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## NPS Professor Explores Ocean Acoustics

### Classmate Magazine

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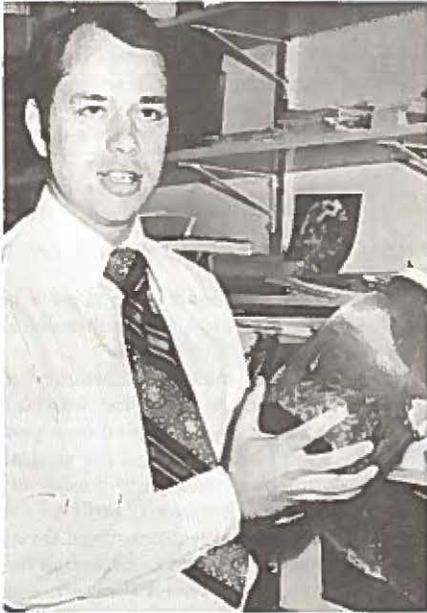


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# NPS PROFESSOR EXPLORES



**OCEANOGRAPHY PROFESSOR** — Assistant Professor Calvin R. Dunlap III, a Navy Lieutenant Commander, explains samples of marine life collected from the bottom of Monterey Bay. LCDR Dunlap teaches oceanography to graduate students at the Naval Postgraduate School Monterey, Ca. (Photo by Dale Ward).

It's hard to imagine snow falling in Monterey, but that was an example given to simplify a point made by an assistant professor of oceanography here at the Naval Postgraduate School. Lieutenant Commander Calvin R. Dunlap III, explaining sound scattering in the ocean, drew the analogy that it is similar to the diffusion of headlight beams in a snowstorm. "Plankton are as profuse in the ocean as snowflakes in a Siberian blizzard. Sound bounces off them and goes in all directions."

As a teacher in the NPS Department of Oceanography, Dunlap relies on an extensive academic background. He is a graduate of the Naval Academy, NPS and Stanford University. He received a master of science degree in oceanography from the Postgraduate School and a master of arts degree in biological sciences from Stanford. At present he is pursuing a Ph.D. from Stanford in the field of biological oceanography.

In addition to studying the relationships between planktonic organisms and their effects on sound scattering beneath the sea, Dunlap keeps abreast of research in oceanography throughout the world. He teaches such courses as descriptive physical oceanography, acoustical forecasting and biological oceanography at NPS.

Dunlap explains that, in biological oceanography for example, students study the basic principles of biology, organisms of the ocean in terms of their effects on naval

operations, and practical application of knowledge gained. Marine fouling, bioluminescence and bioacoustics are other subjects studied. Marine fouling relates to organisms which attach themselves to the bottom of a ship and cause slower speeds, or block the ship's seawater intakes used for cooling systems and emergency fire-fighting water supplies. Bioluminescence is the firefly-like glow in the ocean caused by plankton at night, which may reveal the presence of submarines or other shipping to satellite surveillance systems. Bioacoustics is the study of sounds made by fish, snapping shrimp and other organisms which affect underwater sound systems used by the Navy. Also being studied are the sound producing systems of porpoises and whales.

Though his teaching schedule keeps him busy in the Oceanography Department, Dunlap occasionally finds time for other things. Recently, in assisting a former colleague, he helped set up a national workshop at NPS for the nation's leading shark biologists. Also, he was one of the people at the school to brief two International Science and Engineering Fair winners, recent high school graduates Sandra Koch, of Victoria, Tex., and Lawrence Wiedman, of Ft. Wayne, Ind. He took them to Hopkins Marine Laboratory at Pacific Grove, Ca., to attend a seminar on heavy metals.

Lt. Cmdr. Dunlap has been in the Navy since 1958. He has served on the staff of the Commander, Destroyer Flotilla Three and

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# OCEAN ACOUSTICS



AN AQUARIUM IN THE NPS OCEANOGRAPHY DEPARTMENT is the topic of discussion between Lieutenant Commander Calvin R. Dunlap III (right) and Lieutenant Don Colley. Dunlap is an assistant professor at the Naval Postgraduate School who regularly uses such training aids in teaching oceanography students. (Photo by Dale West)

on two ships, in addition to his tours at NPS. He received the Navy Commendation Medal this month for service as weapons officer on the guided missile frigate USS Bainbridge. He also holds two Armed Forces Expeditionary Medals, the Republic

of Vietnam Campaign Ribbon and the National Defense Service Medal.

Lt. Cmdr. Dunlap is originally from Greenville, Pa., but now considers Del Rey Oaks, Ca., his home. He resides there with his wife, Elizabeth, and their children.

EDITOR'S NOTES, *Cont'd. from page 1*

Glenda is always able to help me out. Thank you, Glenda.

Our staff also includes a few other new faces. Taking over Fredricka Martin's Navy Bleu column is Patti Hilderbrand. Patti has already compiled three articles this month: one on your child's nutritional needs, another is an interview with Leo Copper, Chef at The Shutters Restaurant in Monterey, and finally for all you men who love to grill or use your Barbeque, we have a hubby and his secret recipes. Thank you Patti for all your most interesting articles.

Behind the scenes we have added Peggy Sheehan as one of our main photographers. Peggy and her husband John J. Sheehan, III are well known at the Naval Postgraduate School for their talents in the field of photography. Thank you Peggy for joining our staff and an especially big thanks to John for continuing to get those fantastic cover photos.

Even further behind the scenes we have Mary Wray who helps in the proofreading when we get the copy back from the printer, and Janice Stucki who avails herself when last minute typing is needed for some CLASSMATE articles. But in the last instance it is you I truly have to thank — CR's, Reporters, Section Leaders, and readers.

Lest I not forget, The CLASSMATE is pleased to announce that Mrs. Gail Ross is going to be our new sponsor. Welcome.

I hope you will enjoy this month's edition. We have tried to find material interesting and informative for all. Be sure to read and comment on the articles or The CLASSMATE magazine as a whole.

One further note, I will be leaving the  
*Cont'd. page 8*

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