Engaging people when they are at the seaside

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Citizen Sciences

PANACHE

Protected Area Network Across the Channel Ecosystem

Intertidal Surveying by Citizen Scientists – engaging people when they are at the seaside

Citizen sciences / Sciences participatives

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Work Package 4

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Engaging people when they are at the seaside

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ABSTRACT

Work Package 4 of the PANACHE project aimed to actively engage members of the public in their local Marine Protected Areas (MPAs), including through developing a programme of citizen science.
Work Package 4.3 developed a suite of four complementary intertidal survey methodologies that were piloted and found to be suitable for involving citizen scientists on the shore, and for providing useful marine data to support existing and potential MPAs.
Each of the survey types recorded the presence (with abundance) or absence of a core list of 16 key species (or species groups). These were selected as being of importance as MPA features, indicators of climate change, invasive non-native species, Water Framework monitoring species or species which characterise the main intertidal biological zones. The methodology was employed in a programme of training and survey events across the project region, gathering data into a central database.
The programme of work was developed and delivered collaboratively by four Wildlife Trusts along the Channel coast of England, and by Nausicaa and Planète Mer in France, led and co-ordinated by Kent Wildlife Trust. Guidance and technical input from the Joint Nature Conservation Committee (JNCC), Natural England and Agence des Aires Marines Protégées (AAMP) helped to ensure collection of useful citizen science data, including the selection of key species that statutory bodies would accept as valid for monitoring.

KEYWORDS: Marine Protected Area, Citizen Science, Intertidal, Marine Data

RÉSUMÉ

L'axe de travail 4 du projet PANACHE vise à impliquer activement le grand public dans les aires marines protégées (AMP) locales, en développant notamment un programme de sciences participatives.
Dans le cadre de l'axe de travail 4.3, un ensemble de 4 méthodologies complémentaires a été développé pour l'étude de l'estran, elles ont été testées et s'avèrent efficaces pour l'implication des citoyens scientifiques en bord de mer, et pour la collecte de données utiles sur le milieu marin, permettant d'appuyer les AMP actuelles et potentielles.
Chaque type d'étude utilisé a permis de recenser la présence (et l'abondance) ou l'absence d'une liste de 16 principales espèces-clés (ou groupes d'espèces). Celles-ci ont été sélectionnées en raison de leur importance en tant qu'éléments de l'AMP, indicateurs du changement climatique, espèces envahissantes non-indigènes, espèces faisant l'objet d'un suivi dans le cadre de la Directive Cadre sur l'Eau ou en tant qu'espèces qui caractérisent les principales zones biologiques de l'estran. La méthodologie a été appliquée dans le cadre d'un programme de formation et d'études menées dans l'ensemble de la région du projet, et les données recueillies ont été regroupées dans une base de données centrale.
Le programme de travail a été développé et exécuté conjointement par quatre Wildlife Trusts le long de la côte anglaise de la Manche, et par Nausicaa et Planète Mer en France, sous la direction et la coordination de Kent Wildlife Trust. Les conseils et l'assistance technique du Joint Nature Conservation Committee (JNCC), Natural England et de l'Agence des Aires Marines Protégées (AAMP) ont permis de recueillir des données utiles issues des sciences participatives, mais aussi de sélectionner les espèces-clés qui seraient approuvées par les organes réglementaires pour faire l'objet de suivis.

MOTS-CLÉS : Aire Marine Protégée, Science participative, Estran, Données sur le milieu marin

Contents

I. Development of Core List of Key Species of Interest

1.1 Development of the Core List (jointly with WP4.2)

In consultation between the PANACHE partners, other contributing organisations, and statutory agencies responsible for MPA management, a list of 16 key species of interest and 2 key fish groups were selected to target throughout the surveys.

The list was chosen to reflect the range of species found throughout the Channel area in the intertidal and subtidal zones, so that all partners involved in all parts of Work Package 4 could record the presence of the same core list of key species across the whole project area. Partners could then add additional species of local importance to the core list.

The PANACHE core list of key species is presented in Table 1. It comprises species appropriate to contribute towards monitoring the condition of MPAs, including:

- climate change indicator species
- invasive non-native species
- species being monitored under the Water Framework Directive
- species which characterise the main biological zones down the shore
- features of conservation importance identified for protection in MPAs

Table 1: The key species selected to target during PANACHE surveys

Phylum	Scientific name	English name	French name	
Flowering plants	*Zostera marina*	Seagrass	Herbiers de Zostra	
Seaweeds	*Asparagopsis armata*	Harpoon weed		·
	Sargassum muticum	Japanese wireweed	Sargasse	·
	Undaria pinnatifida	Wakame	Fougère des mers	·
Worms	*Sabellaria alveolata*	Honeycomb worm	Les hermelles	·
	Sabellaria spinulosa	Ross worm	Les hermelles	
Molluscs	*Calliostoma zizyphinum*	Painted topshell	Calliostome	·
	Gibbula umbilicalis	Flat/purple topshell	Troque ombliqué/gibbule	·
	Ostrea edulis	Native oyster	Huître plate	
	Crassostrea gigas	Pacific oyster	Huître creuse japonaise	·
	Mytilus edulis	Blue mussel	Moule commune	
Tunicates	*Corella eumyota*	Orange-tipped seasquirt		·
	Haliclystus auricula	Kaleidoscope jellyfish		
Jellyfish (Cnidaria)	*Lucernariopsis campanulata*	Stalked jellyfish		
	Lucernariopsis cruxmelitensis	Stalked jellyfish		
Fish	*Balistes capriscus*	Grey triggerfish	Baliste	·
		Rays and egg cases	Raies et les capsules d'oeufs	
		Seahorses and pipefish	Hippocampe	

A - climate change indicator species
B - invasive / non-native species
C - species relevant to Water Framework Directive monitoring
D - species which characterise the main biological zones down the shore
E - features of conservation importance identified for protection in MPAs

1.2 Key Species Identification Guide

A PANACHE Key Species Identification Guide was created to help volunteer surveyors to identify the PANACHE key species in the field, and this was available to download from Kent Wildlife Trust's website: http://www.kentwildlifetrust.org.uk/node/3336, and the PANACHE website: http://www.panache.eu.com.

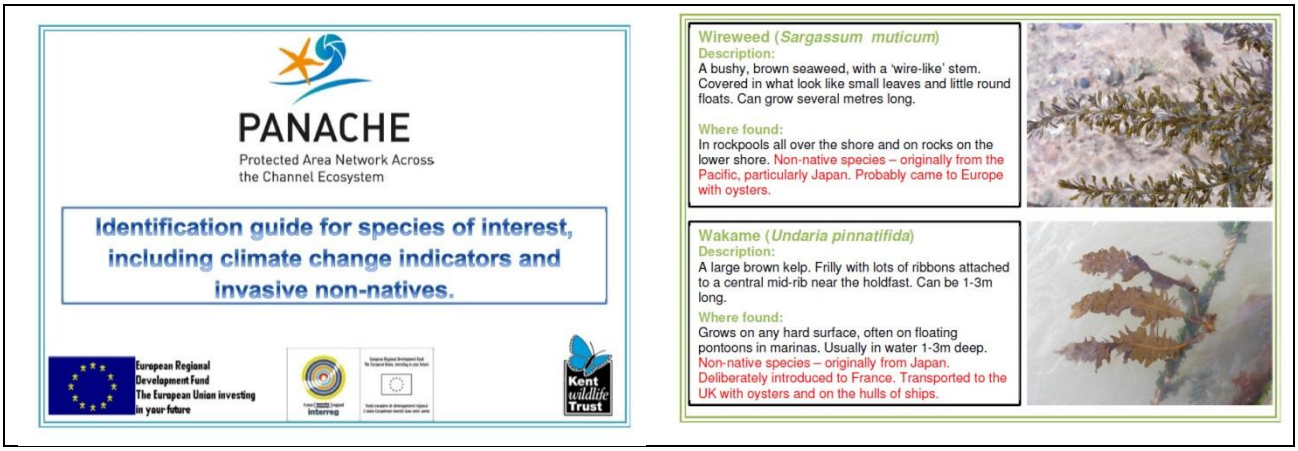


Figure 1: PANACHE Key Species Identification Guide – cover and example page

II. Development of Standard Intertidal Survey Methodology

A standard project methodology was discussed and agreed upon, developed from techniques used by Work Package partners and other contributing organisations, to ensure maximum compatibility with existing recording programmes and statutory MPA monitoring requirements. Four complementary intertidal survey methods were established to use during the project, as deemed appropriate for each survey event and its volunteer attendees. These methods were:

- **A walkover biodiversity survey** - A preliminary broad-scale survey to establish the basic habitat types and species diversity present at a site. This method can help to identify gross changes since previous surveys, and help to inform where more structured surveys should be done. It also allows for a broad sweep in search of key species which may be missed in transect and quadrat surveys.

- **A timed search for key species** - A survey involving searching for a limited number of species or habitats of particular interest in a fixed time (20 minutes). As well as recording the distribution of key species and habitats of conservation importance in MPAs, this survey contributes to initiatives monitoring the spread of climate change indicators and invasive non-native species, which could be of great significance to the health of MPAs.

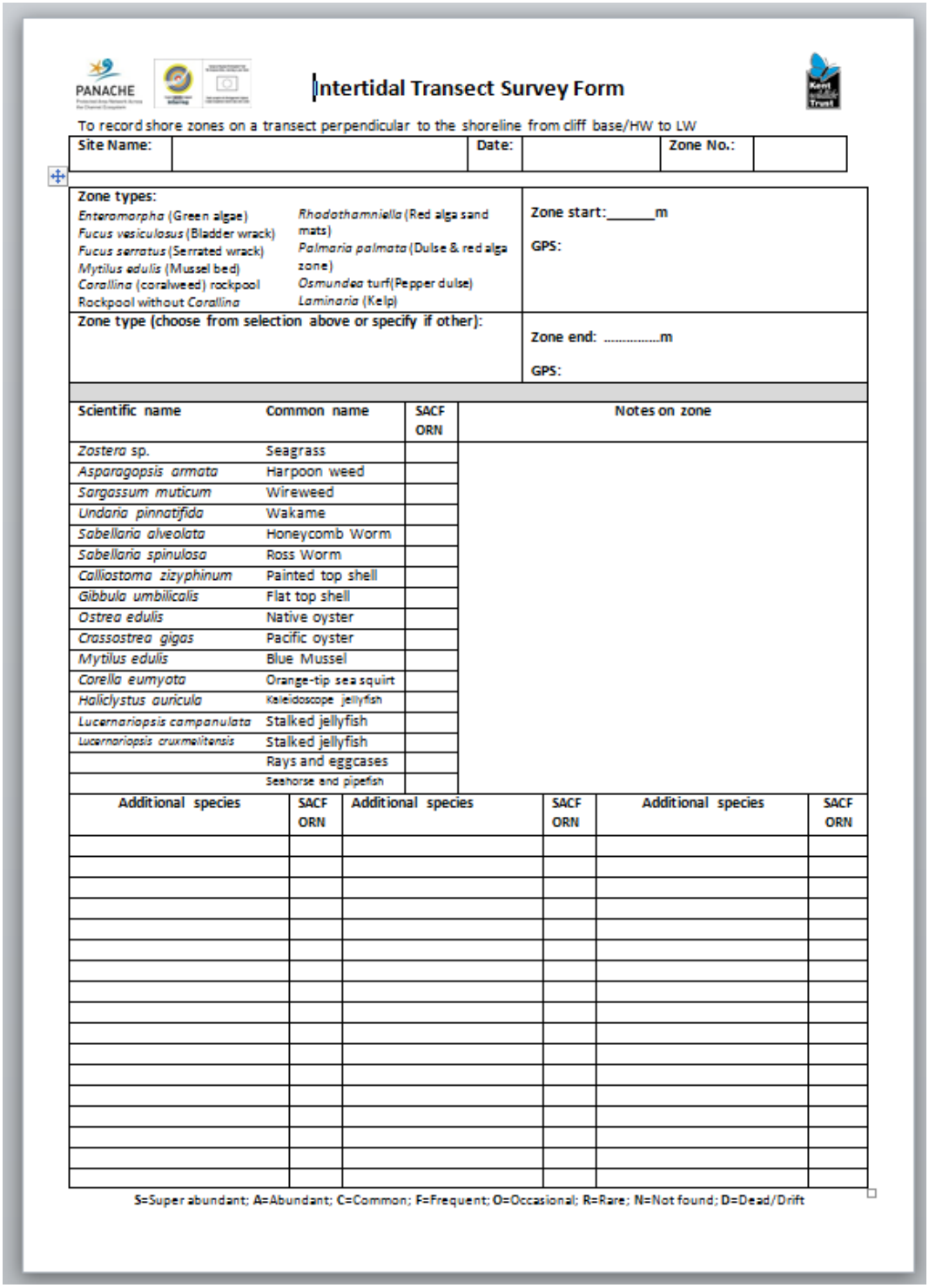
- **A transect survey** - A survey to identify and measure the extent of biological zones along a transect tape laid out in a straight line down the shore from high to low water. This records the habitat type and characterising species of each zone, and captures semi-quantitative (SACFORN) data on the PANACHE list of key species within in each zone, along with a record of any other species identified. This survey allows some indication of changes in the extent of shore zones and their community composition over time.

- **A quadrat survey** - A survey to record more quantitative details of habitats and species in 3-5 replicate 0.5m quadrats within each of the main zones down the shore. This records quantitative data on the PANACHE core list of key species, the habitats and characterising species present within each quadrat, and any other species identified. This survey provides quantitative data to help identify changes in the community composition within the shore zones.

A site visit during the PANACHE partnership workshop in Plymouth in February 2013 allowed for a practical introduction to the proposed standard survey methods, and those responsible for organising volunteer surveys in their own geographical areas were able to review and refine these, to ensure they met the participating organisations' needs, and would provide compatible data with other schemes such as MarClim in England and BioLit in France.

Picture 1: Panache partners discuss and refine the intertidal survey techniques together during the partnership workshop held in Plymouth in 2013. Photo © Kent Wildlife Trust

Survey recording sheets, guidance notes and other materials were developed for each of the four survey methods, to assist volunteer citizen scientists and survey leaders to collect and record data in a standardised form which could be compared geographically and temporally. An example recording form is shown in Figures 2.



PANACHE

Intertidal Transect Survey Form

To record shore zones on a transect perpendicular to the shoreline from cliff base/HW to LW

Site Name:		Date:		Zone No.:	

Zone types:

Enteromorpha (Green algae)
Fucus vesiculosus (Bladder wrack)
Fucus serratus (Serrated wrack)
Mytilus edulis (Mussel bed)
Corallina (coralweed) rockpool
Rockpool without *Corallina*
Rhodothamniella (Red alga sand mats)
Palmaria palmata (Dulse & red alga zone)
Osmundea turf(Pepper dulse)
Laminaria (Kelp)

Zone start:_____m

GPS:

Zone type (choose from selection above or specify if other):

Zone end: .....m

GPS:

Scientific name	Common name	SACF ORN	Notes on zone
Zostera sp.	Seagrass		
Asparagopsis armata	Harpoon weed		
Sargassum muticum	Wireweed		
Undaria pinnatifida	Wakame		
Sabellaria alveolata	Honeycomb Worm		
Sabellaria spinulosa	Ross Worm		
Calliostoma zizyphinum	Painted top shell		
Gibbula umbilicalis	Flat top shell		
Ostrea edulis	Native oyster		
Crassostrea gigas	Pacific oyster		
Mytilus edulis	Blue Mussel		
Corella eumyota	Orange-tip sea squirt		
Haliclystus auricula	Kaleidoscope jellyfish		
Lucernariopsis campanulata	Stalked jellyfish		
Lucernariopsis cruxmelitensis	Stalked jellyfish		
	Rays and eggcases		
	Seahorse and pipefish		

Additional species	SACF ORN	Additional species	SACF ORN	Additional species	SACF ORN

S=Super abundant; A=Abundant; C=Common; F=Frequent; O=Occasional; R=Rare; N=Not found; D=Dead/Drift

Figure 2: Intertidal Transect survey recording form – an example of the forms developed to facilitate standardised recording and collection of comparable data.

Timed Species Search species identification cards were produced for each of the 16 species as a reminder to participating volunteers of the key identification features and the types of habitats to search on the shore.

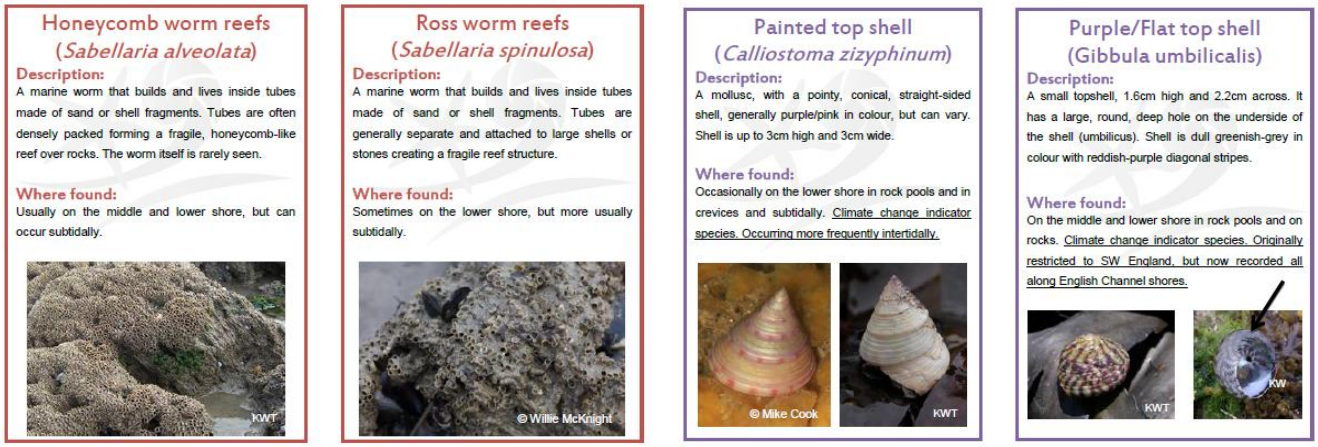


Figure 3: Examples of the PANACHE Timed Species Survey Species Identification Cards

The methods and the recording and support materials were piloted during the 2013 survey season and then reviewed by the partners, and refined for the 2014 surveys. Details of these survey techniques and supporting materials are included in the Guidance note available on the PANACHE website (www.panache.eu.com).

III. Development of Standard Training Materials

Standard training materials were produced to support training workshops delivered by the partner organisations for volunteer citizen scientists across the project area.

Powerpoint presentations were prepared for the key training course modules:

- The four standard PANACHE intertidal survey methods
- Recognition of intertidal habitat zones and their characterising species
- Identification of PANACHE key species of interest and where they are found
- Using the SACFORN abundance scale

IV. Engagement of Volunteers as Intertidal Survey Citizen Scientists

Wildlife Trust partners on the English Channel coast used their networks of members and supporters and existing marine volunteers to engage as PANACHE citizen scientists. Some partners had experience of running intertidal surveys and were able to introduce the new standard methods to existing volunteers and to begin generating data from the start of the project.

Ongoing publicity for the project and the opportunities for volunteer involvement were promoted through partners' magazines, e-news, websites, Facebook and Twitter.

The active involvement of new survey citizen scientists was also achieved through inspiring members of the public and families during other activities in the awareness raising parts of Work Package 4, such as beach cleans and ray eggcase hunts.

Picture 2: Family groups being introduced to the identification of ray egg cases in Boulogne. Photo © Nausicaa

Planète Mer developed a website for their intertidal survey initiative, "BioLit", for use by French and English citizen scientists **http://www.biolit.fr/the-new-arrivals?language=en** . This provides factsheets about invasive non-native species (produced collaboratively with PANACHE partners) and instructions on how to conduct the BioLit surveys. Discussions between Planète Mer and the PANACHE project partners in the early stages of both survey projects ensured that the methods would produce complementary and compatible data.

The BioLit website has the facility for citizen scientists to upload their photos and data as an additional way to encourage and maintain active participation in the project.

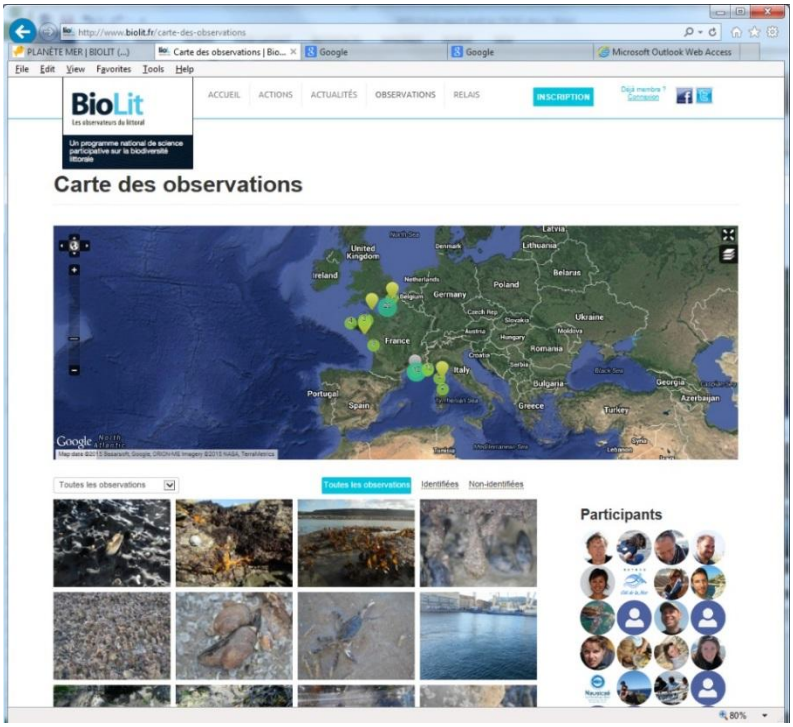


Figure 4: BioLit web tool shows visitors the spread of records received and a selection of photos recently uploaded by participants

Cornwall Wildlife Trust and Hampshire and Isle of Wight Wildlife Trust each created a blog to bring their PANACHE intertidal citizen science to a wider audience and inspire engagement: http://www.shoresearchcornwall.blogspot.co.uk/ and http://www.hiwwt.org.uk/blog/hiwwt-livingseas?page=1

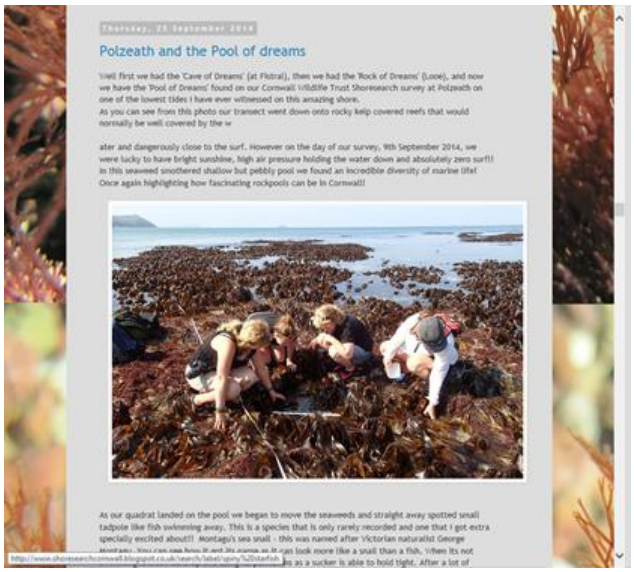


Figure 5: Cornwall Wildlife Trust's Shoresearch blog

Feedback to the contributing volunteers included colourful summary annual reports of the surveys in each area. These were also shared with the project partners and other interested individuals and organisations, and examples can be found in Appendix 1.

V. Delivery of Training in PANACHE Intertidal Survey Techniques

During the PANACHE project, a total of 39 intertidal survey training events were delivered across the Channel area, engaging more than 550 volunteers. The format of the training events varied; some involved an indoor session followed by a shore visit, whilst others were entirely shore-based. Details of these training events can be found in Appendix 2.

Picture 3: Intertidal species identification and transect and quadrat survey training in Dorset. Photo © Dorset Wildlife Trust

Picture 4: Intertidal habitat recognition and quadrat survey training in Kent. Photo © Kent Wildlife Trust

PIcture 5: Intertidal survey classroom training session in Hampshire.
Photo © Hampshire and Isle of Wight Wildlife Trust

The training programme also included a specialist workshop focusing on sponges, hydroids and bryozoans, marine animals which are particularly difficult to identify to species level in the field. This workshop gave volunteers the opportunity to examine specimens under the microscope and gain an understanding of the features that aid identification.

Picture 6: Examining specimens in a specialist training workshop in Kent. Photo ©Kent Wildlife Trust

VI. Delivery of a Programme of Intertidal Surveys

A programme of intertidal surveys was promoted through the various partner publicity networks and the PANACHE website. Volunteer citizen scientists were engaged in surveys at shore sites across the project area, focusing on existing and recommended MPAs.

Picture 7: Citizen scientists from England and France at the start of a transect survey at Copt Point, Kent Photo: © Kent Wildlife Trust

A total of 210 intertidal surveys were undertaken during the project, involving a total of 1,325 volunteer citizen scientists. A full list of the surveys undertaken can be found in Appendix 3 and the locations are illustrated in Figure 6.

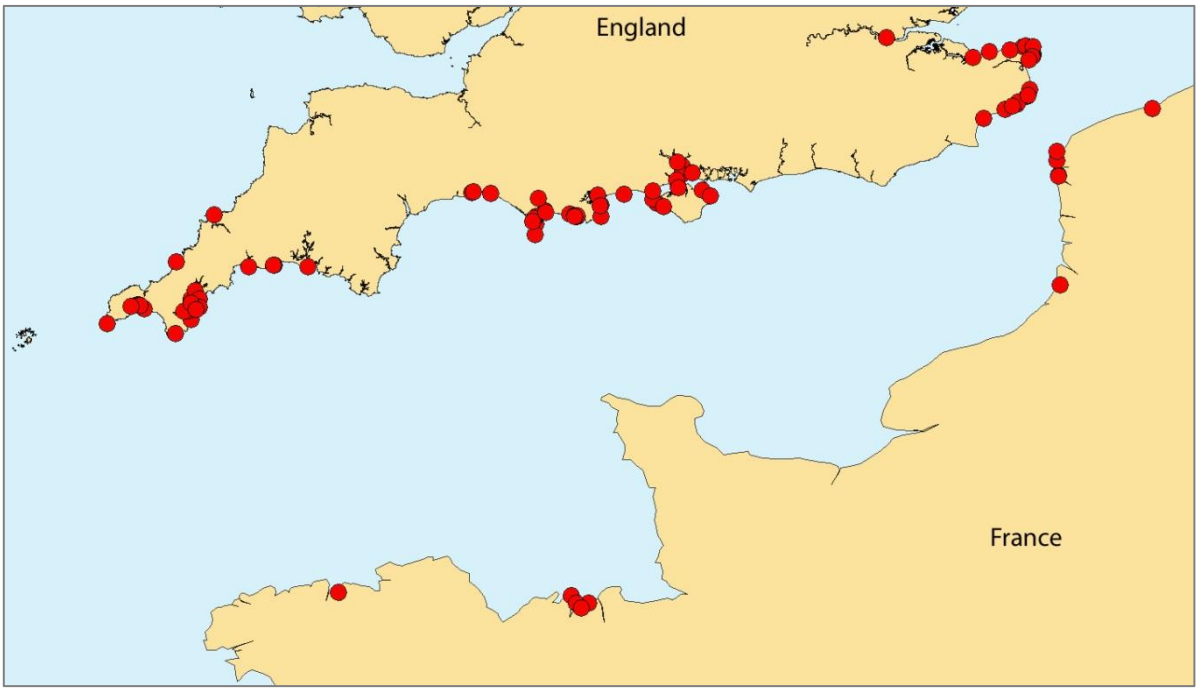


Figure 6: Location of intertidal surveys undertaken during the PANACHE project

Picture 8: Intertidal survey in the Isle of Wight. Photo: © HIWWT

Picture 9: A quadrat survey underway in Audresselles, France. Photo: © Nausicaa

Picture 10: Identification of crabs during Shoresearch at Dymchurch, Kent Photo: Kent © KWT

Picture 11: A midnight Shoresearch in Cornwall. Photo: © Alan Barker

VII. Data Collected During Intertidal Surveys

The habitat and species data collected during the surveys on the English Channel coast was entered into the national Marine Recorder database which is used by conservation, academic and government organisations. An example extract from this database is included in Appendix 4, listing the PANACHE key species recorded on each survey, and distribution maps for a selection of these key species is presented in Figure 7.

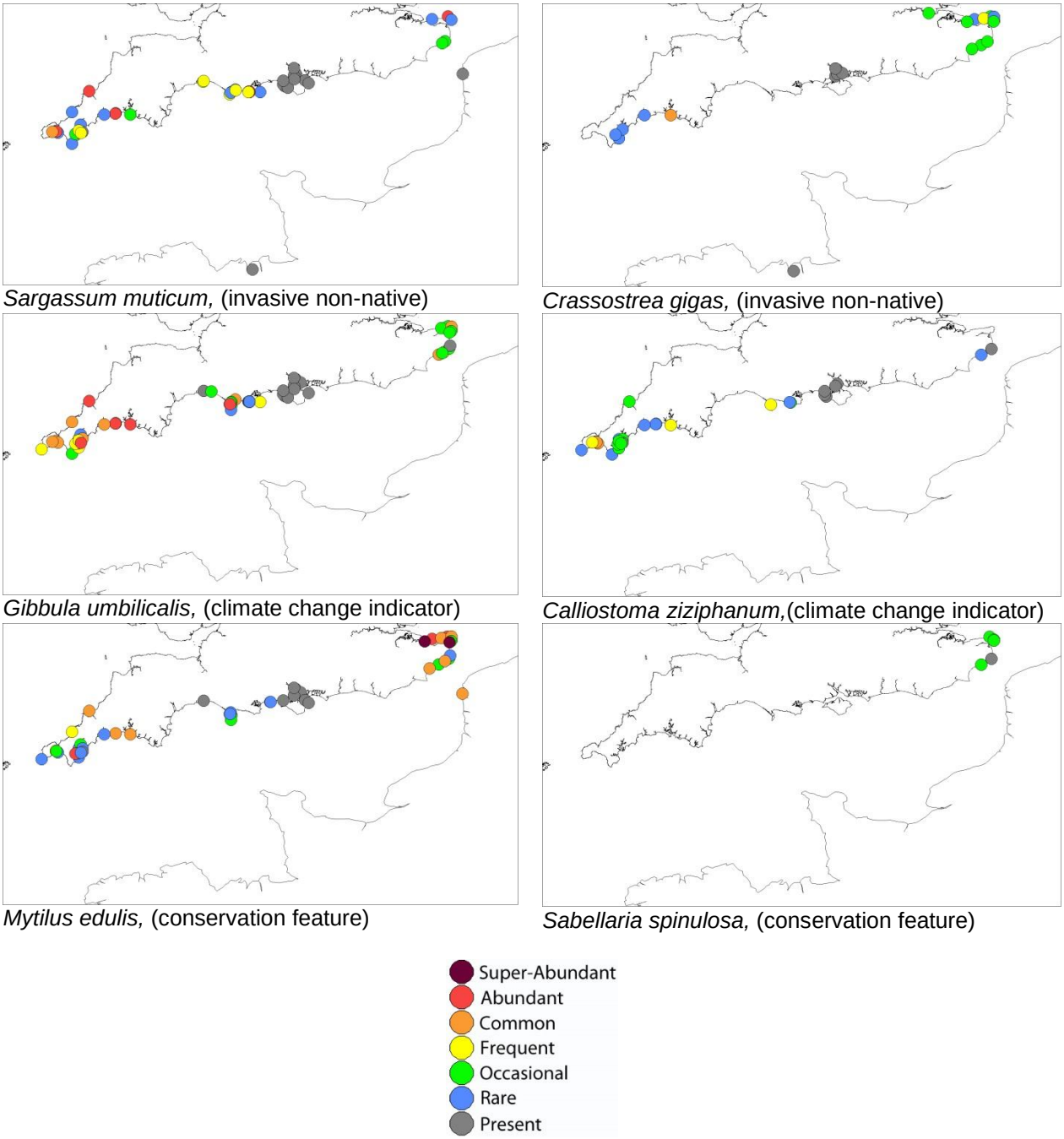


Figure 7: Abundance across the surveyed sites of a selection of the PANACHE key species

Picture 12: A stalked jellyfish, Lucernariopsis cruxmelitensis, a PANACHE key species, and Feature of Conservation Importance in England's Marine Conservation Zones, recorded on a survey in Dorset.
Photo © Julie Hatcher, Dorset WT

Picture 13: A very unusual find, a giant goby at South Fistral, Cornwall, one of the species listed as a Feature of Conservation Importance in England's Marine Conservation Zones.
Photo © Matt Slater, Cornwall WT

VIII. Analysis of Methods Used

8.1. Walkover biodiversity survey

The walkover survey was generally found to be popular among a broad range of volunteers. It allows participants the flexibility to seek out particular species in which they have a special interest, and provides the freedom to cover a wide area of the shore. This type of survey was particularly popular with more experienced citizen scientists whose purpose in taking part is to find new and unusual species, and was found to be a good way to accurately capture the presence or absence of the PANACHE key species.

The recording form for this type of survey was amended after the pilot surveys, and reduced in size from A4 to A5. Inclement weather during surveys often made completion of the larger form on site particularly difficult and a smaller version was found to be easier to use.

8.2. Timed species search

The timed species search proved popular in Cornwall and Dorset but much less so further east along the Channel where only a few of the PANACHE key species could realistically be expected to be found at any one survey site. In Hampshire and Kent this resulted in volunteers becoming frustrated by the absence of most of the key species, and even misidentification of common species for the more unusual PANACHE key species on one occasion. However, in areas where the list was more relevant, it was found to be a good way of introducing volunteers to surveying, and the importance of key species, and it was felt that volunteers were more likely to see, correctly identify and record the key species during subsequent transects or walkover surveys.

Accuracy of the data gathered through the timed species search was found to vary depending on the experience of the citizen scientist, with newcomers often reporting the absence of species, which more experienced volunteers were able to find.

As a technique to engage volunteers in surveying, the timed species search was found to be very effective, but it is considered that a smaller package of species, including several that are likely to be found and easily recognised, would yield better, more reliable results with new groups of citizen scientists.

8.3. Transect surveys

Along with the walkover survey, this technique was the most widely used across the project. It was met with a mixed response from the volunteers: popular with those who enjoy a scientific method or a

defined route to follow; less so with some of the more experienced volunteers who did not want to be constrained to surveying in a limited area of the shore.

The survey form was adapted during the project for the same practical reasons as the walkover survey form. Where completed by volunteers, the form was found to be easy to understand and useful in ensuring all the necessary information was gathered. The site location information was often completed by the survey leader who tended to hold the GPS device.
This type of survey worked well with smaller groups and on shores where the shore zones were clearly defined, with an obvious change in algal cover or substrate type.

Picture 14: Kingsdown, Kent. A shore with clearly defined shore zones. Photo © Leon Roskilly

On shores where the biological zones were less clearly defined, some volunteers were confused and moved into the next zone without realising, and the survey could be held up by discussions over where zones started and ended. This problem can be alleviated by using prominent markers positioned along the transect tape to demarcate zones to assist volunteers, (for example, brightly-coloured buckets which are easy to transport, do not cause damage to sensitive habitats such as chalk reef, and are not easily blown away once filled with seawater or stones).

Picture 15: A transect survey at Whiteness, Kent. Photo © Kent Wildlife Trust

8.4. Quadrat surveys

This proved to be the least popular type of survey with the volunteers. When undertaken, the forms proved fit for purpose and ensured the necessary data was captured, but only the volunteers with a particular interest in scientific methods were keen to spend time on this survey technique.

Picture 16: A quadrat survey. Photo © Cornwall Wildlife Trust

8.5. Using the SACFORN abundance scale

The SACFORN abundance scale was used for all survey types. This type of semi-quantitative measure proved a suitable method to record the abundance of different species, although some volunteers expressed concern over their level of confidence in using the scale accurately. It was noted, however that confidence levels, as well as accuracy, grew among the regular volunteers as the project progressed.

A plenary session at the end of each survey was found useful in enhancing the volunteers' enjoyment of the survey and increasing their knowledge and confidence. The volunteers were able to consolidate what they had learned on the shore through confirming the identification of species they had seen and photographed, and reaching a group consensus on the abundance of each species seen.

IX. Dissemination of Intertidal Survey Methods

Learning from the project has been shared by all partners through their networks. Intertidal site visits held at the joint project workshops in Boulogne and Dover enabled Work Package 4.3 partners to discuss and demonstrate the survey techniques with other PANACHE partner organisations.

The national Royal Society of Wildlife Trusts has taken the methodology to use as the basis for a nationwide programme of citizen science shore surveying across the Wildlife Trusts. Regular reporting on the PANACHE programme by partners at regional meetings such as the South East Living Seas Team meetings has ensured additional regional practitioners have been involved throughout the project. Discussion at other forums, such as the North East Kent Scientific Advisory Group has ensured government agencies and academic institutions have been kept informed.

Picture 17: Sharing and promoting PANACHE methods with survey practitioners outside the PANACHE project

The PANACHE intertidal survey techniques were introduced to a group of French natural history guides from the Picardy region, who joined one of Kent Wildlife Trust's PANACHE survey events near Folkestone in February 2014, to see the methods in operation and assess their suitability for use on their guided seashore events in France.

X. Conclusions

Work Package 4.3 has developed a package of standard intertidal survey methodologies and delivered a training and survey programme, engaging citizen scientists across the PANACHE project area. Each of the survey methods provides an effective tool for use by volunteer surveyors. The biodiversity walkover survey and timed species search are types of survey that can readily be undertaken by volunteers unsupervised, whilst the transect and quadrat surveys were considered more suitable for organised groups.

The quality of data is dependent on the experience of the volunteers involved, but the programme of training ensured a level of competence in the basic surveying and the identification of key species, to ensure a core of robust data. Further quality assurance can be secured when surveys are undertaken as part of an organised event supervised by professional marine biologists.

It is important to select the right type of survey to suit the volunteers involved on the day, in order to maintain levels of enthusiasm for engagement in the survey programme and ensure confidence in the data collected.

Volunteer engagement in marine surveys is further developed in the UK than it currently is in France. However, during the course of this project, the activities undertaken through the four strands of this PANACHE Work Package have resulted in a suite of tools effective in engaging members of the public in Marine Protected Areas and producing useful data to support their management.

XI. Appendices

Appendix 1 – Example Annual Summary Reports on Shoresearch Activities

Shoresearch 2014

Above left and below: Copt Point Shoresearch event in February

Above right: Blue rayed limpets

Your living landscape. Your living seas.

Appendix 2 – List of intertidal training events undertaken under PANACHE project

Date	Location	Site name	Event name	No. volunteers
09.12.2012	Kent	Hampton Pier, Kent	Survey with training from algae expert	16
10.01.2013	Central Cornwall	Cornwall Wildlife Trust, Five Acres	Volunteer leader and marine conservation awareness training	11
31.01.2013	South East Cornwall	Rusty Bucket Café, Looe	Volunteer leader and marine conservation awareness training	14
02.03.2013	North Cornwall	Polzeath	Rocky shore training day	19
13.03.2013	Dorset	Kimmeridge	Seashore species identification	32
30.03.2013	Falmouth	Prisk cove	ShoreSearch training	18
07.04.2013	Hampshire	Lepe Country Park	Shoresearch Course	24
11.05.2013	South East Cornwall	Hannafore beach	Hannafore seaweeds day	4
12.05.2013	Plymouth	Marine Biological Association	Intermediate rocky shore training day	10
25.05.2013	Kent	Beltinge, Herne Bay, Kent	Survey with training from algae expert	12
19.06.2013	Kent	Reculver Visitor Centre	Intertidal Investigations	19
27.07.2013	Kent	Kingsdown	Panache recording on-site training	11
18.08.2013	Hampshire	Lepe Country Park	Shoresearch Course	8
31.08.2013	Kent	Greenhithe, Kent	Survey with training from algae expert	15
18.09.2013	Central Cornwall	St Agnes beach	Shoresearch training	10
19.09.2013	North Cornwall	Polzeath beach	Shoresearch training	11

06.12.2013	Kent	Tyland Barn, Maidstone	Species photo identification	22
29.01.2014	Central Cornwall	Cornwall Wildlife Trust, Five Acres	Event leaders training	7
02.02.2014	Kent	Tyland Barn, Maidstone	Sponges and other animal turf	7
02.02.2014	Central Cornwall	Spit Par Beach	Basic Rockpool Ramble training	21
12.02.2014	Central Cornwall	Cornwall Wildlife Trust Five Acres	Shoresearch training evening	27
02.03.2014	Newquay	Cornwall Collage	ERCCIS - Intermediate rocky shore	20
03.03.2014	Dorset	Kimmeridge	Seashore species identification	11
Date	**Location**	**Site name**	**Event name**	**No. volunteers**
18.03.2014	Newquay	Gazzle beach	Shoresearch training	2
27.03.2014	Central Cornwall	Cornwall Wildlife Trust, Five Acres	ShoreSearch training	17
29.03.2014	Dorset	Kimmeridge	Seashore species identification	16
29.03.2014	Hampshire	Lepe Country Park	Shoresearch Course	19
26.04.2014	Dorset	Swanage	Seaweed identification	22
11.05.2014	Hampshire	Lepe Country Park	Shoresearch Course	14
23.05.2014	Kent	Reculver Visitor Centre	Intertidal Investigations	16
14.06.2014	Dorset	Kimmeridge	Non-natives & climate-change indicators	9
04.07.2014	Boulogne	Nausicaa	Biolit	23
05.07.2014	Boulogne	Nausicaa	Biolit	14
16.07.2014	North Cornwall	Northcott, Bude	Shoresearch training - timed species search and walkover	12

26.09.2014	Marée de Monts, France	Ocean Maree de Monts	two example of citizen science : PANACHE project and brown algae project	5
08.12.2014	Morlaix, France	CPIE Morlaix	Citizen Science around the Chanel Ecosystems	11
17.12.2014	Kent	Tyland Barn, Maidstone	Species photo identification	24

Appendix 3 – List of intertidal survey events undertaken under PANACHE project

Date	Location	Site name	No. volunteers	No. surveys & method
15/10/2012	Kent	Nayland Rock, Kent	20	1 - walkover
11/11/2012	Kent	St Margaret's Bay, Kent	12	1 - walkover
09/12/2012	Kent	Hampton Pier, Kent	16	1 - walkover
10/03/2013	Dorset	Lyme Regis	8	1 - timed search
29/03/2013	Hampshire	Calshot	14	2 - transect & quadrat
01/04/2013	Kent	St Margaret's Bay, Kent	10	2 - walkover & transect
07/04/2013	Hampshire	Lepe Country Park	24	1 – walkover **
13/04/2013	Falmouth	Gyllyngvase	8	3 - walkover, transect, quadrat
26/04/2013	Hampshire	Hill Head	8	2 - transect & quadrat
27/04/2013	Lizard	Poltesco	7	3 - walkover, transect, quadrats
29.04.2013	Isle of Wight	Ryde	14	2 - transect & quadrat
30/04/2013	Penwith	Mounts Bay	6	3 - walkover, transect, quadrats
10/05/2013	Dorset	Kimmeridge	13	1 - timed search
10/05/2013	Isle of Wight	St. Helen's	4	2 - transect & quadrat
10/05/2013	Hampshire	Hamble	4	2 - transect & quadrat
11/05/2013	South East Cornwall	Hannafore beach	4	1 - (part of training day) walkover
25/05/2013	Kent	Beltinge, Herne Bay, Kent	12	1 - walkover
25/05/2013	Dorset	Kimmeridge	4	1- walkover *
27/05/2013	Falmouth	Greenbank shore explore	7	3 - walkover, transect, quadrats
07/06/2013	Hampshire	Lepe	14	2 - transect & quadrat

Date	Location	Site name	No. volunteers	No. surveys & method
08/06/2013	Dorset	Kimmeridge	28	2 - timed search & walkover *
23/06/2013	South East Cornwall	Looe	8	3 - walkover, transect, quadrats
23/06/2013	Kent	Fulsam Rock, Margate, Kent	26	1 - walkover
24/06/2013	Isle of Wight	Freshwater	11	2 - transect & quadrat
23/07/2013	Isle of Wight	Colwell Bay	9	2 - transect & quadrat
25/07/2013	Hampshire	Royal Victoria	11	2 - transect & quadrat
26/07/2013	Falmouth	Loe beach	4	3 - walkover, transect, quadrats
26/07/2013	Dorset	Portland Bill	14	1 - timed search
27/07/2013	Kent	Kingsdown, Kent	11	2 - walkover & transect
09/08/2013	Dorset	Kimmeridge	12	1 – walkover *
18/08/2013	Hampshire	Lepe	8	2 – walkover & transect**
20/08/2013	Isle of Wight	Thorness Bay	6	2 - transect & quadrat
22/08/2013	Lizard	Manacles	6	2 - walkover, timed species search
24/08/2013	Dorset	Kimmeridge	22	1 – walkover *
31/08/2013	Kent	Greenhithe, Kent	15	2 - walkover & transect
07/09/2013	Falmouth	St Mawes	8	4 - walkover, transect, quadrats, timed species search
15/09/2013	Kent	Samphire Hoe, Kent	13	2 - walkover & transect
20/09/2013	Fowey	Ready money cove	6	2 - walkover, timed species search
21/09/2013	Hampshire	Keyhaven	6	2 - transect & quadrat
21/09/2013	Falmouth	Prisk cove	9	2 - walkover, timed species search
05/10/2013	Dorset	Eype		1 - walkover
13/10/2013	Kent	Louisa Bay, Kent	6	2 - walkover & transect

Date	Location	Site name	No. volunteers	No. surveys & method
30/10/2013	Dorset	Hengistbury Head		1 - walkover
10/11/2013	Kent	Shakespeare Cliff, Kent	13	2 - walkover & transect
27/11/2013	Boulogne	La Pointe de la Creche	15	1 - walkover
08/12/2013	Kent	Dumpton Gap, Kent	11	3 - walkover, transect & quadrat
30/01/2014	Dorset	Eype		1 - Transect
22/02/2014	Kent	Copt Point, Kent	33	2 - walkover & transect
23/02/2014	Dorset	Hengistbury Head		1 - walkover
03/03/2014	Dorset	Kimmeridge	11	2 - walkover & timed search
03/03/2014	Dorset	Lyme Regis		1 - walkover
11/03/2014	Dorset	Fleet lagoon		1 - walkover
29/03/2014	Penwith	Marazion	14	2 - walkover, timed species search
29/03/2014	Dorset	Kimmeridge	16	2 - walkover & timed search *
29/03/2014	Hampshire	Lepe	9	2 - transect & quadrat
29/03/2014	South East Cornwall	Looe	14	2 - walkover, timed species search
30/03/2014	Hampshire	Calshot	12	2 - transect & quadrat
09/04/2014	Somme Estuary	Le Hourdel	2	1 – walkover
16/04/2014	Dorset	Kimmeridge		1 - walkover
16/04/2014	Penwith	Marazion	12	2 - walkover, timed species search
17/04/2014	Penwith	Porthgwarra	8	2 - walkover, timed species search
17/04/2014	Hampshire	Hill Head	32	2 - transect & quadrat
26/04/2014	Dorset	Peveril Point, Swanage		1 – walkover **
26/04/2014	Kent	Dymchurch, Kent	12	1 -walkover
27/04/2014	Dorset	Warbarrow Bay		1 - walkover

Date	Location	Site name	No. volunteers	No. surveys & method
27/04/2014	South East Cornwall	Cawsands	8	2 - walkover, timed species search
30/04/2014	Isle of Wight	Ryde	15	2 - transect & quadrat
03/05/2014	Dorset	Lyme Regis		1 – walkover *
11/05/2014	Hampshire	Lepe	9	2 - transect & quadrat
15/05/2014	Penwith	Stackhouse cove	9	2 - walkover, timed species search
15/05/2014	Isle of Wight	St. Helen's	8	1 - transect
16/05/2014	Dorset	Kimmeridge	11	2- walkover & timed search
23/05/2014	Dorset	Portland Harbour		1 - walkover
23/05/2014	Kent	Minnis Bay, Kent	19	2 - walk-over & transect
29/05/2014	Dorset	The Fleet Lagoon	13	2 - walkover & timed search *
12/06/2014	Hampshire	Lepe	13	2 - transect & quadrat
13/06/2014	Dorset	Osmington Mills		1 - walkover
14/06/2014	Dorset	Kimmeridge	9	1 – walkover *
14/06/2014	Isle of Wight	Freshwater	18	1 - transect
22/06/2014	Kent	Dover Marina, Kent	8	1 - walk-over
11/07/2014	Dorset	Portland Bill	13	1 - walkover
12/07/2014	Penwith	Long rock	19	2 - walkover, timed species search
12/07/2014	Penwith	Marazion	13	1 - Night time Walkover survey
12/07/2014	Kent	Seasalter, Kent	13	1 - transect
12/07/2014	Isle of Wight	Colwell Bay	11	1 - transect
13/07/2014	Falmouth	Bar Beach	12	2 - walkover, timed species search
13/07/2014	Hampshire	Royal Victoria	24	1 - transect
15/07/2014	South East Cornwall	Looe Island	18	2 - transect, walkover survey
28/07/2014	Dorset	Broad Bench		1- walkover

Date	Location	Site name	No. volunteers	No. surveys & method
28/07/2014	Dorset	Charnel		1 - walkover
30/07/2014	Dorset	Kimmeridge	26	1 – walkover *
09/08/2014	Isle of Wight	Compton	8	1 - transect
12/08/2014	Dorset	Newton's Cove, Weymouth		1 - walkover
13/08/2014	Dorset	Western Ledges, Weymouth		1 - walkover
14/08.2014	Isle of Wight	Thorness Bay	11	2 - transect & quadrat
16/08/2014	Kent	Samphire Hoe West	14	2 - walk-over & transect
17/08/2014	Falmouth	Swanpool	15	2 - walkover, timed species search
27/08/2014	Dorset	Kimmeridge	46	1 – walkover *
28/08/2014	Dorset	Studland Bay		1 - walkover
29/08/2014	South East Cornwall	Par	10	1 - walkover
07/09/2014	Dorset	Poole Harbour	20	1 – walkover *
08/09/2014	South East Cornwall	Hannafore point looe	8	4 - walkover, transect, quadrats, timed species search
09/09/2014	Dorset	Kimmeridge		1 - walkover
09/09/2014	Hampshire	Keyhaven	12	2 - transect & quadrat
09/09/2014	North Cornwall	Polzeath	10	4 - (part of training day) walkover, transect, quadrats, timed species search
10/09/2014	Fowey	Readymoney cove Fowey	12	4 - walkover, transect, quadrats, timed species search
11/09/2014	Dorset	Eype	7	2 - walkover & timed search

Date	Location	Site name	No. volunteers	No. surveys & method
11/09/2014	Falmouth	Prisk Cove Helford	20	4 - walkover, transect, quadrats, timed species search
12/09/2014	Central Cornwall	Trevaunance Cove, St Agnes	13	4 - (part of training day) walkover, transect, quadrats, timed species search
14/09/2014	Kent	Whiteness	22	2 - walk-over & transect
22/09/2014	South East Cornwall	Looe	13	2 - walkover, timed species search
07/10/2014	Dinard, France	Roche Pelee Cape	3	1 - walkover
11/10/2014	Kent	St Margaret's Bay, Kent	7	2 - walk-over & transect
12/10/2014	Dorset	Studland Bay	15	1 - walkover
20/10/2014	Dorset	Studland South		1 - walkover
23/10/2014	Dorset	Kimmeridge		1 - walkover
28/10/2014	Dinard, France	Roche pelee cape	25	1 - walkover
28/10/2014	Dorset	Hengistbury Head	15	1 – walkover *
02/11/2014	Kent	Dumpton Dinosaur, Kent	14	2 - walk-over & transect
06/11/2014	Dorset	The Fleet Lagoon	13	2 - timed search & walkover
07/11/2014	Dorset	Osmington Mills		1 - walkover
15/11/2014	Dorset	Poole		1 - walkover
08/12/2014	Morlaix, France	Diben rocky shore	12	1 - walkover
14/12/2014	Kent	Ramsgate Western Undercliff, Kent	16	2 - walk-over & transect
30/01/2015	Royan, France	Vallieres beach	30	1 - walkover

* Surveys run as part of a public awareness activity (detailed in work package 4.1 report)
** Surveys run as part of a training workshop

Appendix 4 – Distribution of PANACHE key species recorded on survey events

Survey Date	Area	Site name	Lat WGS84	Long WGS84	*Zostera* spp.	*Asparagopsis armata*	*Sargassum muticum*	*Undaria pinnatifida*	*Sabellaria alveolata*	*Sabellaria spinulosa*	*Calliostoma zizyphinum*	*Gibbula umbilicalis*	*Ostrea edulis*	*Crassostrea gigas*	*Mytilus edulis*	*Corella eumyota*	*Haliclystus auricula*	*Lucernariopsis campanulata*	*Lucernariopsis cruxmelitensis*	*Balistes capriscus*	*Rays and eggcases*	*Seahorse & pipefish*
13/04/2013	Cornwall	Gyllyngvase	50,142015	-5,070596		R	O				O				O							
27/04/2013	Cornwall	Poltesco	49,991465	-5,182396		R	R				R	O										
30/04/2013	Cornwall	Mounts Bay	50,121522	-5,480561																		
11/05/2013	Cornwall	Hannafore beach	50,342887	-4,451745	R						O	C			C							
27/05/2013	Cornwall	Greenbank shore explore	50,161624	-5,077455							R	F	C		R							O
23/06/2013	Cornwall	Looe (Hannafore)	50,344059	-4,448403		P	P				R	C					P					
26/07/2013	Cornwall	Loe beach	50,205169	-5,046618			R					R	O		O							
22/08/2013	Cornwall	Manacles (Porthkerris Point)	50,061993	-5,068978		O					O	F		R	R							
07/09/2013	Cornwall	St Mawes	50,161910	-5,015154		R					O	C		R	R							
20/09/2013	Cornwall	Ready money cove	50,328802	-4,644894			P				R	C		P	O							
21/09/2013	Cornwall	Prisk cove	50,106451	-5,087323		A	C				O	C			O							
29/03/2014	Cornwall	Marazion	50,122400	-5,472740	C		C				O	C			F		O					
29/03/2014	Cornwall	Looe (Hannafore)	50,342888	-4,453811			A				R	A										
16/04/2014	Cornwall	Marazion	50,119721	-5,474169	F		P															
17/04/2014	Cornwall	Porthgwarra	50,023539	-5,707475							R	F			R							
27/04/2014	Cornwall	Cawsands (Sandways)	50,338224	-4,192160			O				F	A		C	C							
15/05/2014	Cornwall	Stackhouse cove	50,104964	-5,429807			R				C	C			R							
12/07/2014	Cornwall	Long rock	50,125215	-5,012094	P		P				P		P		P							
12/07/2014	Cornwall	Marazion	50,119623	-5,460897	C		A				C				O							R
13/07/2014	Cornwall	Bar Beach (Helford Passage)	50,099350	-5,130425			O					F	R	R	A							P

15/07/2014	Cornwall	Looe Island (Batten Rock)	50,114759	-5,530033		C	C				F	C				P						
17/08/2014	Cornwall	Swanpool	50,140126	-5,073975		R	F				O	F										
29/08/2014	Cornwall	Par	50,342150	-4.689685	R				O	R		C	R		C							
08/09/2014	Cornwall	Hannafore point looe	50,342930	-4.45340	F	C	C				O	C			O			R				
09/09/2014	Cornwall	Polzeath	50,578078	-4,922294		R	A				O	A			C							
10/09/2014	Cornwall	Readymoney cove Fowey	50,328820	-4,644705			R				R	C		R	R							
11/09/2014	Cornwall	Prisk cove Helford	50,112323	-5,036506	C	C	F				O	A			R							
12/09/2014	Cornwall	Trevaunance cove St Agnes	50,341744	-5,202916			R					C			F							
22/09/2014	Cornwall	Looe	50,342888	-4,453811																		
10/03/2013	Dorset	Lyme Regis	50,719293	-2,943381			F		A													
10/05/2013	Dorset	Kimmeridge	50,605233	-2,129948			F					A										
25/05/2013	Dorset	Kimmeridge	50,608828	-2,131372			P															
08/06/2013	Dorset	Kimmeridge	50,611876	-2,132045			A					A										
26/07/2013	Dorset	Portland Bill	50,516835	-2,450296		F																
09/08/2013	Dorset	Kimmeridge	50,611522	-2,135619			P					P										
24/08/2013	Dorset	Kimmeridge	50,612421	-2,135621			A					A										
05/10/2013	Dorset	Eype	50,718584	-2,797458					R													
30/10/2013	Dorset	Hengistbury Head	50,716215	-1,765942									P		P							
30/01/2014	Dorset	Eype	50,717448	-2,796518					O			C										
23/02/2014	Dorset	Hengistbury Head	50,715697	-1,763494																	P	
03/03/2014	Dorset	Kimmeridge	50,610053	-2,129595								O										
03/03/2014	Dorset	Lyme Regis	50,724596	-2,929150					P			P			P						P	
11/03/2014	Dorset	Fleet lagoon	50,580997	-2,471302								P										
29/03/2014	Dorset	Kimmeridge	50,606276	-2,130523			F				O	F										
16/04/2014	Dorset	Kimmeridge	50,612199	-2,133304								F										
26/04/2014	Dorset	Peveril Point, Swanage	50,607551	-1,944020			R					F										

27/04/2014	Dorset	Warbarrow Bay	50,618297	-2,185297																P	
03/05/2014	Dorset	Lyme Regis	50,724596	-2,929150			F														
16/05/2014	Dorset	Kimmeridge	50,605233	-2,129948		F	A					A									
23/05/2014	Dorset	Portland Harbour	50,568498	-2,447046								O			O						
29/05/2014	Dorset	The Fleet Lagoon	50,580998	-2,471006			F				F	R			O						
13/06/2014	Dorset	Osmington Mills	50,633999	-2,376000			R					C									
14/06/2014	Dorset	Kimmeridge	50,604999	-2,130004		A	A					A									
11/07/2014	Dorset	Portland Bill	50,516998	-2,450002		O						R			O						
28/07/2014	Dorset	Broad bench	50,609248	-2,145498		O	C				R	O									
28/07/2014	Dorset	Charnel	50,610548	-2,140895			O					O									
30/07/2014	Dorset	Kimmeridge	50,612601	-2,135198			A					A									
12/08/2014	Dorset	Newton's Cove, Weymouth	50,605549	-2,447052			O					O									
13/08/2014	Dorset	Western Ledges, Weymouth	50,597600	-2,456152	O		R					O			R	R					
27/08/2014	Dorset	Kimmeridge	50,612601	-2,135198								C									
28/08/2014	Dorset	Studland Bay	50,661550	-1,947569																P	
07/09/2014	Dorset	Poole Harbour	50,711419	-1,970197									O								
09/09/2014	Dorset	Kimmeridge	50,608802	-2,130496								R									
11/09/2014	Dorset	Eype	50,717296	-2,796402					R			O									
12/10/2014	Dorset	Studland Bay	50,661550	-1,947569																	
20/10/2014	Dorset	Studland South	50,660003	-1,948096	A								F								
23/10/2014	Dorset	Kimmeridge	50,607299	-2,146701			F						F								
28/10/2014	Dorset	Hengistbury Head	50,715896	-1,764003											R					P	
06/11/2014	Dorset	The Fleet Lagoon	50,581126	-2,470527	A							A			R						
07/11/2014	Dorset	Osmington Mills	50,625803	-2,371502			F														

15/11/2014	Dorset	Poole	50,694307	-2,430071																P	
29/03/2013	Hampshire	Calshot	50,808700	-1,318733	P						P	P	P		P						
07/04/2013	Hampshire	Lepe	50,784200	-1,355867								P			P						
26/04/2013	Hampshire	Hill Head	50,817067	-1,235700								P	P	P	P						
29/04/2013	Isle of Wight	Ryde	50,733483	-1,160500	P		P						P		P						
10/05/2013	Hampshire	Hamble	50,849700	-1,315100				P				P	P	P	P						
10/05/2013	Isle of Wight	St. Helen's	50,702150	-1,098350	P		P								P						
07/06/2013	Hampshire	Lepe	50,784200	-1,355867							P	P			P						
24/06/2013	Isle of Wight	Freshwater	50,668600	-1,513350			P					P									
23/07/2013	Isle of Wight	Colwell Bay	50,688883	-1,541683			P					P									
25/07/2013	Hampshire	Royal Victoria	50,870117	-1,351583				P				P	P	P	P	P					
18/08/2013	Hampshire	Lepe	50,784200	-1,355867			P					P			P						
20/08/2013	Isle of Wight	Thorness Bay	50,745867	-1,346367			P					P	P			P					
21/09/2013	Hampshire	Keyhaven	50,729933	-1,540583							P	P	P			P					
29/03/2014	Hampshire	Lepe	50,784200	-1,355867	P			P				P		P	P	P					
30/03/2014	Hampshire	Calshot	50,808700	-1,318733	P		P					P	P	P	P	P					
17/04/2014	Hampshire	Hill Head	50,817067	-1,235700								P	P	P	P					P	
30/04/2014	Isle of Wight	Ryde	50,733483	-1,160500	P		P						P		P	P					
11/05/2014	Hampshire	Lepe	50,784200	-1,355867			P					P	P		P	P					
15/05/2014	Isle of Wight	St. Helen's	50,702150	-1,098350	P		P					P			P						
12/06/2014	Hampshire	Lepe	50,784200	-1,355867	P		P					P	P		P						
14/06/2014	Isle of Wight	Freshwater	50,668600	-1,513350			P				P	P									
12/07/2014	Isle of Wight	Colwell Bay	50,688883	-1,541683			P				P	P									
13/07/2014	Hampshire	Royal Victoria	50,870117	-1,351583			P	P				P		P	P	P				P	
09/08/2014	Isle of Wight	Compton	50,652650	-1,464717			P					P									

14/08/2014	Isle of Wight	Thorness Bay	50,745867	-1,346367			P					P	P							P	
09/09/2014	Hampshire	Keyhaven	50,729933	-1,540583			P				P	P	P		P	P					
15/10/2012	Kent	Nayland Rock, Kent	51,388401	1,367964						O		O		F	A						
11/11/2012	Kent	St Margaret's Bay, Kent	51,152661	1,389894								O			O						
09/12/2012	Kent	Hampton Pier, Kent	51,373049	1,099131			R						P	R	A						
01/04/2013	Kent	St Margaret's Bay, Kent	51,147238	1,384455						P	P	O			O						
23/06/2013	Kent	Fulsam Rock, Margate, Kent	51,394090	1,384666			A					O		O			O				
27/07/2013	Kent	Kingsdown, Kent	51,178897	1,405501								P			R						
31/08/2013	Kent	Greenhithe, Kent	51,459333	0,300178										O							
15/09/2013	Kent	Samphire Hoe, Kent	51,102125	1,259638			O					F				R					
13/10/2013	Kent	Louisa Bay, Kent	51,354108	1,444185			R			O		O			C						
10/11/2013	Kent	Shakespeare Cliff, Kent	51,110479	1,295657								F				R					
08/12/2013	Kent	Dumpton Gap, Kent	51,345404	1,439647						O		O		R	O					P	
22/02/2014	Kent	Copt Point, Kent	51,086581	1,202572						O	R	C		O	O	R					
26/04/2014	Kent	Dymchurch, Kent	51,047447	1,036100										O	C						
23/05/2014	Kent	Minnis Bay, Kent	51,378452	1,264933								O		F	C					R	
22/06/2014	Kent	Dover Marina, Kent	51,119198	1,310542			O	O						O	C						
12/07/2014	Kent	Seasalter, Kent	51,348415	0,969839										O	S						
16/08/2014	Kent	Samphire Hoe West	51,102073	1,260849			O					O									
14/09/2014	Kent	Whiteness	51,388091	1,442526								C		R	C						
11/10/2014	Kent	St Margaret's Bay, Kent	51,150109	1,386109												R					
02/11/2014	Kent	Dumpton Dinosaur, Kent	51,337591	1,433547								O		O	O					R	

14/12/2014	Kent	Ramsgate Western Undercliff, Kent	51,325883	1,405633								O			S						R	
11/09/2014	Nord pas de Calais, France	Cap de la Creche	50,749601	1,594846			P															
11/09/2014	Nord pas de Calais, France	Pointe de la Creche	50,750728	1,594363			P															
11/09/2014	Nord pas de Calais, France	Pointe de la Creche	50,750796	1,593988			P															
07/10/2014	Bretagne	Estran de Saint Enogat, Derrière la thalassothérapie	48,641743	-2,074373			P							P								
28/10/2014	Bretagne	Plage de Saint Enogat	48,642098	-2,074078			P															
27/11/2013	Nord pas de Calais, France	Boulogne	50,751150	1,593717											C						R	
03/07/2014	Nord pas de Calais, France	Audresselles	50,825620	1,588520																		
04/07/2014	Nord pas de Calais, France	Audresselles	50,825620	1,588520																		
09/04/2014	Picardie	Le Hourdel, Baie de Somme	50,216080	1,567850																		
28/10/2014	Bretagne	Roche pelee cape, Dinard	48,640890	-2,075090																		
07/10/2014	Bretagne	Roche pelee cape, Dinard	48,640890	-2,075090																		
08/12/2014	Bretagne	Diben rocky shore, Morlaix	48,710402	-3,826000																		

PANACHE

Protected Area Network Across the Channel Ecosystem

PANACHE is a project in collaboration between France and Britain. It aims at a **better protection** of the Channel marine environment through the **networking** of existing marine protected areas.

The project's five objectives:

- **Assess** the existing marine protected areas network for its ecological coherence.
- **Mutualise** knowledge on monitoring techniques, share positive experiences.
- **Build** greater coherence and foster dialogue for a better management of marine protected areas.
- **Increase** general awareness of marine protected areas: build common ownership and stewardship, through engagement in joint citizen science programmes.
- **Develop** a public GIS database.

France and Great Britain are facing similar challenges to protect the marine biodiversity in their shared marine territory: PANACHE aims at providing **a common, coherent and efficient reaction**.

PANACHE est un projet franco-britannique, visant à une **meilleure protection** de l'environnement marin de la Manche par la **mise en réseau** des aires marines protégées existantes.

Les cinq objectifs du projet :

- **Étudier** la cohérence écologique du réseau des aires marines protégées.
- **Mutualiser** les acquis en matière de suivi de ces espaces, partager les expériences positives.
- **Consolider** la cohérence et encourager la concertation pour une meilleure gestion des aires marines protégées.
- **Accroître** la sensibilisation générale aux aires marines protégées : instaurer un sentiment d'appartenance et des attentes communes en développant des programmes de sciences participatives.
- **Instaurer** une base de données SIG publique.

France et Royaume-Uni sont confrontés à des défis analogues pour protéger la biodiversité marine de l'espace marin qu'ils partagent : PANACHE vise à apporter **une réponse commune, cohérente et efficace**.

- www.panache.eu.com -

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Agence des aires marines protégées

The Wildlife Trusts Cornwall

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