPA LOMBARDIA
Agenzia Regionale per la Protezione dell'Ambiente

Technical-scientific support for analysis of ecological data related to flushing operation of large dams

Cliente: ARPA (Environment Agency)- Lombardia

Place: Lombardia - Italy

Project description: Technical-scientific support to Environmental Monitoring Sector «U.O. Centro Regionale Laghi e Monitoraggio Biologico Acque Superficiali». Analysis of ecological data related to flushing operation monitoring. Management support to Natural Risk Protection Sector in relation to project management, operative coordination of technical, hydraulic and hydro-morphological activities, sediment management, solid transport monitoring and data analysis.

Period: 2015 – 2017

Services provided by Riverment within the project:

- Systematization and storage of biological data and sediment data.
- Data analyses of biological data (Benthic invertebrates, Fish, Diatoms).
- Data analyses of environmental data (CARAVAGGIO, MQI, Risk analysis, physico-chemical data).
- Deepening on the relationship between flushing operations and biocenosis.
- Selection and verification of impact-specific biological descriptors.
- Verification of the adequacy of the prescribed limits for the operations.
- Developing of new biological descriptor.
- Participation in workshops and technical panels.

RIVERMENT

UNB
UNIVERSITY OF NEW BRUNSWICK

Support to Mactaquac Aquatic Ecosystem Study (MAES). Determining sustainable environmental flows for the Saint John River

Client: Canadian Rivers Institute

Place: New Brunswick - Canada

Project description: Support for the management strategies of the Mactaquac Generating Station (653 MW) on St. John's river in the New Brunswick Province. Support for the development of an Environmental Flow management model, based on ELOHA. Quantification and integration of the current knowledge of the ecological preferences for flow related variables of the main biota indicators for the Saint John River. Support to the flow-ecology hypotheses process.

Period: 2014 – 2017

Services provided by Riverment within the project :

- Literature review to retrieve relevant flow-biota relationships for the Saint John River basin focusing on:
  - Identification of biotic components of the river ecosystems that are influenced by changes in hydrological conditions of the river;
  - Definition of a checklist of taxa occurring in the Saint John river belonging to the indicator groups identified in step 1;
  - Definition of ecological preferences of the indicator taxa occurring in the Saint John River's catchment identified in step 1 and 2. The review was focused mainly on flow and temperature variables.
- Support to the flow-ecology hypotheses workshop.

RIVERMENT

Biological, Ecological and Environmental monitoring activities in Italian rivers

Client: Aquaprogram S.r.l.

Place: Italy (Val d'Aosta, Lombardia and Veneto)

Project description: The objective of the project was the support related to Biological, Ecological and Environmental activities in Rivers of Italy. Riverment provided services related to biological samples of macroinvertebrates, discharge measures, physical-chemical analysis and application of hydromorphological index (i.e. CARAVAGGIO, MQI) in several rivers of Italy.

Period: 2014 - ongoing

Services provided by Riverment within the project:

- Macroinvertebrates samples.
- Physical chemical analysis .
- Application of hydromorphological index (i.e. CARAVAGGIO, MQI).
- Discharge measures.
- Technical reporting.

Bisagno river spillway construction project - Biological water quality assessment

Client: Arcadia Srl

Place: Genova - Italy

Project description: Aim of the project is to monitor the biological water status of Bisagno, Rio Sciorba and Rio Superiore rivers within the Bisagno spillway construction project. Macroivertebrates samplings and IBE calculation are performed in 5 different rivers' reaches to assess biological water quality.

Period: 2021 – ongoing

Services provided by Riverment within the project:

- Macroinvertebrates sampling and identification.
- IBE index calculation.
- Technical reporting.

RIVERMENT

Arno river arrangement project in Albizzate (VA) - Ecological water quality assessment

Client: VIBRAM SpA

Place : Albizzate (Italy) – Arno river

Description of the project: Aim of the project is to monitor Arno river ecological water status before, during and after some river's arrangment works. Macroinvertebrates samplings and physical chemical analysis are performed to assess ecological water quality.

Period: 2020 – ongoing

Services provided by Riverment within the project:

- Macroinvertebrates sampling and identification (STAR_ICMi, MacrOper)
- Physical chemical analysis.
- Technical reporting.

RIVERMENT

CESI
Shaping a Better Energy Future

IDRAIM method application in Abruzzo region within the framework agreement about water streams environmental monitoring

Client: CESI SpA

Place: Abruzzo - Italy

Project description: Within the framework agreement signed with CESI about fresh water streams hydromorphological monitoring, Riverment applied the IDRAIM method to assess the hydromorphological quality of different rivers of the Abruzzo region (e.g. Pescara, Aventino, Sangro, Verde, Gizio) located downstream dams or weirs. Aim of the project was to assess amounts and percentages of Minimun Vital Flow.

Period: 2015 - 2016

Services provided by Riverment within the project:

- Application of IDRAIM method.
- IQM index calculation.
- Technical reports.

RIVERMENT

Establishment of an assessment method for the BQE "benthic invertebrates" in Cyprus temporary rivers. Participation in the intercalibration exercise 2010-2011 for the implementation of the WFD 2000/60/EC

Client: The Government of the Republic of Cyprus through Water Development Department.

Place: Cyprus

Project description: The project aimed to develop an assessment method for benthic invertebrates for Cyprus temporary rivers, in agreement with European Water Framework Directive 2000/60/EC. Riverment also supports the Cyprus Government during the Intercalibration Exercise.

Period: 2010 – 2012

Services provided by Riverment within the project:

- Sampling of benthic macroinvertebrates and characterization with CARAVAGGIO method of 52 temporary river in two seasons.
- Identification to family/genus level of the benthic invertebrates and calculation of biological metrics.
- Calculation of the hydro morphological and integrated pressures.
- Support to intercalibration exercise.
- Development of an assessment method for temporary rivers.

RIVERMENT

Parco Nord Milano

Restoration of Seveso River in Parco Nord Milano

Client: Parco Nord – Milano

Place: Milano (Italy) – Seveso River

Project description: monitoring of the ecological quality of the Seveso River before and after restoration of a stretch of 500 m located in Parco Nord Milano using naturalistic engineering. Biological (benthic invertebrates), hydro morphological (CARAVAGGIO method) and physico-chemical (LIMeco) analyses were performed to evaluate the results of the restoration.

Period: 2012 – ongoing

Services provided by Riverment within the project:

- Ecological Quality Assessment by:
  - quantitative sampling of macroinvertebrates for wadeable rivers based on a proportional multi-habitat approach (Italian national method);
  - Collection of hydromorphological data applying the CARAVAGGIO method;
  - Fluvial Discharge measures and physico-chemical analyses.
- Data analysis and Environmental Ecological Assessment
- Technical reporting

RIVERMENT

New Brunswick ENERGY INSTITUTE

Guidelines for the determination of Environmental Flow in New Brunswick

Client: New Brunswick Energy Institute

Place: New Brunswick - Canada

Project description: Drafting of the environmental flow guidelines and policy for the Province of New Brunswick with specific reference to water abstraction.

Period: 2014-2015

Services provided by Riverment within the project:

- Drafting of a report containing a review of:
  - methods used for the determination of the Ecological Flow (i.e. hydraulic, hydrological, habitat and holistic methods) ;
  - policies and regulations related to the Ecological Flow in Canada and in other countries;
  - case studies of Environmental Flow Needs approaches (including examples).
- Drafting of guidelines for the determination of Environmental Flow for New Brunswick.

RIVERMENT

Analysis of samples of the BQE "Aquatic Flora" (Phytobenthos/Diatoms) from Cyprus rivers and calculation of biological indices

Client: The Government of the Republic of Cyprus through Water Development Department.

Place: Cyprus

Project description: The main objective of the project was the fulfillment of requirements of the Water Framework Directive 2000/60/EC with respect to the Biological Quality Element "Aquatic Flora Phytobenthos (Diatoms)" in Cyprus rivers, as far as the preparation and identification of diatom samples and the application of IPS index as the national assessment method of Cyprus.

Period: 2012 – 2013

Services provided by Riverment within the project:

- Phytobenthos (Diatoms) samples collection.
- Preparation of permanent slides and identification of samples.
- Calculation of indices and evaluation of ecological quality using Cyprus national assessment method.
- Pressure analysis.
- Digital photos and delivery of permanent slides.

RIVERMENT

Africa '70

Environmental requalification and citizens involvment in district Munhava-Beira

Client: NGO Africa 70, Lombardia Region.

Place: Beira - Mozambique

Project description: The aim of the project was to improve the life conditions of the Beira resident population through environmental healthiness and living conditions enhancement in Munhava district. The project planned the restoration of Munhava's draining channels, and the study of solid municipal waste and wastewater management in the district, using participatory approach and authorities' capacity building.

Period: 2011 – 2012

Services provided by Riverment within the project:

- Technical support to the local authorities and to Africa 70 (international NGO) for restoration of draining channels.
- Support to the local authorities and planning of municipal solid waste collection and management.
- Consultation and study for an integrated water management system in the Munhava area: participatory approach, municipality and local authorities involvement.

RIVERMENT

fondazione cariplo

Water saving and Best practices in urban area

Client: Cariplo Foundation

Place: Milan - Italy

Project description: The project was a awareness campaign for the water saving and the improvement of the tap water knowledge. The goals of the campaign was the building of virtuous and sustainable network companies and public exercises.

Period: 2011-13

Services provided by Riverment within the project:

- Project design.
- Technical consultancy for water saving and implementation of company best practices.
- Improvement of the water management schemes of private companies.

RIVERMENT

Société Aostienne d' Energie di Falconi Alessandro e C. S.a.s. (SOSTENER S.a.s.)

Environmental Impact Study for new water abstractions for hydroelectric power

Client: Sostener di Falconi Alessandro & C. s.a.s.

Place: Italy **(**Val Veny and Val Ferret - Valle d'Aosta**)**

Project description: The project concerned the environmental characterization of 5 sites at Dora of Veny and Dora of Ferret preparatory to the Environmental Impact Assessment of new water abstractions according with the goals of Regional Water Protection Plan of Valle d'Aosta. The plan required that the new derivations requests were consistent with the protection of water bodies and linked to ecosystems goals.

Period: 2011 - 2012

Services provided by Riverment within the project:

- Application of the Fluvial Functionality Italian method (IFF) for the quantification of anthropogenic impact and general ecosystem assessments.
- Ecological Quality Assessment applying benthic macroinvertebrates protocol for Environmental Assessment (IBE) and fish sampling.
- Physico-chemical analyses.
- River Discharge measures and landscape characterisations.
- Data analysis and Environmental Flow needs calculations.
- Technical reporting.

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