



Marina[®] DOCK AGE

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Marina Environmental Report – How Are We Doing?

by Robert Wilkes

Here's a question. Is it better for the marine environment to (A) build a marina basin with a concrete floating-dock marina, or (B) leave the bay, riverside or estuary with no development at all? Years ago the answer was obviously (B). No longer.

“Marinas made of carbonates are artificial reefs,” said Todd Turrell, principal at Turrell, Hall & Associates, a marine and environmental consulting firm in Naples, Florida. “Concrete docks, piles, bulkheads and riprap are habitat. They're colonized by bivalves, tunicates and other filter feeders that remove particulates and pollutants from the water. That allows sunlight to penetrate the water column so photosynthesis can take place, add oxygen to the water and promote plant growth. If your marina has adequate flushing, there is a good chance that the water is as clean as before it was built. Of course, there can be a negative impact from boats in a marina, but that is typically minor compared with the benefits to the ecology.”

Carbonate-Structure Habitat

Turrell's firm was commissioned by Bellingham Marine to perform a detailed study of the effects of introducing a concrete floating dock marina into the environment and to identify the types and quantities of marine life that colonize such a structure. The study was conducted at Regatta Marina in Naples, Florida. Apart from the extensive list of species found, the study verified the overwhelming benefits to the environment of providing habitat with concrete structures. In the case studied, the marina replaced a barren mud bottom and a seawall.

Turrell has observed this throughout his travels. “In the Florida Keys, some marinas have vase sponges two feet long and 18 inches across attached to the docks with lobsters living inside. You'll find crabs and fish grazing on the algae,

a rich marine ecosystem. Developments like these can make the environment better than before they went in, again, subject to impacts of boats in the marina. We drop riprap in the ocean to create an artificial reef. A marina creates a similar habitat.”

Turrell said that one of the main threats to the environment today is CCA (copper, chromium and arsenic) treated piling. “We've solved that problem by encasing them in plastic. The plastic sleeve makes an area around the pile anoxic so marine organisms no longer destroy the wood and the CCA is contained. The pile can then last indefinitely. Plastic sleeves are required by code so CCA is no longer a problem.”

“Water quality has three main components,” Turrell said, “clarity, nutrients and dissolved oxygen. A project I consulted on in the Bahamas illustrates the point. It was an estuary with poor circulation and stunted mangroves. Once improvements were in place, the ecosystem came to life. The presence of a development increased circulation and oxygen levels in the water. The mangroves are much healthier than before.”

These changes took time, effort, commitment and learning. We have

a lot to be proud of as an industry. As we interact with regulators, permitting agencies and the public at large, especially environmental groups who oppose development, keep this in mind: we are the good guys.

It wasn't always so. Fifty years ago San Pedro harbor in the Port of Los Angeles, then as now, was alive with shipping and industry—but dead environmentally. Chris Crafts moored to the creosote-soaked fixed-timber docks had bottoms with life-killing TBT or copper-based antifouling paint. The water was turbid, dark, foul and mostly lifeless. Contaminated industrial waste was routinely piped into the harbor. Fuel spills got little notice or attention. Floating trash and dying seaweed collected in the corners of piers and marinas. In the upper reaches of the Dominguez Channel Estuary, the water was anoxic and devoid of life.

The Port of Los Angeles

“The demarcation that made all the difference was the Clean Water Act in 1972,” said Kat Prickett, environmental specialist with the Port of Los Angeles. Prickett works in the Environmental Management Department in the Water Group. She has, among her other duties, responsibility as a resource on environmental issues to the 16 marinas in the harbor. “Years ago the water in the back channels was so anoxic,” Prickett said, “that when a boat went up there the hull would be clean. Everything attached to the hull would die.”



This crab has made a home at the Port of Los Angeles. Port and marina harbors are not a threat to aquatic ecosystems, but can be an asset, especially at places like the port where consistent monitoring and testing of the water occurs.

Prickett involves the marinas, boaters and neighboring industry in her clean water initiatives. “We have a unique boating area,” she said, “a vast recreational waterscape surrounded by ships and industry. Nevertheless, the harbor is alive with biological diversity and the water is clear.” Monitoring, testing and measurement are an important part of Prickett’s job. “One good indicator of progress is that we see many more pollution-intolerant species in places where we saw only pollution-tolerant species before. We now have fish species that lay eggs, spawn and live entirely within the harbor. Eel grasses are forming even in the upper reaches of the channel.”

Clean Marina

Prickett was in the process of creating a port-managed Clean Marina program when she noticed the California Clean Marina Program. “They were the pioneers and they had a lot of energy and ideas. We liked what they did, so we dropped our own program and encouraged our 16 marinas to get certified with them. Having them certify individually with an outside party resulted in greater commitment.”

“Our success is due to continuous learning and implementation of new programs and good practices,” she said. Prickett and the Port’s Water Group monitor the Port’s industrial neighbors, including measuring TMDL (total maximum daily loads) from industrial point sources around the harbor. She is alert to problems from the 100-square-mile estuary whose waters pass through the harbor to the ocean.

One of her most effective new projects is the port’s installation of Marina Trash Skimmers from Marina Accessories. Prickett acquired a number of them with funding from a settlement with an industrial company found to be polluting the air and water.

“The skimmers draw in and contain trash until it can be emptied by marina staff,” Prickett said. “This is much safer and more efficient than having staff collect trash throughout the marina and particularly trash that can get stuck on rocks and riprap during low tides.” Skimmers also trap petroleum

in absorbent pads for later disposal and have a 300 GPM pump that aerates the water and creates circulation. “We are purchasing two more this year and planning to get another two next year,” she said.

Oceanside Harbor

Creative and energetic management has made the 956-slip marina at Oceanside Harbor a leader in environmental good practices. Paul Lawrence, harbor manager, has implemented a number of initiatives. “The whole notion of a marina as a threat to the environment is outdated and wrong,” Lawrence said. Progress is made gradually by developing good habits and attention to detail. Lawrence believes that when their marina is a model of good stewardship tenants treat the environment with more care.



Marina trash skimmers from Marina Accessories are a popular way to clean the water without manpower. They can also get to hard-to-reach places and aerate the water.

Oceanside Harbor is also enthusiastic about the Marina Trash Skimmers they have in operation. “We have two here now and two more about to be shipped to us,” Lawrence said, “and we’ll probably get more. We station them where the prevailing wind traps trash and where the water is not clear. I’m especially pleased to see all the plastic debris we collect because plastic is so harmful to wildlife.”

Lawrence is winning the hearts of the boating community in his marina. “We give out free bilge pads and they bring them back so we can properly dispose of them. We accept used oil, automatic transmission fluid, antifreeze, fuel filters and oil filters. There is no charge for any of that. We make our sewage and bilge water pump outs available to all

at no charge and invite boaters and the military from outside the marina to use them. We have state-of-the-art oil-water separating bilge pump out equipment and we’re experimenting with ways to reduce water usage.

“We should share and mainstream the best practices with other marinas and environmental experts,” Lawrence said. “There are genuine efficiencies to banding together.”

Boaters Solutions, not Problems

“Boaters are the best stewards of the environment,” said Phil Purcell, director, Marina Industries Association of South Florida (MIASF) located in Fort Lauderdale. MIASF owns the Fort Lauderdale Boat Show, the largest in the nation. “Boaters pay taxes through boat registration and fishing licenses, and that money goes to environmental programs on the water. Boaters love the marine environment. They aren’t perfect, but the environment is better off when protected by people who are fully engaged. They pay attention to the health of the water and report environmental damage. The best advocate for a healthy marine environment is a boater with first-hand knowledge,” Purcell said.

Maintaining Progress

Marinas engineered today are better designed and better equipped to protect the environment. But some marinas were built long before all this was understood. Todd Turrell suggested that a marina remodel should be approached in the same way as building a new marina from an environmental standpoint so that old problems are remedied.

While the understanding of environmental science has progressed, so have attitudes and a commitment to fulfill responsibilities as stewards. There are many marinas with good practices, and we can be proud of our performance as an industry. Water quality is better than ever, in some cases better than in modern history. As Phil Lawrence suggested, we’re more effective when we work together and share knowledge and ideas. ⚓

Robert Wilkes writes about the marina industry from Bellevue, Washington.