

13 October 2009

### **USNA Team Design Projects (EN471, EN476) Mentoring Request**

Dear Chesapeake Section Colleagues,

Last May Professor Bruce Nehrling retired from the Naval Academy after 35 years and I took over the senior-level capstone design courses. EN471 focuses on an individual design effort (a fisheries patrol vessel this year) and EN476 is a team design project where the students chose their own design. Many of you attended in previous years a January Chesapeake Section meeting in the USNA Hydrodynamics Lab – with pizza and sodas – where the students presented in poster format their design ideas. One goal of that meeting was the encouragement of Chesapeake SNAME members to become mentors to the student design teams. We had mixed success with that approach as the students were already well along in their designs.

This year we have changed the team project process a bit and will not have a January meeting. We moved the timetable up significantly so the teams are guaranteed sufficient time to build and test towing tank models. At the present time the teams are at nearly the same point they would have been at the January Chesapeake poster meeting.

Below are the eight team Mission Statements along with a student contact for each. The 32 midshipmen and I would very much welcome and appreciate your comments and suggestions during their design development. They are currently in the Feasibility Design stage and on 16 November the teams will submit their first draft of the design notebooks with preliminary hull lines. As you can see below, the team projects cover a wide range of vessel types – even a Navy minesweeper. Please take a look at the mission statements and contact the midshipmen if you can help!

For those of you who have participated in the team project reviews in April, we are targeting Tuesday April 27! I hope to see you there!

Thank you all in advance,

Sincerely,

Paul

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## USNA AY 2009-2010 EN476 Capstone Design Mission Statements

### 1. Mid-Sized Motor Yacht

A pleasure-oriented, family friendly cruising yacht capable of maintaining comfortable stability while operating in temperate coastal regions. Designed for weekend cruises up and down the Atlantic and Pacific Coast, the boat will meet American Bureau of Shipping standards and will most likely sell to the high-middle to upper-class portion of the population.

Team Leader: William Garland [m102190@usna.edu](mailto:m102190@usna.edu)

### 2. Sport Fishing Convertible

A mid-sized luxury sport fishing convertible for an average-sized fishing excursion able to operate in coastal areas in temperate or tropical regions all year round. The convertible will have sufficient endurance to reach all but the most inaccessible fishing grounds, meet current safety regulations and be made of fiberglass.

Team Leader: Andrew Lee - [m103600@usna.edu](mailto:m103600@usna.edu)

### 3. Imperium *Aurelia*: A Mediterranean Luxury Motor Yacht

*Aurelia* shall be a luxury, cruising motor yacht designed to immerse the clientele and all of their guests in the serenity of the Mediterranean marine environment whilst combining the lavishness of the historic Mediterranean region and the comfort of modern technology. This will be accomplished by removing the apparent physical boundaries that normally separate the passengers from the beauty of their natural surroundings without sacrificing any of the comforts or expectations that our clientele have become accustomed to. *Aurelia* shall be able to operate year round in moderate weather and outrun severe weather if necessary. *Aurelia* shall be able to be maintained by either a small crew or operated personally by the owner and shall be constructed to all current applicable ABS regulations.

Team Leader: Jason Mazzoni [m104140@usna.edu](mailto:m104140@usna.edu)

### 4. Caribbean Luxury Motor Yacht

The Caribbean has numerous vacation hotspots accessible from the sea where the clients would like to take a short cruise. This yacht shall be designed with sufficient equipment and berthing to allow for multi day cruises in the lap of luxury, while meeting all American Bureau of Shipping (ABS) standards for motor yachts. The design must allow for the yacht to safely navigate and dock at most major port cities and vacation areas in the Caribbean, where this is not possible the yacht must have a launch that is hidden from site when not in use.

Team Leader: Robert Gawboy: [m102208@usna.edu](mailto:m102208@usna.edu)

### 5. Great Lakes Fireboat/Icebreaker

A versatile fireboat/icebreaker to be used on the Great Lakes and be able to accommodate an adequate firefighting crew to service any large port or waterside city. The vessel will be in a constant alert status, with the need to rapidly arrive on station and remain on station until tasks are completed. The vessel will be operated year round, operating in a variety of weather conditions. The vessel will not only be used for fighting fires but to provide homecoming escorts

and carry equipment and firefighters to remote destinations. The vessel will be made of steel and be built for maneuverability, power, and ease of station maintenance.

Team Leader: Evan Rutherford [m105706@usna.edu](mailto:m105706@usna.edu)

#### 6. Northwest Princess: An Alaskan Coastal Ferry

An Alaska Marine Highway System ocean-going car carrying ferry able to operate in the lower southeast portion of Alaska year round. The vessel will be manned by a small crew, have sufficient endurance to link the smaller communities of Alaska and the mainland, must meet current regulations, should be cost effective, and have a metal displacement hull. The ferry will have sufficient passenger and vehicle capacity to meet demands of the route.

Team leader: Barb Beal [m100330@usna.edu](mailto:m100330@usna.edu)

#### 7. Presidential Coastal Yacht

The President of the United States will have a new yacht that will carry the President, his family, and guests, as well as a small crew and security detail. This luxury yacht will serve to entertain guests and host events, primarily in the summertime for up to one week. It will operate in near coastal waters on the eastern coastline of the United States.

Team Leader: Dan DeMatteo [m101470@usna.edu](mailto:m101470@usna.edu)

#### 8. Multipurpose Minesweeper

This vessel will be designed to meet the need for a multi-purpose minesweeper for the United States Navy. It will perform minehunting, mine neutralization, and mine sweeping operations in harbors, coastal waters, and deeper water minefields. Ideally, it will be capable of traveling with a Carrier Strike Group; comparable to the rest of the fleet in speed, endurance, and survivable sea states. In addition, it will also be capable of entering shallow water environments, such as harbors and other coastal waters, to perform its mission. It will be capable of performing all of these roles with a smaller complement than the current Avenger Class Mine Countermeasures Ship.

Team Leader: Jenner Yuhas [m107314@usna.edu](mailto:m107314@usna.edu)