FULLY FUNDED DEPARTMENT OF ENERGY
BIOFUELS RESEARCH INTERNSHIP
AT PACIFIC NORTHWEST NATIONAL LABORATORY

Position Description
The overall project objective is to utilize marine microalgae for biofuels (i.e., lipids for biodiesel or jet biofuel) production. The student will set up a series of photobioreactors for the cultivation of marine microalgae. This will involve preparing sterile medium using the autoclave, inoculating the photobioreactors and monitoring the biomass concentration, measured as optical density using a spectrophotometer and as dry weight using an oven and balance, as a function of time. At specified time intervals, samples will also be taken for lipid extraction by solvents and analysis by gravimetry and gas chromatography. Throughout the experiment, the light intensity, pH, nitrate concentration, and temperature of the cultures will be monitored. Finally, we will also carry out culture experiments in small pilot-scale ponds (1000 liters each) located next to Sequim Bay, Washington, for clean seawater access. The pond cultures will be monitored daily for biomass, nitrate, lipids, pH, temperature, and light intensity. All data will be analyzed using Excel spreadsheet software and a final report will be written for the Department of Energy.

Required Qualifications
The applicant is a junior, senior, or recent graduate with a background in microbiology, chemistry, biochemistry, or biochemical/chemical engineering. The applicant must have basic laboratory skills and must have successfully completed laboratory course work.

Start Date and Duration
The internship begins in mid-September 2011.
The duration is about three months.

Contact Information
For more information about the internship, please contact Dr. Michael Huesemann by email michael.huesemann@pnnl.gov or by calling 360-681-3618.
(The photo shows the location of lab in Sequim, WA)