

Interreg



EUROPEAN UNION

France (Channel Manche) England



MARINEFF
infrastructures maritimes biomimétiques 

European Regional Development Fund

Edition 10
November 2021



MARINEFF

MARine INFrastructure EFFects

A corkwing wrasse (Grenilabre melops) © Maxime Navon, University of Caen Normandy

How to get involved

If you are interested in keeping up to date with all current project activities, you can subscribe to mailings, follow us on [Facebook](#), [Twitter](#), [YouTube](#) and [LinkedIn](#), or visit the website.

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Mailings sign-up

To sign-up to future Marineff mailings, including this quarterly newsletter, click [here](#).

Please note, upon sending an email to this address, you will be automatically signed up to the Marineff mailing list and included in future newsletter communications. Information on how your data is handled can be found at:

www.ciria.org/marineff

To unsubscribe from mailings, please click [here](#) and enter your email. If you are subscribed, this will remove you from the database.



Further information

To find out more about the Marineff project, go to:

<http://marineff-project.eu/>

In a nutshell

Welcome to the tenth edition of the Marineff newsletter. We have a myriad of exciting project updates to share with you, from changes to the Marineff project timeline to the latest species calling our eco-engineering units home.

At the time of writing, the world was 'opening back up again', and travel restrictions were lifting. We hope this gives you the opportunity to consider attending the Marineff International Conference hosted in Caen, France in early May next year – details to be found at the end of the newsletter. Our French and English project partners are certainly looking forward to being able to cross the channel and have in-person meetings again!

A shore crab (Carcinus maenas) escapes being netted in an artificial rockpool in Hamble Harbour.



© Jess Bone, Bournemouth University

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Marineff Project receives funded extension!



Our Marineff partners from the University of Caen Normandy and ESITC Caen at the artificial rockpool site in Ouistreham. The British partners hope to visit this site for the first time in 2022!

We are thrilled to announce that the Marineff Project has been awarded a funded 14 month extension by Interreg France Channel England. This fantastic news allows us to continue collecting data on all our eco-engineering modules for as long as we had originally intended before COVID19 scuppered our plans! It also gives us an excellent opportunity to trial our units elsewhere, with new deployment locations under discussion.

The original Marineff project timeline saw the project ending in April 2022, but this has now moved to June 2023, with rescheduling

of key events expected. The Marineff international conference has been confirmed for 3rd-5th May 2022, and is again open for abstract submissions and registration. All existing registrations and successful submissions remain valid.

This also means we have more time to collate our results and key findings, and share them among our stakeholders, subscribers and social media followers. Just at the point we were expecting to begin winding the project down, we are now gearing back up for another year and a half of surveys, webinars, workshops and more!

Fish visit the boat mooring modules

Since the beginning of the scientific monitoring in January 2021, the colonisation of the boat moorings has continued to become denser and more diverse. Numerous sessile species have settled in including brown algae, red algae, hydrozoans, solitary and colonial sea squirts, barnacles and bryozoans. Various mobile species, such as sea snails *Calliostoma zizyphinum* and *Tritia reticulata*, and the velvet swimming crab *Necora puber*. But during the monitoring in

July, we were able to discover many fish species directly interacting with the boat moorings, with the presence of many juveniles of small-mouthed wrasse *Centrolabrus exoletus*, goldsinny wrasse *Ctenolabrus rupestris*, and pollock *Pollachius pollachius*. Benthic fish were also recorded including several individuals of tompot blenny *Parablennius gattorugine*, black-faced blenny *Tripterygion delaisi* and two spotted goby *Gobiusculus flavescens*.

These fish species use the boat moorings as a shelter, which means that the design of the blocks, intended to create a natural habitat, works well for these species.

Top left, clockwise: a tompot blenny; a two-spotted goby; the boat mooring covered in a thick crust of sessile species; a black-faced blenny.



It has now been one year since the breakwater blocks were immersed in the large harbour of Cherbourg, France

Life has taken over the submerged infrastructure and have not left a single centimetre of bare concrete visible. Macroalgae (green, red and brown), sponges, cnidarians, molluscs, crustaceans, bryozoans, worms, sea squirts, lead a struggle for any available space, whether on the more exposed surfaces or in the gutters or tunnels. Of course, all the sessile organisms see their daily lives disturbed by the visit of crabs, such as velvet swimming crabs *Necora puber* and edible crabs *Cancer pagurus*, and several fish such as tompot blennies *Parablennius gattorugine*. Various wrasse species patrol the breakwater blocks tirelessly, swimming from one block to another to see if the seaweed is greener on another artificial reef! Throughout the seasons, all the fauna and flora evolve according to their life cycles to grow towards a stable ecosystem. Divers from the University of Caen Normandy come to break the tranquility of the breakwater block inhabitants several times a year to monitor colonization through photos, samples, and with measurements of primary production (using a benthic chamber) and photobiology of photosynthetic organisms (using a Diving-PAM).

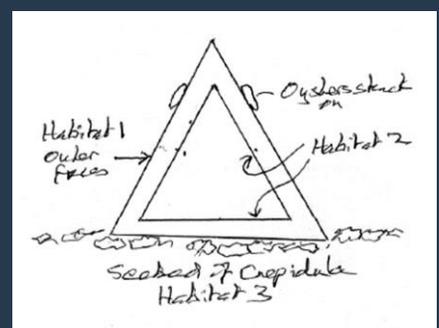
Top: A well-colonised breakwater block covered in macroalgae. Middle: A velvet swimming crab hides in one of the habitat features. Bottom: A diver from the University of Caen Normandy investigates the habitat features.



Citizen scientists study the oyster prisms

Since deployment in September 2020, there has been a progression in the colonisation of the oyster prisms from barnacles and tubeworms, to 100% cover by barnacles, followed by sea squirts on top of the barnacles. This summer there was a loss of barnacles from the smoother outer surface in contrast to the dense growth on the rough, shelly inner faces.

In August, the team at the University of Southampton were joined by Seasearch divers to survey our pilot oyster modules off Calshot in the Solent. Seasearch is a national UK programme, which trains and supports volunteer divers to survey the marine environment. Their records including sketches (below) are collated and logged with the UK National Biodiversity Network.



Top: A fish approaches the camera in one of the oyster prisms. Middle: Barnacles and sea squirts cover the interior surfaces of the oyster prisms. Bottom: Seasearch divers prepare to dive on the oyster prisms.



© Jess Bone, Bournemouth University

The artificial rockpools are popular with prawns at this time of year

Marineff researchers never fail to find them at our four sites across the channel as we enter autumn. A recent trip to Ouistreham, France, found the rockpools almost overflowing with large prawns (*Palaemon* sp.), keen for the tide to return.

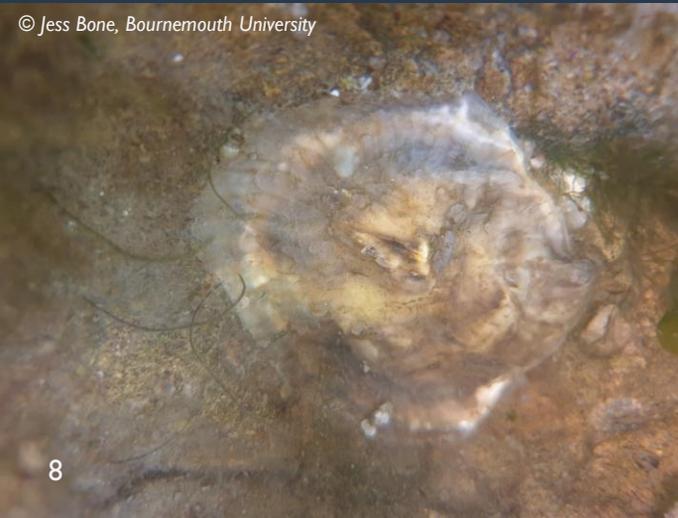
A few exciting things have led to the development of new monitoring protocols for our UK-based rockpools. There has been some siltation occurring in the lower rockpools at Hamble Harbour, with almost 5cm of mud settling in some of them. At the end of the two years of monitoring epifaunal species, the team at Bournemouth University will remove the mud to properly sieve through it and identify what species might be inhabiting it. They would expect to

find ragworms, and maybe some cockles and amphipods. Although they would love to get stuck in now, it is important to let the mud remain undisturbed to allow a proper habitat to form.

Quite a few blennies and gobies have been seen in and around the artificial rockpools during high tide when the rockpools are fully underwater, at the Sandbanks site. Researchers at Bournemouth University plan to install some cameras above the artificial rockpools to see what visits the rockpools at high tide, and how the rockpools are used.

And finally, a native oyster *Ostrea edulis* has been recorded in an artificial rockpool, also at the Sandbanks site. Native oysters are a UK priority species, and with only non-native Pacific oysters *Magallana gigas* found on the surrounding seawall, finding a native oyster is a real triumph!

Above: Prawns (look closely!) in the artificial rockpools at Ouistreham. Below left: a native oyster in the bottom of an artificial rockpool at Sandbanks. Below right: A shanny (*Lipophrys pholis*) rests above an artificial rockpool during high tide.



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VINCI Construction, Maritime and Fluvial In focus



VINCI Construction Maritime et Fluvial is the French leader in maritime and river works.

It is in this leadership role that VINCI Construction Maritime et Fluvial naturally joined this new project after having already taken part in the first RECIF project. In this new project, VCMF notably participated in the design of maritime infrastructures in relation with its partners and in immersing these maritime infrastructures on the sites of Cherbourg and Bernières-sur-Mer.

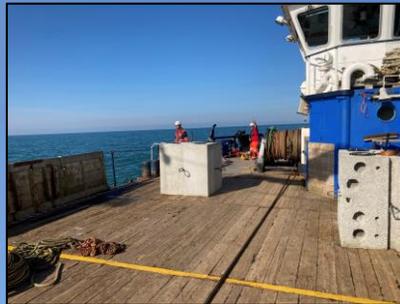
The company is made up of 560 women and men who are experts in their specialty professions.

VINCI Construction Maritime et Fluvial relies on the historical activities of its subsidiaries: dredging, rock excavation, pile driving, river and

maritime civil engineering and underwater works.

The Manche – Mer du Nord Agency, based in Le Havre, provided its large equipment fleet, its HARDOY pontoon equipped with a crane, as well as a team of divers and works for this Marineff mission. This mission was followed by Mickaël Auzas, Head of the Manche – Mer du Nord Agency, as well as Julien Maurouard, Principal Works Supervisor within the same agency. Their mission was to manage from supply to submersion of the Marineff subtidal maritime infrastructure.

Below, inset: the Marineff breakwater blocks to be submerged on the tug deck. Below: overview of the immersion workshop with the HARDOY pontoon and its crane, and the tug.



Dates for your Diary

30th November 2021



[FISH Intel Project Launch Event](#)
[webinar](#)

18th – 20th January 2022



[Coastal Futures 2022 Innovation for](#)
[Ocean Recovery Conference \(Online\)](#)

8th February 2022



Marineff Webinar: A Year Later

3rd – 5th May 2022



[Marineff International Conference](#)

Reading list for autumn 2021

Another paper by Marineff project researcher Vivier *et al.* entitled “Influence of infrastructure material composition and microtopography on marine biofilm growth and photobiology” has been published in *Biofouling*. Authors demonstrated that concrete surface roughness positively impacted microphytobenthic biofilm biomass and photobiology, with negative reliefs in the material surface preferentially colonised by biofilm cells. [Take a look here.](#)

DOI: 10.1080/08927014.2021.1959918

Reis *et al.* review artificial reefs in their paper entitled “Artificial reefs in the North-East Atlantic area: present situation, knowledge gaps and future perspectives” published in *Ocean and Coastal Management*. Almost 80% of the 61 artificial reefs deployed since 1970 were made using concrete, with long-term monitoring only occurring in 31% of cases. Authors highlight areas for eco-engineering researchers to improve on. [Read more here.](#)

DOI: 10.1016/j.ocecoaman.2021.105854

Oyster shell has featured prominently in the Marineff modules, so we’re pleased to share this review of oyster shell as a concrete ingredient by Ruslan *et al.*, published in *Materials Today: Proceedings*. Authors review 70 research papers and discuss their findings on the inclusion of oyster shell and its influence on concrete strength. [Read more here.](#)

DOI: 10.1016/j.matpr.2021.02.208

And finally, our friends at the Ecostructure project have produced a [Conservation Evidence synopsis](#) for the biodiversity of Marine Artificial Structures – an invaluable tool!



The Marineff artificial rockpools won a [BIG Biodiversity Challenge award](#) in the ‘Habitat Creation – Small Scale’ category! The judges said “Coastal habitats are often neglected, out of sight out of mind, this initiative not only provided habitat enhancements but provided the monitoring to demonstrate success and to encourage wider uptake.”

The Marineff Project is now on



including...



Now Available!

The Marineff Project Training Videos

For each Marineff module:

- Introduction
- Deployment
- Materials
- Monitoring
- Manufacture

[View the training videos here!](#)

[Subscribe to the Marineff YouTube channel here!](#)

FROM MATERIALS AND INFRASTRUCTURES TO MARINE ECOSYSTEMS:
INTERACTIONS AND NEW APPROACHES

MARINEFF
MARine INfrastructures EFFects



New date!
3rd-5th May 2022

BULLETIN #3

ESITC Caen
1 rue Pierre et Marie
Curie
14610 EPRON
Normandie, FRANCE



INVITATION

ESITC Caen, lead of the European Project MARINEFF, and its partners invite you to participate in the Marineff International Conference, being held in Caen (Normandy, France) in May 3rd-5th 2022. This conference, as a part of the MARINEFF project, will gather researchers, representatives from industry and other stakeholders to highlight research and case studies about the ecological maritime infrastructures, from construction materials, design to marine biodiversity.

Payments and registration : <https://www.esitc-caen.fr/marineff-event>

The MARINEFF project

The MARINEFF project was selected under the European cross-Broder Cooperation Programme INTERREG V/A between France (Channel) England, co-funded by the ERDF. It brings together 9 French and British partners. The Marineff project's goal is to enhance and protect coastal and transitional water ecosystems in cross-border Channel regions. The project aim is to realise new biomimetic infrastructures to improve the initial ecological status of water, by at least 15%.

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Website : <http://marineff-project.eu/en/>



FROM MATERIALS AND INFRASTRUCTURES TO MARINE ECOSYSTEMS: INTERACTIONS AND NEW APPROACHES

PLANNING

Schedule time	May 3rd	May 4th	May 5th
8:00 - 9:00 am	Opening event		
9:00 - 9:30 am	External lecturer	External lecturer	
9:30 - 10:00 am	Room A Co-chair ?	Room A Co-chair ?	
10:00 - 10:30	Break & Poster session n°1	Break & Poster session n°3	Transport
10:30 - 12:30 am	Session n°1	Session n°5	Cherbourg or Ouistreham sightseeing ?
12:30 - 2:00 pm	Lunch break		
2:00 - 4:00 pm	Session n°2	Session n°6	
4:00 - 4:30 pm	Break & Poster session n°2	Break & Poster session n°4	
4:30 - 6:30 pm	Session n°3	Session n°7	
			Transport
7:00 - 9:00 pm	Welcoming reception	Closing event	

The full paper must be submitted at : ourelie.gerault@esitc-caen.fr

ORGANIZING COMMITTEE

- o BOUTOUIL Mohamed (chairman)
- o LEBRUN Jérôme
- o DUFEU Matthieu
- o SEBAIBI Nassim
- o BOURGUIBA Amel
- o LEPAGE Mathieu
- o GERAULT Aurélie
- o EL MENDILI Yassine
- o COUBE Marie-Caroline

Scientific committee

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- AUZAS Mickael (FR)
- BERTRON Alexandra (FR)
- BOURGUIBA Amel (FR)
- BOUTOUIL Mohamed (FR)
- CLAQUIN Pascal (FR)
- COLLINS Ken (UK)
- DAUVIN Jean-Claude (FR)
- DUBOIS-BURGER Isabelle (FR)
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- LENFANT Philippe (FR)
- SALGUES Marie (FR)
- SEBAIBI Nassim (FR)
- WILLEMY Charles (FR)
- YSNEL Frédéric (FR)
- to be continued...

Registration and payment

The payments and the registration must be done on "site ESITC Caen" at :
<https://www.esitc-caen.fr/marineff-event>

After April 1st, 2022:

Full registration 500 euros
Students 300 euros

Before March 30th, 2022:

Full registration 400 euros
Students 200 euros

NEW DATES

- o Deadline submission of full paper: Jan 14th, 2022
- o Notification of full paper acceptance : Feb 11th, 2022
- o Payments and registration deadline (has to be done ASAP) : Mar 30th, 2022

Location

ESITC Caen
1 rue Pierre et Marie Curie
14610 EPRON
Normandie, FRANCE

Venue



For more informations

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