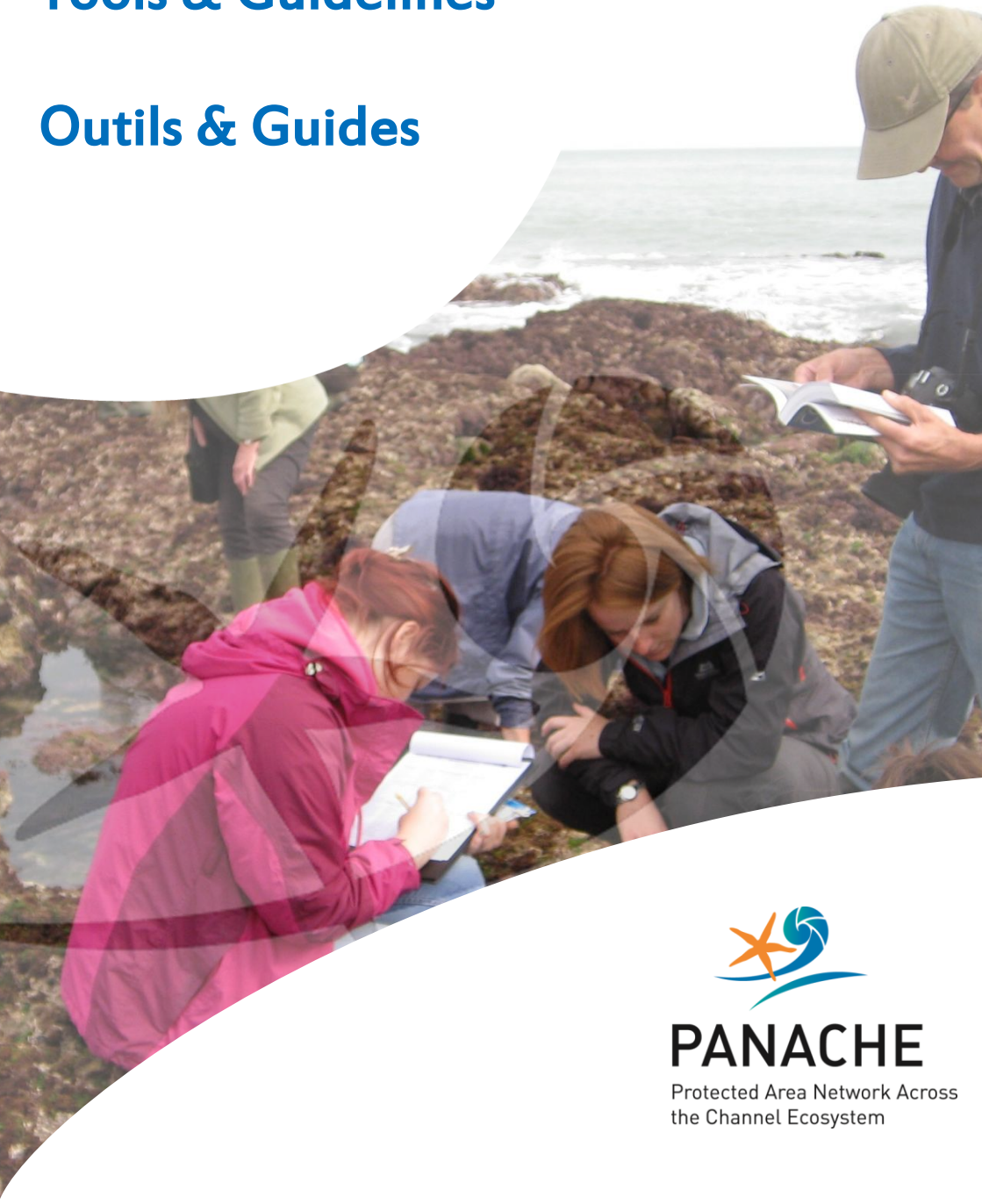
Tools & Guidelines

Outils & Guides



PANACHE

Protected Area Network Across the Channel Ecosystem

Intertidal Survey Guidance Notes for Citizen Scientists

Prepared on behalf of / Etabli par

Kent wildlife Trust

In the frame of / dans le cadre de

PANACHE

Protected Area Network Across the Channel Ecosystem

Work Package 4

Cover photo: Amy Marsden

france (manche channel) england interreg

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Shoresearch survey structure

There are 4 types of survey that will help gather the information we need about species and habitats.
A site can be surveyed by employing one, some, or all of the survey types, depending on the time and expertise available.

A core list of key species and habitats has been developed for PANACHE, which include:

- Features of conservation importance (species and habitats) identified for protection in MPAs
- Climate change indicator species
- Invasive non-native species
- Species being monitored under the Water Framework Directive
- Species which characterise the main zones down the shore

The surveys undertaken in both France and England will specifically look for these species and record their presence or absence.

Scientific name	**Common name**
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

This core list has been developed and agreed by all partners in PANACHE. However, further species and habitats of national, regional or local significance to each partner's area can be added.

The 4 types of survey

Walk-over biodiversity survey	A preliminary broad-scale survey to establish the basic habitat types and species diversity present at a site. This 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. When this survey method will be used: Ideal survey for both experienced surveyors with expertise in local site and species identification and those new to surveying and keen to enhance their skills in species identification.
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). In addition to recording key species and habitats of conservation importance in MPAs, this survey could also contribute to other projects monitoring the spread of climate change indicator species, and help to monitor the spread of invasive non-native species, which could be of great significance to the health of MPAs. When this survey method will be used: A nice activity to engage new citizen scientists in species 'spotting' and identification. Could be undertaken by a small group in tandem with the other surveys.

Transect survey	A survey to identify and measure the extent of zones along a transect tape laid out in a straight line down the shore from high to low water. Semi-quantitative (SACFORN) records to be made of the PANACHE list of key species and habitats within each zone, in addition to a list of everything seen during the survey. This allows some indication of changes in the extent of zones and their community composition over time. When this survey method will be used: Ideal survey for both experienced surveyors with expertise in local site and species identification and those new to surveying and keen to enhance their skills in species identification.
Quadrat survey	A survey to record more quantitative details of habitats and species in 3-5 replicate quadrats within the main zones down the shore. Quantitative records to be taken of the PANACHE core list of key species and habitats within each quadrat. A fuller species list can enhance this survey, where feasible. This can provide quantitative data to help identify changes in the community composition within the zone. When this survey method will be used: When group size and expertise present is sufficient to ensure that quadrat surveys in each zone can be undertaken as well as the transect survey.

Survey methods

1.1 Walk-over biodiversity survey

To gather broad-scale data on the types of species and habitats present at a site.

This is the simplest survey requiring the least amount of equipment: citizen scientists, the 'walk-over biodiversity survey form' to record species seen and their abundance according to the SACFORN scale, and a GPS to plot the extent of the survey area.

1.2 Timed Search for key species

To search for a limited number of species or habitats of particular interest in a fixed time.

This survey uses cards to help surveyors find key species and habitats on the shore. Each card has photographs and details of a single species or habitat on the PANACHE list of key species and habitats.

Surveyors are given up to 4 cards; search the shore for 20 minutes and record occurrences (with SACFORN abundance) of the species/habitats on their card(s).

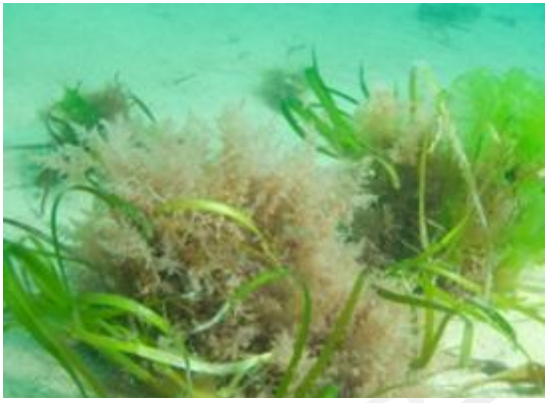
Harpoon weed (Asparagopsis armata)

Description:

A red seaweed, rosy pink in colour, with 'harpoon-like' barbs and fluffy appearance. Can grow up to 30cm long.

Where found:

In rockpools in the middle or lower shore. May be attached to other seaweed. Non-native species – originally from Australia or New Zealand. Probably came to Europe with oysters.



If necessary, time limits and number of cards per person can be adapted for each survey to ensure unit effort remains the same – e.g. 10 minute search if two cards per person, 40 minute search if 8 cards per person.

At the end of the 20 minutes, surveyors regroup to record what they found.

This survey method is already being used in The Shore Thing project which records Climate Change Indicators and Invasive Non Native Species. Further information on The Shore Thing project can be found at http://www.mba.ac.uk/shore_thing/.

1.3 Transect surveys

To record the extent and character of main shore zones present on a line down the shore.

This survey involves the use of a tape measure laid out perpendicular to the shoreline from high water/cliff base to low water. Surveyors record the extent of each zone along the straight transect line in distance (to nearest metre) and with GPS positions at the zone transitions.

Shore zone examples : *Enteromorpha; Fucus serratus; Osmundea turf; Corallina rockpools; Laminaria.*

Surveyors should:

- Photograph each zone type in close view (showing typical community of species, and features) & general view (showing general character and context on shore)

Within each zone, surveyors should:

- Record presence and SACFORN abundance of PANACHE list of key species and habitats (including zone characterising species) found in a roughly 5m band either side of the transect tape.
- If time and expertise allow, record presence and SACFORN abundance of a fuller list of species present in each zone found in a roughly 5m band either side of the transect tape.

Use the latest version of the PANACHE Intertidal Transect Survey form to ensure all necessary information is recorded.

1.4 Quadrat surveys

Recording habitat and species details in quadrats within biotope zones.

This type of survey involves random sampling of 3-5 replicate 0.5 m^2 quadrats in each of the main shore zones. Randomly place quadrats within 5m of the transect line within the main shore zone.

For each quadrat:

- Photograph each quadrat in close view (straight down over quadrat) & general view (showing quadrat in context of its surroundings)
- Record GPS position of quadrat
- Describe general habitat and zone type, to put quadrat in context on the shore
- Record percentage of habitat types (boulders, cobbles, gravel, sand etc)
- Record zone type
- Record presence and abundance of PANACHE list of key species and habitats (percentage cover of attached species & count of mobile species)
- If time allows, rapid search in the area immediately surrounding quadrat for presence of additional key species not found within the quadrat.
- If time and expertise allow, record presence and abundance of a fuller list of species present in the quadrat (percentage cover of attached species & count of mobile species)

Use the latest version of the PANACHE 0.5m Quadrat Intertidal Survey Form (example below) to ensure all necessary information is recorded.

Appendix

Appendix 1. SACFORN scale

Superabundant, **A**bundant, **C**ommon, **F**requent, **O**ccasional, **R**are, **N**ot found.

Abundance	Encrusting and turf species e.g. sponges, barnacles, mussels, seaweeds	Small Plants and animals (1-5cm) e.g. worms, anemones, limpets, dogwhelks	Large Plants and animals (>5cm) e.g. large anemones, crabs, starfish, fish
Superabundant **(S)**	80-100% cover	10,000 per m^2	100 per m^2
Abundant **(A)**	40-80% cover	1000 per m^2	10 per m^2
Common **(C)**	20-40% cover	100 per m^2	1 per m^2
Frequent **(F)**	10- 20% cover	100 per m^2	1 per 10 m^2
Occasional **(O)**	5-10% cover	1 per m^2	1 per 100 m^2
Rare **(R)**	<5% cover	<1 per m^2	1 per 1000 m^2
Not found **(N)**	0% cover	0 per m^2	0 per m^2

Note: Divide per m^2 value by four if using a 0.5 m^2 quadrat. ; **D** = Dead/drift

Appendix 2. Quadrat Intertidal Survey Form

Site Name:		**Shore position:** (metres from cliff/HW)	
GPS Postn:		**Photo taken?** **Taken by?**	
Surveyors:		**Date**	

Biological shore zone (Dominant species)

Scientific name	**Common name**	✓	**Scientific name**	**Common name**	✓
Enteromorpha	Green algae		*Corallina* rockpool	Pool with coralweed	
Fucus vesiculosus	Bladder wrack		*Rhodothamniella*	Red alga sand mats	
Fucus serratus	Serrated wrack		*Palmaria palmate*	Dulse & red alga zone	
Mytilus edulis	Mussel bed		*Osmundea* turf	Pepper dulse	
Animal grazed bare rock	Limpets, winkles, etc.		*Laminaria*	Kelp	
Sabellaria reefs	Honeycomb/Ross (specify)		*Ostrea edulis*	Native oyster beds	
Zostera	Seagrass beds		Other (specify):		

Habitat type

Quadrat 1		**Quadrat 2**		**Quadrat 3**	
	%cover		**%cover**		**%cover**
Bedrock		Bedrock		Bedrock	
Boulders		Boulders		Boulders	
Cobbles		Cobbles		Cobbles	

Pebbles		Pebbles		Pebbles	
Gravel		Gravel		Gravel	
Empty shells		Empty shells		Empty shells	
Sand		Sand		Sand	
Mud		Mud		Mud	
Standing water		Standing water		Standing water	

SPECIES		Q1	Q2	Q3		Q1	Q2	Q3
Scientific name	**Common name**	**%cover /count**	**%cover /count**	**%cover /count**	**Additional species**	**%cover /count**	**%cover /count**	**%cover /count**
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							

Appendix 3. Intertidal Transect Survey Form

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

Site Name:		**Name & contact details of surveyor(s):**		**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**	**SAC FOR N**	**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	SACFORN	Additional species	SACFORN	Additional species	SACFORN

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

Appendix 4. Timed Search Recording Form

Site name:		**Date:**		**Length of time searched:**	**mins**
Name of surveyor(s) and contact details:					
GPS positions: (extent of survey area or centre point)	**N E or W**	**to**	**N E or W**	**Centre point:**	**N E or W**

Scientific name	**Common name**	**Green zone**	**Brown zone**	**Red zone**	**Animal bed** (e.g. Blue mussel beds) **Please state which**
Please indicate presence of species using SACFORN scale(see appendix 1)					
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 seasquirt				
Haliclystus auricula	Kaleidoscope jellyfish				
Lucernariopsis campanulata	Stalked jellyfish				
Lucernariopsis cruxmelitensis	Stalked jellyfish				
	Rays and eggcases				
	Seahorse and pipefish				

Appendix 5. Walk-over biodiversity Survey Form

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)

Site name:		**Date:**		**Name of surveyor(s):**	
Contact details:				**Were photos taken?**	**Y / N**
GPS positions: (extent of survey area or centre point)			**N E or W**		
to	**N E or W**	**Centre point:**	**N E or W**		

Species		**Zone types (choose from above list)**	**SAC FOR N**
Scientific name	**Common name**		
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 seasquirt		
Haliclystus auricula	Kaleidoscope jellyfish		
Lucernariopsis campanulata	Stalked jellyfish		
Lucernariopsis cruxmelitensis	Stalked jellyfish		
	Rays and eggcases		
	Seahorse and pipefish		

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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 -