

SHORE	TASK /QUESTION	YOUR ANSWER			OUR/YOUR COMMENT
1. WHOLE SHORE (Splashzone and intertidal)	1. Where is the seaweed on this shore?	swept up on the shore - answer Q 2			'maerl' – <i>Lithothamnium</i> pink hard layer or crust on rock in pools/in water.
		growing on rock or boulder outcrops			
		growing in rock pools (incl Maerl)			
		growing on mud sand shingle			
		growing around fresh water inflows			
		wrack forms small 'islands' which grow unattached (see Egg wrack ID note)			
2. SWEPT UP SEAWEED 	2.1 Describe how the swept up seaweed is	tide line(s) with fresh or dried seaweeds			
		'coral' beach or maerl (a different <i>Lithothamnium</i> species to the encrusting one)			
		Seaweed heaped by the sea in an area			
		Seaweed heaped by man for harvest			
		It is mainly green seaweed			
		It is mainly brown and/or red seaweed			
		It is a smelly mush and I can't tell.			
	2.2 Turn swept up seaweed on older tideline(s) over to look for life in/underneath.	Searched, but no life found.			Sand hopper <i>Talitrus saltator</i> is the only animal which hops off when you lift seaweed. It hides in deep burrows so look out for holes.
Found sand hoppers &/or lots of holes under seaweed.					
How abundant on a scale of 1-5 (1 very few sand hoppers or holes and 5= thick with them).					
3. SELECTION OF BROWN SEAWEEDS Arranged as though walking from land to spring tide low water or looking at a sea wall from top to toe or looking into a rock pool	Channel wrack <i>Pelvetia canaliculata</i> (top of the intertidal)	Yes,		No	Dúlamán (Irish for "channelled wrack", is an Irish folk song)
	Bladder Wrack <i>Fucus vesiculosus</i> (Mid shore)	Yes,		No	
	Serrated Wrack <i>Fucus serratus</i> (Mid shore)	Yes,		No	
	Egg Wrack <i>Ascophyllum nodosum</i> (mid -low shore)	Yes, if yes see table B		No	Found an Asco floating cushion PHOTO!
	Sea spaghetti <i>Himantalia elongata</i>	Yes,		No	
	Kelps (Rock pools, Low shore, sublittoral)	Yes, if yes see table C		No	
	Sargassum an alien invasive! (sublittoral, low tide & pools)	Yes, if yes see table D		No	
4. SOME RED SEAWEEDS	Laver Sloke <i>Porphyra spp</i>	Yes,		No	Climate change effect: attached but white bleached <i>Corallina</i> . Look out - any pink ones?
	Corallina officinalis Rock pools, Low shore	Yes, colour note?		No	
	Irish Moss <i>Chondrus crispus</i> Rock pools, Low shore	Yes,		No	
	Tick if you saw iridescence on tips				
Dulse <i>Palmaria palmate</i> Rock pools, Low shore on kelp	Yes,		No		
5. SOME GREEN SEAWEEDS	Sea lettuce <i>Ulva lactuca</i> Rock mid shore down, also pools	Yes,		No	Don't mix up with a special find - sea grass <i>Zostera</i> – see guidenotes ID
	Gut weed & other spp <i>Ulva intestinalis</i> high to mid shore	Yes,		No	
	Cladophora spp High/mid shore & fresh water	Yes,		No	

(NB rare floating cushion form of Egg wrack not covered here, but if found shout!

Q.	Task /need	What	Why	Notes
1	Measure one large old Asco: Measuring tape , Note pad, work in pairs	1.1 Length of longest Asco thallus from holdfast to tip _____cm 1.2 Length from hold fast to start of first bladder _____cm 1.3 Biggest air bladder length _____cm 1.4 Take photo with you holding it up and location on shore.	Age and health of the seaweed. Limited data suggests 7 years to first bladder formation. We want to find the longest.	Imagine you are a fish when the tide is in and you are swimming in this seaweed forest. If you don't have a measuring tape, the photo is an indicator. If possible have GPS location on when taking the photo.
2	Count Note pad,	2.1 Number of air bladders along the axis of that longest Asco thallus (measured in 1.1) _____ 2.2 Estimate number of thalli coming out of one hold fast: _____ 2.3 Are there any mossy dark seaweeds growing on the Asco? none, <input type="checkbox"/> some, <input type="checkbox"/> lots. <input type="checkbox"/>	Age: After the 1 st bladder, one is formed per year. Hold fasts can be > 100 years old and grow new thalli. This is <i>Vertebrata lanosa</i> a little red seaweed	<i>Vertebrata lanosa</i> needs Asco to grow on. Occasionally it is found on other fucoids. Scientists argue whether it is a parasite or gives something back (is commensal) on the large brown seaweed.
3	Stress test Camera	3.1 <u>Gently</u> lift 5 of the longer seaweeds. How many of these stayed intact? <input type="checkbox"/> 3.2 If of the 5 you lifted some broke off, where did that break happen? <input type="checkbox"/> Along the frond, which looked gnawed at (by animals) <input type="checkbox"/> Along the frond which seems weak but without or few bite marks. <input type="checkbox"/> The holdfast came off Comment?	Asco varies in strength. Ideally it should withstand being lifted by waves (or harvesters) Weak spots are created where the Asco frond is gnawed at by animals. Stress from pollution can weaken the whole plant	
4	Reproduction	Are there little stalked yellowy cherry like bubbles on your Asco? Yes <input type="checkbox"/> No <input type="checkbox"/>	These are the receptacles which carry eggs and sperm.	
IF YOU HAVE TIME, TRY TO ANSWER 2 MORE QUESTIONS WHICH TAKE IN THE WIDER SHORE.				
5	Area occupied Measure or estimate the area And characterize Measuring tape, or count steps Note pad, work in pairs	The biggest Asco bed size on this shore. Width _____m Length _____m = approx. _____m ² Is the Asco bed: <input type="checkbox"/> A monoculture of Asco <input type="checkbox"/> Mixed with other brown seaweeds Are there more beds in this survey unit? _____	Bed size is important for animals as habitat	
6	Who lives here Asco animal life treasure hunt.	Surface: Look at the Asco without moving it. Do you see any life on it? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes photograph Now gently move it and see who is hiding inside and at the holdfast. If small seaweeds are growing on the ASco examine these for shrimp and other life. See ID key.	This large seaweed is an important habitat both when the tide is out and when it comes in again.	Be gentle, do not pull anything off and put seaweed back over ground as you found it. If printing off your form the ID sheet can go on the back.



Survey Table C - KELP SWEEP UP ON THE SHORE

While a kelp survey is great for summer snorkeling or diving, storms bring the seaweeds into range of all citizens and can tell about the beds below. Any extra information on kelp beds in the past is very welcome.

Q.	Task/need	What	Note
1	<p>Measure the longest kelp you can find</p> <p>If there are several species use table below and write in measurements.</p> <p>Bring: Measuring tape , Survey table and pen</p> <p>Easiest to work in pairs</p>	<p>1.1 Length of longest kelp - whole thallus (from holdfast to tip) _____cm</p> <p>1.2 Stipe Length from hold fast to start of the blade _____cm</p> <p>1.3 Name of species measured _____</p> <p>(see ID sheet or note if too dried out to identify)</p> <p>1.4 Was it:-</p> <p><input type="checkbox"/> pretty fresh and intact</p> <p><input type="checkbox"/> dried out</p> <p>1.5 Take a photo with someone holding it up, or laid out straight. SEE NOTE:</p> <p>1.6 If you can find different species of kelp lay them out beside each other on the shore and take a photo.</p>	<p>We want to find record and local specimen lengths, so photographic evidence is great.</p> <p>The stipe is the vulnerable area – if cut here it will die.</p> <p>As seaweeds dry they shrink and some become more difficult to identify. A soak might help.</p> <p>PHOTO: Please keep note of location with survey unit or GPS, date and photographer. If you sent us a photo we would be delighted and will assume that it can be used for noncommercial purposes in results and on our website. Please add a note if you want something else to happen.</p>
2	<p>Where did it come from?</p> <p>Area occupied Measure or estimate the area</p>	<p>Do you know of or can you see a kelp bed at the edge or in waters of this shore?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know</p> <p>If yes, estimate the largest bed length along this shore. Length _____ m</p> <p>Are there more beds in this survey unit?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know.</p>	<p>Bed size is important for animals as habitat. The bed may be confined to a rock pool , or seen along the low water mark or sticking out of the sea.</p>
3	<p>Amount: Biomass swept up estimate</p> <p>Note pad, Measuring tape</p>	<p>Walk 100 m of shore with swept up kelp and note what it's like. Tick if present or use ACFOR scale to estimate amount:</p> <p><input type="checkbox"/> fresh single kelp with holdfast</p> <p><input type="checkbox"/> fresh several kelp rods per holdfast</p> <p><input type="checkbox"/> fresh kelp bits</p> <p><input type="checkbox"/> dried twisted 'sea rods',</p> <p><input type="checkbox"/> a layer of kelps dry or wet.</p> <p><input type="checkbox"/> kelp heaped by harvesters</p> <p>Any notes of kelp species & volume in this 100m?</p>	<p>Abundance estimates are subjective but still give an impression. Use the 'ACFOR' scale where</p> <ul style="list-style-type: none"> • A –"Abundant" • C –"Common" • F –"Frequent" • O –"Occasional" • R –"Rare"
4	<p>Who lives on kelp</p> <p>Use the ID sheet to tick, or list here. If you have access to kelp at extreme low water or in a rock pool you might look there too.</p>		<p>Do you see any life on, in or under kelp? Gently move it. Also look into the little seaweeds which might grow on it and at or in the holdfast. This seaweed is a key habitat for many species when alive. When cast up its mainly sand hoppers which feast on it, but in huge numbers and they in turn are eaten by many other animals.</p>



Survey Table D - SARGASSUM Invasive Alien Seaweed - Growing or Swept up

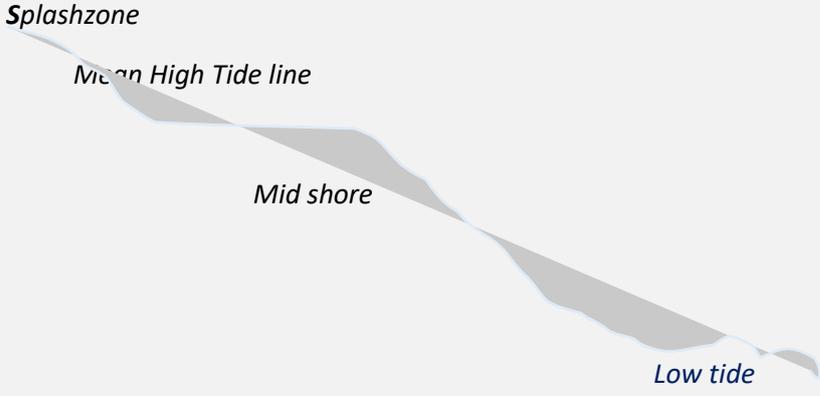
Q	Task /need	What	Notes
1	<p>Measure the longest thallus you can find and write in measurements. If it is growing in different areas and of different height in these, separate measurements could be tabulated. Measuring tape, Easiest to work in pairs.</p>	<p>1.1 Length of longest Sargassum thallus (from holdfast to tip) was _____cm</p> <p>1.2 Please take a photo with someone or two people holding it up.</p>	<p>Age and scope for growth in a season. Also we want to find the longest ...</p> <p>A photo showing a long Sargassum against the sea or sky is a powerful picture and the way it hangs confirms identity.</p> <p><u>Re PHOTO:</u> If you sent it to us we assume we can use it for noncommercial purposes in results and on our website and acknowledge you. Please add a note if you don't agree or want to give specific use instructions.</p>
2	<p>Area occupied Search for Sargassum in water and tidemarks of this shore. Measure or estimate the area</p>	<p>Tell us about the Sargassum you measured and it in relation to other Sargassum seaweeds here:</p> <p>If attached was it</p> <p><input type="checkbox"/> In intertidal rock pool(s)</p> <p><input type="checkbox"/> In the sea</p> <p><input type="checkbox"/> among lots of other Sargassum of similar height?</p> <p><input type="checkbox"/> a few other Sargassum algae</p> <p><input type="checkbox"/> OTHER: _____</p> <p>If swept up, was it:</p> <p><input type="checkbox"/> fresh and intact or</p> <p><input type="checkbox"/> dried out</p> <p><input type="checkbox"/> among other fresh and/or dried Sargassum?</p> <p><input type="checkbox"/> The only one I saw</p>	<p>Your note or sketch</p>
3	<p>Other seaweeds or plants it competes with</p>	<p>Is there any other seaweed or plant such as Zostera seagrass which the Sargassum is or might be competing with for space here?</p> <p>_____</p> <p>_____</p> <p>If yes please take photos</p>	
4	<p>Other Sargassum Information</p>	<p>Please add any information about Sargassum arrival and any impacts good &/or bad. Also growth pattern, who lives on Sargassum if growing. Any control effort or issues.</p>	



LITTER IN SEAWEED

DRAFT 2016 for trial and comment.

The aim here is to help tackle litter and micro litter on the shore and help implement EU Marine law (MSFD) where **"Properties and quantities of marine litter do not cause harm to the coastal and marine environment"** Marine litter is a global concern.. Every year, millions of tons of litter end up in the oceans, posing environmental, economic, health and aesthetic problems. Once in the sea litter might sink or get moved around and get caught in seaweeds along the coastal rim. One traditional seaweed harvester told us that there are areas which are no invested with small bits of marine litter (visible micro litter) that they cannot harvest there. This new draft survey tries to catch such areas and find out more about level of littering and main problem materials

<p>MARINE LITTER</p> <p>ON SHORE IN LIVE AND DISLODGED SWEPT UP SEAWEED</p>	<p>1. Looking down the shore, Circle and mark L where you see most litter items.</p> <p>Circle and mark M where you meso and micro litter.</p> <p>2. Is there meso or micro litter caught in seaweed?</p>	 <p><input type="checkbox"/> Yes in attached seaweeds</p> <p><input type="checkbox"/> Yes in cast up seaweed</p> <p><input type="checkbox"/> No</p> <p>If yes, Is it mainly:</p> <p><input type="checkbox"/> Plastic thread <input type="checkbox"/> pellets, <input type="checkbox"/> flakes</p> <p><input type="checkbox"/> Other _____</p>
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If you have the Coastwatch Micro litter app or can download now <http://coastwatch.org/europe/microlitter/> please use it to record micro litter. This is with view to highlighting the type of micro litter and any macro litter found in growing or swept up seaweeds (photo 1 and 2 in app) and use it to give a wider shore impression which might show its beauty off too (photo 3).

IF YOU ARE A SEAWEED HARVESTER AND FIND YOU HAVE TO DISCARD SEAWEED BECAUSE OF MARINE LITTER, PLESASE NOTE AND USE THE MICRO LITTER APP TO PHOTOGRAPH SEAWEEDS YOU CANT USE OR HAD TO DISCARD.

Notes

