

NIGEL
BURGESS

HOW GREEN IS YOUR YACHT?

As concern grows over climate change and marine ecosystems, more yacht owners are beginning to ask questions about their impact on the environment. Fortunately, the technical experts at Nigel Burgess can provide the answers.

COMPLIANCE OR CONSCIENCE?

“Many clients are not satisfied merely to meet international requirements and protect themselves from liability,”

explains Ray Steele, technical engineering manager in the Nigel Burgess new construction division.

“They actually want to go beyond the requirements, for the benefit of themselves, their family and future generations.”

So how difficult is it to reduce the impact of a large yacht on the environment? We are all aware of what has happened with regulations about car exhaust emissions, which have spurred the use of such measures as catalytic converters and refinements to the fuel itself.

Similar regulations apply to all vessels.

“We fit catalytic converters wherever possible to the exhaust systems on our yachts,”

says Steele. However, being green is not purely a matter of conscience.

“No yacht owner wishes to see newly scrubbed decks fouled by soot and particulate emissions whenever the diesel engines are started, and minimising emissions helps to keep decks and superstructures clean.”

One side effect is a reduced need to use detergents.

OIL AND WATER DON'T MIX

Oil pollution is an obvious risk for anyone using an engine at sea. However well kept and supervised the machinery spaces of a yacht are, there will always be some leakage of oil and oily water from these areas. This may be natural leakage, or spillage when repairs or maintenance are carried out.

Ray Steele outlines the solution recommended by Nigel Burgess:

“We pump this oily water through a separator, extracting the oil and leaving water containing no more than five parts per million of oil residue, well below the limits allowed by Regulatory Authorities.”

However, in some ecologically sensitive areas of the world, the discharge of even this low level of contamination is not allowed. Yachts project-managed by Nigel Burgess are therefore built with sufficient storage capacity to contain the residue until it can be disposed of safely.

Once again, environmental protection has an additional benefit for owners and charterers who do, after all, intend to enjoy the water and their natural surroundings. In sheltered areas, even the tiniest drop of oil in water can produce a sheen of oil on the placid water of harbours or coves, which is far from attractive to swimmers and other water users. In these situations, modern yacht systems can re-circulate the discharge until the circumstances change and normal operation can be resumed.



The yachting industry as a whole is subject to International Environmental Legislation, which applies to all marine operators. These regulations can be complex, and a key role of the Nigel Burgess technical advisor is to interpret them and ensure that the yacht complies with all the legislation.

PROTECTING THE MARINE ENVIRONMENT

Some of the tightest regulations relate, thankfully, to the discharge of sewage. Things have come a long way since the 'head' was no more than a hole in an overboard plank. Today's large yachts have their own treatment plants that effectively handle all sewage and wastewater. Ray Steele tells a story, perhaps apocryphal, from marine engineering circles:

“One manufacturer of treatment plants demonstrates the various functions of their plant, culminating by drawing off a glass of water - the final product. The glass is then offered to the visitor, who understandably, refuses. Rumour has it that the guide then quaffs the glass with relish!”

Such stories notwithstanding, the technical advisors at Nigel Burgess recommend that yachts are equipped with waste treatment systems beyond those of international requirements.

“In recent years, we have also incorporated secondary filtration treatment systems as used in the cruise ship industry to further improve the quality of water that goes back into the sea.”

The recycling of wastewater for technical use, is also an area where energy can be saved, minimising environmental impact.

Another issue that has recently come to international attention is the inadvertent transportation of marine organisms around the world by ships. On larger yachts, seawater is used as ballast for trimming purposes. Uploading ballast water in one area of the world and discharging in another can release organisms into areas where they do not naturally occur, with consequential impact on the local environment. Nigel Burgess ensures that all of its managed fleet and new construction projects comply with recent legislation.

CULTIVATING THE NO-THROW CULTURE

Any yacht produces garbage. There will be leftovers and trimmings from even the most sumptuous dishes, and all those champagne bottles have to go somewhere. There was a time when onboard incineration was the answer, but an incinerator is a high maintenance machine, requiring a lot of attention by the engineering crew. If not maintained to the very highest standards, the exhaust fumes can quickly deteriorate below acceptable standards. Who wants half burnt paper, cardboard or cabbage leaves raining onto the sunpads? Many harbours, particularly in the USA, have banned the use of incinerators in port.

Today, more sophisticated systems are available. Wet rubbish, such as kitchen peelings, is de-watered to leave a dry, easily compacted residue that can be stored until it can be disposed of safely. Packaging materials can be shredded to a fraction of their original size and baled in the same operation for easy storage. As for those bottles, international regulations permit the discharge overboard of glass which will pass through a 25mm sieve, and all new Nigel Burgess project managed yachts are equipped with bottle crushers that grind glass waste to the required size, reducing the volume of waste to be stored.

NIGEL
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“At Nigel Burgess, we are committed to staying abreast of all current and future developments that have implications for our clients,”

says Ray Steele. He goes on to describe some of the more interesting technologies now in their infancy. Take solar power, generated by photo voltaic cells. Yachts tend to be based in sunny areas of the world and are large consumers of electrical energy. Offsetting the free energy available from the sun against your carbon consumption could, in the future, be worth consideration.

“The electrical supply on board is usually diesel powered, and must be large enough to provide the maximum energy requirements of a full complement of owner, family, guests and crew. This usually requires at least two diesel alternators operating at about 90% of capacity. Items like air-conditioning and swimming pool heating have a significant impact on generator capacity.”

However, perhaps the most useful application of solar power would be at times when only the crew is on board. Their energy requirements may be less than one quarter of the maximum capacity, but as Steele says:

“Diesel engines are generally unhappy when operating at low power. At below 50% of capacity, a diesel engine is less fuel-efficient, the exhaust tends to be dirtier and maintenance requirements increase.”

Space requirements may preclude the inclusion of an additional small harbour generator, and environmentally preferable shore power may not always be available. If solar energy could efficiently bridge this gap at the lower end of energy requirements, many designers would heave a sigh of relief.

High oil prices, as well as concern about global warming, are driving many exciting developments in engine design. As Ray Steele notes:

“We’re keeping a close eye on developments in the automobile industry, where fuel cells are seen as a way forward for power generation.”

At present the power to volume ratio is not really good enough for fuel cells to be useful in reducing local pollution, but with prototypes being engineered by a number of manufacturers, this may not be too far away.



Whatever the future holds, the technical team at Nigel Burgess will be at the forefront of environmental developments in yacht design and operational management. After all, a sustainable yachting industry is one that protects the investment of yacht owners, as well as the beautiful destinations and ocean environments we all enjoy.