

Green with Envi-ronment

Reported by: Donald V. Gale

Panelists:

Ken Hughes – Chem-Free Water Treatment Systems

Alan Provan – Wesstech, Inc.

This presentation addressed design, engineering, outfit and operational actions arising from increased current and future marine environmental regulations and related public concern. Issues discussed ranged from exhaust emissions to human waste handling to environmentally friendly methods and materials for yacht construction. Yacht Owners' concerns for their own health, cleanliness and image, as well as their environmental consciousness, have driven innovative green technologies. Owners often endeavor to visit limited discharge destination ports where they feel they can safely pursue water-borne sports and activities from their boats. One Owner has spent substantial funds on pollution control systems to visit sensitive but loosely regulated areas. On the other hand, Trinity's experience has been that, while Owners generally are environmentally conscious, they're rarely motivated to fund research that advances green technology's edge, preferring tried and true solutions on their boats. Vessel resale may also drive future green technologies and their acceptance.

Having served as Engineer aboard various commercial ships, work boats and cruise vessels, Alan Provan provided empirical input on current green machinery and hotel systems trends. For example, along with engine updates addressing stricter exhaust emission standards, improved means of reducing sewage discharge have been developed to meet the challenges posed by limited discharge ports and harbors. Alan advocated using emulsifiers in sewage treatment systems which enhance waste breakdown even as waste is traveling to the holding tank. However, he warned against using chlorine or any substance that kills the bacteria benevolent to the waste breakdown process.

Onboard power generation via solar cells and horizontal wind turbines has been investigated. Citing Trinity's openness to new ideas subject to careful study, Billy Smith said that extensive use of solar cells on yachts has been discouraged largely by aesthetics. As solar cells can be incorporated unobtrusively into large glass panels, it was suggested that glass may proliferate as an alternative yacht construction material, with future designers defining a new aesthetic using glass.

David Ross and Christopher May mentioned added interest in titanium as a yacht construction material. While unconventional, some see it viable given the range of materials, including wood, steel, aluminum and composites, as well as build methods, tested and used through the industry's history. Challenges to titanium's use include the unconventional methods of fairing required. Trinity has even investigated the use of copper-nickel alloy hull materials on one customer's request.

Alternative fuels and advanced fuel systems documented elsewhere are being developed to meet emissions regulations throughout the marine industry. While the majority of fuel burn is realized at full or sprint speeds, contemporary fuel injection systems allow much better metering of fuel flow than legacy systems. These systems can both optimize fuel efficiency and reduce exhaust emissions. Other fuel treatment

technology mentioned include centrifuge systems that are currently becoming available in Europe. I infer that the world's large yacht fleet may, in fact, be more fuel efficient on a tonnage unit basis than in past decades. David Ross indicated a strong preference for full displacement over semidisplacement hulls, reflecting customer priorities for comfort and range over high speeds.