

COLLEGE OF OCEANIC & ATMOSPHERIC SCIENCES



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To: Tom Wylie

Subject: Scientific use of the SRV Derek M. Baylis

Dear Tom,

I hope this finds you well. I wanted to outline some of the uses and reasons we strongly support the use of the Derek M. Baylis and future alternative energy vessels for oceanographic research. As fuel and crew costs rise, the day rates of the current vessels in the UNOLS fleet continue to increase. In the current budget environment this can make it difficult to undertake ship voyages to do research. Certain types of missions may benefit from vessels with lower operating costs, allowing more days at sea and therefore more research to be completed for every dollar spent.

In 2010, and again in 2012, we conducted two research cruises aboard the *Derek M. Baylis*. One of the original goals of this project to map the northern San Andreas Fault was to try to track, and if possible reduce, the overall carbon footprint of the project. At the same time, we had a normal scientific project to conduct that could make no concessions to the type of vessel used.

When wind was favorable, surveys could be done with the engine shut down, and the survey equipment running on the 6 kw generator. At other times, sails were partially used, reducing the rpm needed to maintain a reasonable survey speed. In all, the multibeam survey and seismic survey were done over a three week span with a total fuel usage of ~ 680 gallons of diesel, including powered transits totaling ~500 miles at full power. By comparison, an 85 ft. diesel vessel engaged in a similar project used > 4000 gallons of fuel, mostly cruising at slower speeds. The cost differential mostly based on fuel was greater than 2.5:1.

The use of the *Baylis* generally improved data quality through reduction of self-noise, and for a fixed budget, allowed us to triple the length of the cruise. At that point I was sold on using wind power on research vessels as a solution to budget and data quality problems. If the opportunity arises again, we'll be using the *Baylis* for future work.

Best Regards, Chris

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