

## Salcombe Harbour & Kingsbridge Estuary Marine Biosecurity Plan 2017- 2020

This local estuary biosecurity plan has been produced by the South Devon AONB Estuaries Partnership, the local relevant authorities, organisations, owners, users and community of the Salcombe Harbour & Kingsbridge Estuary with support from Robin Payne and Sarah Brown from C2W.

Non-Native Species (NNS) are those that have been transported outside their natural range by human activity. This may be the deliberate movement of a species, for aquaculture for example, but more frequently the accidental transport of species as ‘hitchhikers’ such as those attached to the hulls of vessels. When a NNS grows rapidly and starts to upset our environment, economy, health and the way we live they are often referred to as Invasive Non-Native Species. Whether a NNS becomes invasive or not is unpredictable and all pose some threat - in this document all are referred to as NNS.

Biosecurity means taking steps to ensure that good practices are in place to minimise the risk of spreading non-native species. A good biosecurity routine is essential, even where invasive non-natives are not yet thought to be present. No single business or sector has been targeted in this plan, as everyone has a vested interest and role to play in successful biosecurity. All actions within the plan are undertaken on a voluntary basis.

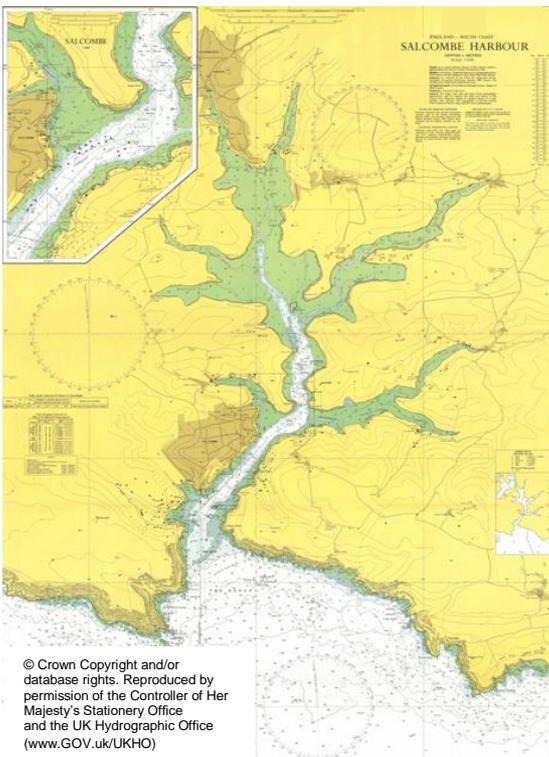
**The site** - The Salcombe Harbour – Kingsbridge Estuary lies on the south coast of Devon. It is a ria-type estuary with seven main creeks through relatively steep-sided valleys. The inlet is sheltered from the open sea by a submerged sand bar at the entrance. The lower estuary is characterised by rocky shores and sandy

bays while the upper reaches are predominantly intertidal mudflat. The particularly low volume of freshwater input results in marine conditions throughout much of the inlet. Extensive seagrass beds occur and the inlet is a major bass nursery.

The entire inlet is a marine Site of Special Scientific Interest for its rich diversity of marine habitats and communities and lies within the South Devon Heritage Coast and AONB. Much of the inlet is a Local Nature Reserve and the adjacent coastal Special Area of Conservation and Marine Conservation Zone both extend into the inlet. It is an important feeding ground for over-wintering and passage wildfowl and waders. The inlet has a very long history of study, survey and sampling by the local Marine Biological Association and others.

The inlet itself is predominantly owned by the Duchy of Cornwall and let to the Local Authority to manage as a municipal harbour; the harbour has a long history and now supports a significant

crabbing fleet and industry, and facilities for mainly recreational vessels – slipways, moorings, pontoons, pump-out, closed hull maintenance system, boat storage, bunkering, maintenance boatyards and active water sports. There are two large public slipways - popular for trailered craft launching, both for active water sports within and out with the inlet. The harbour is a designated ‘Ecoport’ and has a long history of conservation management.



## Salcombe Harbour – Kingsbridge Estuary – Top Ten Most UnWanted

### Five Already Here - Marine Non-Native Species to Live With



Pacific oyster (*Magallana gigas*) is native to Japan and SE Asia. Introduced to the UK in the 1960s for commercial purposes, feral populations have established in SE and SW England and Wales. Pacific oyster is an ecosystem engineering species, altering habitats and ecosystems through reef formation having a negative impact on native biodiversity. They can foul artificial structures and make shores hazardous because of the sharpness of their shells.

**Common cord grass** (*Spartina anglica*) is a hybrid of a native species and an American species. First recorded around 1890 and widely planted as a binder of tidal mud-flats and saltmarshes in many estuaries in England and Wales - has also spread through natural colonisation. Common cord-grass can form dense monoculture stands leading to a loss of wintering habitat for waders and wildfowl.



**Slipper limpet** (*Crepidula fornicata*) is native to North America and arrived in England in the late 19th Century and is now well established on the southern coasts of England and Wales. It can smother seabed species, alter seabed habitat structure dramatically and compete for food and space with other filter-feeding species including mussels and oysters.

**Wireweed** (*Sargassum muticum*) is a distinctive olive-brown seaweed originating from Japan. It is often over 1m long and its lateral branches hang like washing from a line when held out of the water. It is distributed widely around the UK. Wireweed competes with native seaweeds and sea grasses through rapid-growth, shading and abrasion. It can be a hazard to boating due to entanglement of propellers.



**Wakame** (*Undaria pinnatifida*) is a fast-growing brown kelp, native to the NW Pacific with fronds reaching 1-3m. The blade has a distinct midrib. Tolerant of a wide range of temperatures and salinities and grows well in estuarine conditions. It is particularly prevalent along the south coast of England. It competes for space with native kelp species and may be a nuisance fouling jetties, vessels, moorings and buoys.

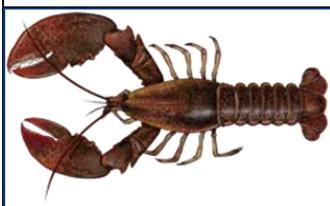
### Five Most Likely to Arrive in the Future - Marine Non-Native Species to Look Out For

**Carpet sea squirt** (*Didemnum vexillum*) was first recorded in 2008 in Holyhead and since at several locations in the UK. It forms pale orange, cream or off-white colonies of extensive thin sheets and can form long pendulous outgrowths. Colonies can rapidly overgrow other fauna and occupy a substantial proportion of available space. It can achieve very extensive coverage of the seabed, smothering species such as mussels and oysters.



**Orange cloak sea squirt** (*Botrylloides violaceus*) is native to Japan and forms firm gelatinous sheets or cushions up to 15 cm across, each colony has a single colour: bright orange, violet, brick red, pink or yellow. It is well established in harbours and marinas throughout the UK. Colonies can overgrow other fauna and occupy substantial space. There is some evidence of displacement of native species. Colonies can also block inlet pipes on vessels.

**Chinese mitten crab** (*Eriocheir sinensis*) first introduced to the Thames Estuary in 1935 and is now established in several sites throughout England and Wales. Breeding adults and juveniles occur in lower estuarine salinities, migrating upstream into brackish and freshwater systems as they grow. A voracious predator that will consume a range of native species, impacting on invertebrate and fish populations. Adult crabs burrow into river banks causing bank collapse, increasing erosion and river turbidity.



**American lobster** (*Homarus americanus*) is native to the E coast of N America and Canada - first recorded in the UK in 1988. Probably arrived through the escape of live food imports. An aggressive and adaptive species which can out-compete native European lobsters, and other economically and environmentally important species, such as the brown crab. Additionally, American lobsters hybridise with native lobsters.

**Asian shore crabs** (*Hemigrapsus sanguineus* and *H. takanoi*) are native to the NW Pacific. Both species were first identified in the UK in 2014 They are small squarish shaped crabs with three carapace 'teeth' behind well-spaced eyes. They occur on muddy and rocky shores and in sheltered estuaries and port areas, they have also been found in oyster reefs. They can out-compete the native shore crab and could have a negative impact on prey species such as juvenile mussels and oysters.



**Pathway, Risk and Biosecurity Actions** - this section sets out the likely pathways for non-native species introduction to the Salcombe Harbour-Kingsbridge Estuary, the range of vessels and other vectors which could carry them – both into or out of the estuary. A brief analysis of the pathway and likelihood gives a high, medium or low risk rating. Biosecurity actions propose appropriate and achievable actions to minimise this risk given current knowledge, local management capacity and resources.

Pathway/Vector	Detail/Activity	Analysis and Risk	Biosecurity Actions	Comments
Cruise ships	Ballast water transfer Hull fouling transfer	LOW	General biosecurity awareness – focus on ship’s launches	Cruise ships – harbour too shallow but may anchor outside and ferry passengers in by launch Some low-level ferry traffic between Dartmouth
Freight shipping	Ballast water transfer Hull fouling transfer	LOW	General biosecurity awareness	Indirect risk from Plymouth docks
Fishing vessels	Fouled nets and gear Disposal of by-catch Ballast water Frozen sea water Hull fouling	MEDIUM	Discourage local discard of waste Discourage open hull maintenance within estuary	Vessels may visit various harbours and fish in many grounds – requires further industry led biosecurity awareness and actions
Recreational vessels (power and sail) including yachts, motor cruisers, day sailor/trailer launched boats and kayakers	e.g. yachts, cruisers Hull fouling Shellfish food waste In-water hull cleaning	MEDIUM	- Encourage biosecurity awareness and active vigilance by all users – Harbour Guides, noticeboards, slipway information, clubhouses, RYA & BCU membership news. - Manage DIY & open vessel hull maintenance – insist all debris collected and removed to landfill. - Promote Check, Wash & Dry campaign with relevant groups & regattas	Yachts mainly S coast, Channel Is., France, but some worldwide Includes transfer between water bodies on equipment and clothing e.g. kayaks, dive gear, jet-skis, fishing gear
Live fish and Shellfish export	Vivio tank water INNS contaminated shellfish	MEDIUM	Investigate biosecurity of live fish transport system – seek industry assistance to tighten as required General awareness raising	EU & international export Live wrasse capture for fish farming
Aquaculture - shellfish	Oyster bags Import/export of live stock	MEDIUM <u>LOW</u> *	Follow industry led biosecurity plan	* cultured area in ‘tick-over’ due to local water quality issues

Pathway/Vector	Detail/Activity	Analysis and Risk	Biosecurity Actions	Comments
Marine engineering - including boat maintenance	In-water cleaning Slipway cleaning	HIGH <u>MEDIUM</u>	Promote hull maintenance best practice – removing all debris to landfill where this occurs	
Port infrastructure – Walls/breakwaters/jetties/piers/slipways	Construction and maintenance, importation of materials Dredging Dredged material disposal	MEDIUM	- Highlight risk within AONB Planning Guidance re. construction barges etc. - Promote use of natural materials within hard developments that encourage a high health natural marine community. - Include biosecurity restrictions within construction & dredging operations and contracts.	Higher risk - use of slow moving vessels in construction or dredging, often from outside the local water body Consider NNS within dredged material disposal
Relocation of structures and equipment	Movements or disposal of pontoons, barges, buoys, anchor chains, underwater equipment	LOW	Promote use and maintenance of antifoulant coatings of structures where the fouling community needs control & cannot mature*	*Mature native fouling communities naturally restrict recruitment sites available for NNS
Live release	Deliberate release of unwanted live food / bait / aquarium discards	MEDIUM <u>LOW</u>	Raise awareness of biosecurity risks of releasing live NNS into local waters – (may also impact local genetic provenance) – relevant media e.g. Harbour Guide / Notices	Reports of unused stock of the American lobster, <i>Homarus americanus</i> having been thrown overboard from cruise ships. Examples of Buddhist release of same species Local 'fly tipping' of post-processed shell
Marine debris and litter	Tidal and ocean currents	LOW – part of natural dispersal / migration process	Add to general litter risk message Highlight biosecurity risk within beach clean event – warn against refloating of fouled flotsam	Many small species such as bryozoans, barnacles and tube worms can survive on small plastics. Plastic litter can travel long distances e.g. from N America

## HELP TO STOP THE SPREAD OF MARINE NON-NATIVE SPECIES

### Simple Biosecurity Actions and Measures for all who use the Salcombe Harbour and Kingsbridge Estuary

'CHECK – CLEAN – DRY' - Non-native species cannot survive long-term desiccation.

- **Check** all vessels (dinghies, trailer-sailors, jet skis, kayaks) and equipment (trailers, dive gear etc.) which can be removed from the water
- **Clean** them thoroughly
- **Dry** completely before using again

See [www.nonnativespecies.org/checkcleandry](http://www.nonnativespecies.org/checkcleandry) and @CheckCleanDryGB for further details

When recovering a trailer, dinghy, PWC or RIB, drain water from every part of the boat and all equipment that can hold water

For boats kept in the water permanently, hull fouling is the main means of transfer. Clean yacht hulls well away from the water and collect all scrapings and dispose of to landfill.

If you must use a scrubbing grid or slipway, only scrub off the fouling and not the underlying paint. It is a Salcombe Harbour Authority requirement that all scrapings and debris are carefully collected, and are disposed of to landfill.

Select a wash-down facility that collects residues and at least filters wash down water.

Make sure that the hull of your yacht has an effective anti-foul and renew on a regular basis. Keep propellers, bow thrusters and anodes clear of fouling.

Look out for vessels with high level of hull biofouling, advise the boat owner of the biosecurity risk and inform the harbourmaster

Follow best practice and encourage others to do the same. Go to the Green Blue [www.thegreenblue.org.uk](http://www.thegreenblue.org.uk) and to [www.nonnativespecies.org](http://www.nonnativespecies.org) for advice

Keep vigilant, you don't need to be an expert to spot something new or unusual. Report any suspicions on invasive species sightings to the Harbourmaster. Send records of sighting to iRecord - [www.brc.ac.uk/irecord/enter-non-native-records](http://www.brc.ac.uk/irecord/enter-non-native-records) or iSpot - [www.ispotnature.org](http://www.ispotnature.org)

Download species identification cards from the Marine Biological Association:  
[www.mba.ac.uk/shore\\_thing/documents/Marine\\_cards\\_2015.pdf](http://www.mba.ac.uk/shore_thing/documents/Marine_cards_2015.pdf) [20.7MB PDF]

[www.mba.ac.uk/sites/default/files/AlienInvadersCards2013.pdf](http://www.mba.ac.uk/sites/default/files/AlienInvadersCards2013.pdf) [4.4MB PDF]

[www.mba.ac.uk/sites/default/files/downloads/ID%20NNS%20English.pdf](http://www.mba.ac.uk/sites/default/files/downloads/ID%20NNS%20English.pdf) [15MB PDF]

Citizen Science NNS survey recording schemes - [www.mba.ac.uk/citizen-science#b38](http://www.mba.ac.uk/citizen-science#b38)

## Keeping a watchful eye – Site monitoring and surveillance

Everyone can play a part in looking out for marine non-native species; you don't need to be a marine biologist. Don't aim to identify every species, concentrate on the "ten most unwanted" on Page 2. Become familiar with the NNS already present. Report any major changes in their abundance. Look out for anything new especially unusual growth patterns, areas which have obviously quickly been taken over or which just don't look 'normal'. **Take photos, a grid reference, estimate the quantity/area covered and report to the Harbourmaster.** You can also record your sighting using the iRecord website [www.brc.ac.uk/irecord](http://www.brc.ac.uk/irecord) or the SeaLife Tracker app [www.brc.ac.uk/sealife\\_tracker/home](http://www.brc.ac.uk/sealife_tracker/home) Think about combining monitoring for NNS as part of other routine checks and inspections which you may already be involved in.

## What to do if there's an incident or breach of biosecurity

Some biosecurity threats may need a co-ordinated response from the relevant authorities. Anyone can help by raising the alarm in these cases and providing the authorities with information about the threat. The most likely incidents are the arrival of a vessel with heavy biofouling from a distant location. Here is some guidance on what to do if you spot a suspect vessel or species.

Biosecurity Threat	What to do
Unplanned or unexpected arrival of a vessel within the estuary which poses a high risk of introducing NNS or discovery of significant marine debris with extensive bio-fouling	Collect any information on you can on the vessel (name, type, location in harbour, port of origin/recent port visits) Make a simple assessment of the level of biofouling Alert relevant authorities and the Harbourmaster
Discovery of a new NNS on the unwanted list or suspicious marine growth	Photograph specimen. Record location and approximate size of area affected. If feasible keep specimen in a pot/bucket of seawater for expert to examine. Report to Harbourmaster.

## Key Contacts

Contact	Responsible for
AONB	Coordination of South Devon Estuaries Management Plan, Estuary Biosecurity Plans and Estuary Forums – <a href="mailto:Nigel.Mortimer@SouthDevonAONB.org.uk">Nigel.Mortimer@SouthDevonAONB.org.uk</a> – 01803 861465
CEFAS	Management of aquaculture – Fish Health Inspectorate <a href="mailto:fhi@cefas.co.uk">fhi@cefas.co.uk</a> – 01305 206700
D&SIFCA	Management of a sustainable marine environment & inshore fisheries <a href="http://www.devonandsevernifca.gov.uk">www.devonandsevernifca.gov.uk</a>
Duchy of Cornwall	Estuary Fundus owner – <a href="http://www.duchyofcornwall.org">www.duchyofcornwall.org</a>
EA	Protect & enhance the environment – freshwater <a href="mailto:nick.whatley@environment-agency.gov.uk">nick.whatley@environment-agency.gov.uk</a>
GB NNSS *	Non-Native Species Secretariat - <a href="mailto:alertnonnative@ceh.ac.uk">alertnonnative@ceh.ac.uk</a> ___ <a href="http://www.nonnativespecies.org">www.nonnativespecies.org</a>
Harbourmaster	Harbour moorings, navigational safety and estuary management <a href="mailto:Salcombe.Harbour@swdevon.gov.uk">Salcombe.Harbour@swdevon.gov.uk</a> 01548 843791
MMO	Marine planning, licensing, fisheries management, monitoring & enforcement, protecting the marine environment - <a href="mailto:claire.bowers@marinemanagement.gsi.gov.uk">claire.bowers@marinemanagement.gsi.gov.uk</a> – 02080 266018
NE *	Statutory marine conservation advice <a href="mailto:Jan.Maclennan@NaturalEngland.org.uk">Jan.Maclennan@NaturalEngland.org.uk</a> – 02080 267450

\* Contact for escalation of significant NNS invasions

## Further Advice

Distribution information on species from the National Biodiversity Network [www.nbnatlas.org](http://www.nbnatlas.org)

The Green Blue for biosecurity advice [www.thegreenblue.org.uk/Boat-Users/Antifoul-and-Invasive-Species](http://www.thegreenblue.org.uk/Boat-Users/Antifoul-and-Invasive-Species)

Great Britain Non Native Species Secretariat [www.nonnativespecies.org](http://www.nonnativespecies.org) including their marine and biosecurity pages [Biosecurity in the field](#) , [NNS Information Portal](#) and [Identification sheets](#)