Planting of species which can intercept run-off through designated areas can reduce run-off impacts as the plants act to store the contaminants in their vegetative growth. The resultant water release from a designed and planted buffer zone can be significantly reduced, or at least managed, for pollutants plus the planting adds aesthetic value to what can be a relatively barren environment.

The design of planting should ideally encompass indigenous plant and tree species, for example common reed (Phragmites australis) has been successfully used in water treatment beds, or perhaps more practical, some tree species are also effective such as silver birch. Using this knowledge effectively, the marine industry has at its disposal a passive tool to help manage impacts on the sustainable use of the very environment the boating industry exists to promote. This may be housing, industry, farming, car parking etc. as well as the activities within the marina or yard.

Other Opportunities

Other simple opportunities to help improve the environment include turning off some of the on-site lighting when not required. It would also be worth considering the angle of the security lights, so they cause less light pollution. Lights should be angled downward and away from the water or alternatively shielding should be used to reduce the amount of ambient light escaping upward. This will benefit our native bats and aquatic species.

The UK has 18 species of bat ranging from tiny Pipistrelles to the Greater Mouse-eared with a wingspan up to 18 inches. You may have seen bats around the marina or yard during autumn evenings flitting around whilst feeding. Bat detectors provide a fantastic means of picking up and recording the bats' echolocation.

Each species uses a different frequency and resonation which can be used for identification. Detectors are reasonably priced or alternatively you can download an app on your phone! Find out more about bats on the Bats Conservation Trust website (www.bats.org.uk). Additionally, why not incorporate an insect or bee house into your planter or on a nearby fence or wall? Watch for the insects to make leaf doors to seal the chambers. Visit www.urbangardensweb.com for more ideas on how to make your own or where to buy them.

YBDSA AQASS LIMITED dean&reddyhoff Anableps Ecology

About the Contributors – This guidance has been put together by representatives from:

AQASS - established in 2016, AQASS is a micro consultancy and research company which draws on a central team with over 40 years' international experience in the water sector. Concentrating on marine and freshwater management and infrastructure project guidance, with a focus on pollution and habitat restoration, AQASS benefits from strong academic, commercial and conservation experience; core staff hold Visiting Researcher status at the Russell Group University of Southampton (UK). www.aqass.co.uk With thanks to Dr Simon Bray and Dr Ilse Steyl.

DEAN REDDYHOFF MARINAS – have a commitment to reducing the impact of their business activities on the environment to minimise waste; reduce carbon emissions; reduce water and energy consumption; promote recycling; source products and services which minimise the impact on the environment and promote sustainability. www.deanreddyhoff.co.uk With thanks to Dave Hill, Dean Reddyhoff Marinas' Head Gardener.

YACHT BROKERS, DESIGNERS AND SURVEYORS ASSOCIATION – the UK professional association providing membership benefits across training, legislation, technical and commercial activities, including MCA authorisation for tonnage measurements for registration and certification under the Small Commercial Vessel codes. www.ybdsa.co.uk With thanks to Jane Gentry, CEO.

ANABLEPS ECOLOGY – is run by Matthew Davison, a dedicated aquatic ecologist with 15 years' commercial experience working throughout the UK and abroad. Matthew offers a broad range of both survey and desk-based services including: environmental impact assessment (EIA), pre- and post-dredge licence support, screening and feasibility studies as well as phase I habitat assessments, protected species surveys and underwater monitoring using drop down cameras, ROV's, grab samplers and trawls. enquiries@anablepsecology.co.uk With thanks to Matthew Davison.

A GUIDE TO IMPROVING THE ENVIRONMENT & HABITAT IN MARINAS, BOATYARDS & BROKERAGE OFFICES

Introduction

Marinas, boatyards and offices can often struggle to integrate with nature due to hard-edged urban landscaping. This leaflet offers some practical and pragmatic advice on how the marine industry can help improve the environment and play a small part in changing the future.

By encouraging nature to flourish not only helps the environment but also introduces vibrance and warmth to our workspace. This in turn promotes a bright outlook for your business and encourages positivity by promoting a sense of pride and care in the environment around us.

Purpose

This guide aims to provide some ideas about planters and how they can be used to beautify your outside space while at the same time provide a beneficial habitat for a variety of wildlife including pollinating insects, bees, butterflies and birds. The guide also provides some useful guidance on how planting can help remediate the effects from pollution contained within surface water run-off.

Planting

It is always best to try to use locally sourced indigenous plants where possible. Information on wildlife-friendly planting can be found at most good garden centres or for more information visit the following websites: www.wildlifetrusts.org/gardening; www.beethamnurseries.co.uk/beetham-journal/planting-for-bees-and-butterflies www.woodlandtrust.org.uk; www.growwilduk.com.

Pollutants

There are a variety of pollutants that can be found in the marine environment that may originate from sea users but may also emanate from our rivers and land. Land sources include cars and other vehicles, farms, wastewater treatment works and various other industries. When it rains the surface-water created washes a cocktail of these pollutants off the land and into our waterways where they make their way out to sea. Planting can help reduce the amount of surface run-off and so prevent some of these pollutants from entering our waterways and marine environment. Scientists are working to understand better the problem we face with a useful summary being available in the 'State of Nature Report' published in 2019 www.marinaproject.eu/index.php/category/pollution/.

Planting Suggestions - Planters

The most satisfying results often come from creating something out of nothing. Where possible, always try to recycle with the best planters being created from discarded materials from around the marina or washed up on a beach. These may include:

- Driftwood to give height and structure;
- Stones of various shapes and sizes;
- Old railway sleepers for edging;
- Tyres that may be painted and filled with earth;
- Fenders that have been cut in half.

These offer inexpensive solutions that give that attractive 'weathered' look you can't buy from any shop. By adopting the recycling approach, you are not only helping the environment but it may also deter vandalism thus safeguarding your planter.

Location
Coastal locations need to emulate the plants natural surroundings which generally consists poor soils and good drainage. Whereas inland locations don't have the sea air and winds to contend with so are less restricted and can use a wider variety of plants. If planting on a gradient, follow the three simple steps below:

1. Give it a good weed
2. Cover with coconut matting
3. Plant through the matting

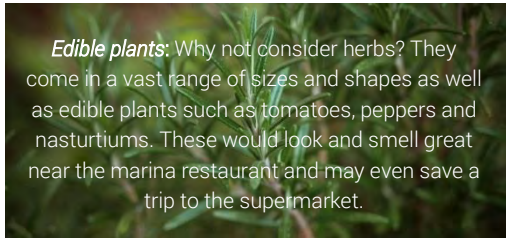
The biodegradable matting will help stabilise the bank while the plants take root. Over time the mat will rot away leaving a stable community of established plants. Alternatively, you can use wildlife seed mixes which can be bought as wildflower turf or pre-seeded mats. This help prevent the seeds from being blown or washed away.

Try to plan your bed and think about which direction it will be facing. This is important because many south-facing (into the sun) plants will be fine, but not all. Planting in shaded areas will require a more tolerant type of plant (see below). It is also good to think about height, colour, leaf shapes and how to incorporate any special features such as driftwood.

Remember
- Plenty of drainage using stones or crocks in the bottom of the planter is vital
- Ensure you have good ground coverage as you don't want to weed or mow
- If using hanging baskets, be sure visitors can't hit their heads.

Choice of Plant
General use: Plants such as sea holly, thrift, crocosmia lucifer and grasses of various heights are simple and effective, with some small and large stones to set them off and avoid weed issues. Houseleeks are ideal for tucking into corners or around a piece of driftwood. Inland areas can use verbenas, crocosmias, native fuchsias, hellebores, etc. Try to use single flowers which are easier for the pollinating insects to access.

Choose plants with hips, seed heads and twig shapes for winter interest. You can also pop in some bulbs in the autumn for early colour in the spring (Note: local schools are often keen to get involved especially if you are doing a big bulb plant on a bank or lawn).



Shaded areas: use hellebores, ferns, ivies, Solomon's Seal, foxgloves, snowdrops, cyclamen and primroses. Variegated leaves also help to create interest.

Grasses: come in a huge range of colours, sizes and designs with waving plumes or shaking seeds for instance. In a large swathe they look stunning moving in the wind or can be just as effective as a single plant in a pot.

Hedges: can act to protect the marina or divide up car parking – remember to be creative! Sea buckthorn helps to inhibit soil erosion and is used in land reclamation for its nitrogen fixing properties, wildlife habitat and soil enrichment as well as for its beneficial berries. Lavender for a lower hedge, beloved by bees and with a wonderful scent. Teucrium fruticans comes in a variety of deciduous, evergreen and perennials with aromatic leaves – var. Azureum has an attractive blue flower. Dwarf buddleia is wonderful for butterflies. Smaller indigenous plants include cowslips, foxgloves, honeysuckle, primroses, ox-eyed daisies for example. **Note**: For more ideas about which plants to use check out the list kindly shared by Dave Hill at www.abya.co.uk.

Soil
It is not recommended that you buy compost especially one containing peat. Instead, why not make your own? To have a go, just follow the steps below:

1: Locate at least two medium or large sized bins (one will be used for 'breaking down' material and the other you are 'adding' material;
2: Once full, leave nature to take its course over the next 12 months (an occasional stir helps);
3: Bingo… free compost!

Liquid fertiliser can be made from nettles or borage, an attractive plant also known as 'starflower' with blue flowers growing up to 1m tall and again loved by bees. If you have space, why not plant sunflowers which provide an excellent source of nutrition for birds at the end of the year, especially goldfinches.

Maintenance
Don't make the planters unnecessarily hard work to maintain. Often all you need to do is remove the occasional dead flower or leaf and water well during extended dry spells. Do not be tempted to use chemicals, slug pellets or chemical sprays. Instead, a good rinse with washing-up liquid bubbles will be enough to prevent black / green fly. Some plants, especially shrubs like buddleia, will need pruning to keep them compact.

Reducing Contaminated Run-Off
Marine facilities are found at geographic low points beside rivers, canals or the sea, they are vulnerable to run-off from the local area both at point source (pipes etc.) and diffuse sources (roads, fields, car parks etc.).

Diffuse pollution is a major source of introducing contaminants into aquatic environments. It is a gradual effect that does not attract the attention that a major incident like an oil spill might. However, over time pollutants such as hydrocarbons, heavy metals and microplastics as well as excess nutrients (nitrates and phosphates) accumulate in aquatic systems. This causes long term environmental stress on aquatic species and communities.

Many marinas are built in sheltered areas where saltmarsh (an area of grassland that is regularly flooded by seawater) used it exist. Saltmarshes are now a protected habitat as, among many other benefits, they can take up significant amounts of contaminants.

This acts to buffer land-based run-off from flowing directly into our marine environments. Recognising the loss of saltmarsh, and that marinas can be significant diffuse runoff sources as well as point sources e.g. of antifoul wash-down, then it is possible to undertake planting to act as a "bioremediation" buffer zone to take up contaminants.