

Intertidal Tidings

Newsletter for the Friday Harbor Laboratories • University of Washington • Autumn 2004 • Volume 9

FHL In Antarctica

Recently, in a somewhat rare coincidence, two of Friday Harbor Laboratories marine biologists, Dr. Richard Strathmann and Dr. David Duggins, were in Antarctica doing research. They sent the following reports of their experiences:

Dr. Richard Strathmann

I'm in the Antarctic at McMurdo Station by invitation of Adam Marsh. His team is studying development at low temperatures. My role has been exploring methods for embryos that have been little used here.

The invertebrates under the ice include giants of their kind. The sea spiders are more than 100 times larger than those in the San Juan Islands, the isopod crustaceans about 10 times as big. But it's the giant ribbon worms that have provided abundant embryos. These worms are predators and scavengers. They form big heaps on any food they find. They are so large that you can look down their throats. Development in this cold sea is slow, about half a day from 2 cells to 4 cells. A larva from the plankton, beginning its metamorphosis, was probably from an egg spawned the year before. Another delight is a big solitary sea squirt with bright orange tadpole larvae that are 2 mm long.

My field trips have been excursions with the people who dive for the animals. The diving is through a hole in the sea ice, but the divers are in dry suits, and a stove warms a hut over the hole. The dive operation is much more comfortable than when Paul Dayton and Gordy Robilliard (then UW grad students) were pioneering Antarctic diving. In those days, divers used wet suits. There are huts on the sea ice at a variety of dive sites. I watched the drilling of 4-foot diameter holes through about 2 yards of sea ice. The hut was dragged over one hole. The other is a safety hole but is used mostly by Weddell seals. The seals help keep the hole open by biting their way through the new ice.

Other activities outside the lab have included training in drilling holes in the sea ice (to see if ice at a refrozen crack is thick



David Duggins, October 2004

enough to support a vehicle), driving tracked vehicles, drilling holes in the ice for tent ropes, sawing blocks of packed snow for a windbreak, and building a snow house. At the happy camper snow school, I slept in an igloo on the ice shelf. Mike Barker and Miles Lamare (who have been researchers at FHL) had us over for a tour and dinner at New Zealand's Scott Base. Scott Base has an impressive view of pressure ridges in the ice along the shore.

It is remarkable how infinitely varied ice, snow, and basalt rocks can be. Even the same site changes day to day, with changing light and weather, wind and moving ice. It is almost indescribable.

Dr. David Duggins

I am here at the invitation of the National Science Foundation to review and evaluate the scientific diving program. Two of us from the NSF Scientific Diving Advisory Board will be diving under the ice through holes that are drilled using a machine that looks like a huge posthole auger. The local Dive Officer tells us that the water temperature is -1.8°C and visibility is about 400 feet. (Friday Harbor is about 40 feet on a good day). However, the diving under the ice is very dark due to exceptionally thick ice and snow cover overhead. We will begin our diving tomorrow at a site where the ice is more open and thinner.

Here are some excerpts from the Antarctic Diving Manual that give you an idea of the unique challenges of diving here:

"Leopard Seals pose a hazard. They have been known to lunge out of the water and attack people."

"Weddell Seals are particularly aggressive during the breeding season, when they attack each other by biting at the flippers and genital region."

"Avoid Killer Whales".

"Weddell Seals may stake a claim to a dive hole and prevent a diver from surfacing."

"In water this cold, not all dive equipment can be expected to operate properly."

"If your dive hut catches fire stay submerged until the fire is out. These structures burn quickly and should be



Worm Starfish Pile, photo by Adam Marsh

consumed in 15-20 minutes." (Dive huts are the structures that are placed over the drilled dive hole to provide warmth for the divers and keep the hole from freezing while the divers are submerged.)

So, you probably wonder why in the world would anyone in his/her right mind engage in such foolishness. The answer might have to do with the amazing animals here, such as pycnogonids (sea spiders) the size of small cats and vase sponges big enough for a diver to climb into, or the incredible clarity of the water, or the challenge of investigating the ecology of marine organisms under extreme conditions.

An Interview with Chita Miller ...

Chita Miller is a founding member of the Friday Harbor Laboratories Development Advisory Board (DAB) where she has helped raise funds for FHL. A real estate agent with many ties to the community, Chita is active as a civic leader on San Juan Island. In a recent interview, Chita tells why she has chosen FHL as a priority for her community involvement.

FHL: How did you get involved with Friday Harbor Laboratories?

Chita: Years ago I would bring my children to Friday Harbor Laboratories (FHL). There were grad students around who would spend time answering their questions. I used Dr. Eugene Kozloff's books to talk to my children about the animals and plants we saw along the shoreline. As time went on I became involved with the Labs and was asked to join the Development Advisory Board (DAB).

Friday Harbor Laboratories is one of the most highly regarded institutions of its kind in the world. We have scientists from all over the world, and the results from their research and experiments are incredible; we've had significant milestones in areas that are of great benefit to humanity.

FHL: What programs most interest you?

Chita: I'm very excited about the K-12 program in the local schools. Exposing children to science by involving them with graduate students and scientists here at FHL, enables them to learn about science first hand and is a stepping stone to further their interests in science. If we can just 'turn on the light bulbs,' we can get them interested in science and marine science in particular.

FHL: You donate regularly to FHL. How do you interest others to also donate?

Chita: I try to pass on to friends, neighbors and colleagues the excitement of what's happening at the Labs by sharing my interest and enthusiasm about the many wonderful things that I know of at FHL. Working with FHL staff, I have arranged tours at the Labs to show people the dedicated students and their classes, as well as research being undertaken. I want them to see how their financial contributions will help students and enhance the Labs.

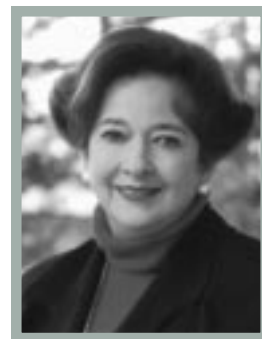
FHL: Why do you enjoy being involved with the DAB?

Chita: I care that the community needs to be aware of the scientific contributions from the Labs. San Juan

Island residents, and people have the ability to understand, in laymen terms, the scientific advances taking place at FHL. It's a chance for them to get involved with this incredible institution and to support it with contributions.

I believe that by being involved with the students and scientists, we are part of the work they are doing; work that I know will have a big payoff in the future to mankind. Through our financial contributions, we are helping someone who may one day make a discovery that will change the world.

There are so many gifted young people here and I think it's important to support them. I see that they are our future. FHL will influence the lives of these students. I find it gratifying to be of some help. If I didn't really love the Labs, I couldn't be as involved with it as I am.



Save the Date

Friday Harbor Laboratories presents

The 5th Annual Jazz at the Labs at Friday Harbor Laboratories

**Saturday, June 4, 2005
Featuring Dennis Willows and
"The San Juan Jazz Quartet + 1"
and
Ron Howell and Seattle's
Phenomenal Jazz Group "Chimera"**

**Jazz at the Labs supports the
Friday Harbor Laboratories
K-12 science programs in the San Juan
Schools**

For information call Bob Schwartzberg
360-378-2165, ext.2

People and Research at FHL ...

The **American Society for Cell Biology** supported 5 students at FHL this past summer. Thanks to the ASCB's Minorities Affairs Committee, **Jaquan Horton** and **Andrew Clark** (UC Irvine), **Noyle McPherson** (Oakwood College), **Nydia Brooks** (Fisk University), and **Matthew Johnson** (U of Central Arkansas) spent the summer at FHL in laboratory research studying functional morphology and ecology of marine fishes.

Nature Magazine, in an article about jellyfish, wrote about **Claudia Mills**. "A jelly biologist at Friday Harbor Laboratories, Mills knows her stuff when it comes to jellies - she just had a new species of deep-sea jellyfish, *Crossota millsae*, named after her."

Robbie and Jan Macfarlane established the **Macfarlane International Scholar Award** in honor of the Centennial celebration of the founding of Friday Harbor Laboratories. FHL post-doc **Tammy McGovern** and FHL Grad Student **Molly Jacobs** were the recipients. "I am an advocate of the 'great man' theory" stated **Robbie Macfarlane** "and would favor providing an opportunity for the selected scholars to spend an extended period of time with important and influential persons in the scholar's field. I have seen such opportunities and relationships produce amazing long term results." Molly is now overseas doing research with **Dr. John Bishop** in Plymouth, England and Tammy is in Panama with **Dr. Haris Lessios**.

By the way, an article by Tammy and her work with brittle stars was featured in **Current Biology Magazine**, vol. 13.

Turning Points, the UW Office of Undergraduate Education's bulletin featured **Cristina Pacheco** and **FHL's Research Apprenticeship Program**. She studied with **Professors Lynn Riddiford and James Truman** investigating the evolutionary links between crustaceans and insects. "Working with faculty in the labs made them more approachable" says Cristy. "I have an advantage because I experienced real research."

Kevin Britton-Simmons, a marine ecologist conducting research at FHL for the past 5 years, had his work on the effects of the non-native *Sargassum muticum* on the regions waters recognized in an article in **Sound Waves**, the newsletter of the Puget Sound Action Team.

FHL Memories – **Mark LaRiviere** studied the population dynamics and nesting habits of lingcod at FHL as a grad student from 1978-1981. During that time he had the following experience: "One of our sampling stations was Shady Cove, in San Juan Channel north of the Cantilever Pier on the Friday Harbor Laboratory grounds. In January 1980, **David Jessup** and I surfaced from a routine dive to 65' after observing lingcod nests and measuring guardian males at Shady Cove. Our usual practice was to follow the anchor line back to the boat, but due to the current we did a free ascent to the surface ending up a slight ways offshore and upstream of the boat. As we surfaced I saw or "sensed" a large mass in the distance further offshore and upon breaking the surface of the water with my mask I saw we were within 10 meters of a pod of killer whales moving south in San Juan Channel! The mixed emotions of immediate fear and awe were overwhelming and I was thankful the whales were on the move and not interested in us puny divers. To view such a magnificent animal from the water surface, within it's own environment, was a unique treat and memory of my time at Friday Harbor Labs I will always cherish."

William N. 'Mc' McFarland, 1925-2004

William 'Mc' McFarland passed away on August 31, 2004. We mourn the loss of a good friend, wonderful scientist, caring teacher and FHL Development Advisory Board member.

'Mc' had a long and illustrious history as a marine biologist. As a beloved professor and mentor, Mc leaves behind a legacy of inspiration, devotion and accomplishment. He was a very special person who touched many lives with his wisdom, enthusiasm for life and gentle humor. He will be missed.

In remembrance of "Mc", Florence McAlary - his wife, colleague and "best dive buddy", has asked that donations be made to UW Friday Harbor Labs student support.

The Center for Cell Dynamics (CCD) at Friday Harbor Laboratories is a NIGMS-sponsored National Center for Systems Biology established at FHL in 2002.

Led by Dr. Garrett Odell, the big question we are exploring at the CCD is: *how do complex life-like behaviors emerge from the dynamic interactions of simple molecular parts?*

The challenge modern biologists face today is to figure out how the molecular parts, identified by geneticists and biochemists, conspire to make functional cellular machines. The big problem is how to bridge the parts list (which increasingly includes sophisticated information about structure, regulation, and interactions) and the phenomenology of cellular function. How is it that cell signals and transcriptional regulators create patterns in organisms? How is it that the biochemistry of cytoskeletal polymers and the proteins that interact with them accounts for protrusions, furrows, flows and so on? In short: *how do molecules animate living cells?*

The Center's mandate is to cross-train scientists in bench biology and mathematics/computational modeling techniques. Our approach is to reconstitute life-like behaviors *in silico* by adding known facts, chemistry, and mechanics to detailed computer simulations until functional behavior emerges from their sum. We integrate simulations with descriptive and experimental bench science to test to what extent those systems-level properties are manifest in reality.

The CCD fosters collaborative interactions by hosting visiting faculty and pre- and post-doctoral research associates. The CCD sponsors/teaches a yearly undergraduate research apprenticeship course at FHL. Please visit our Web site at www.celldynamics.org.

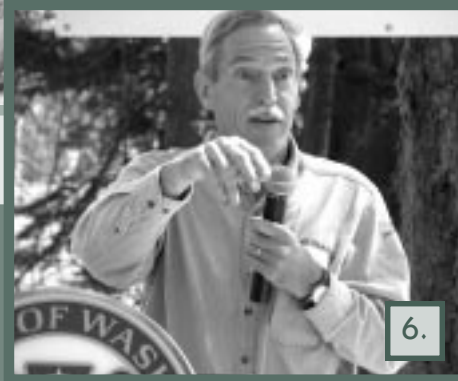
July 17th Centennial Celebration ...



1.



2.



6.



3.



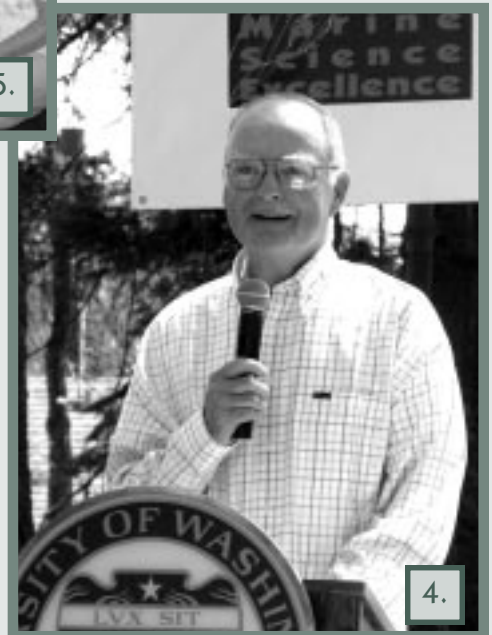
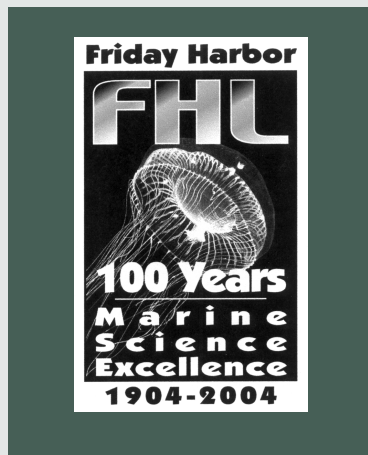
8.



5.



7.



4.

1. (L-R) Winnie Chin; Mark Emmert, UW President; Arthur Whiteley, FHL Centennial Chair; Ark Chin, UW Regent
 2. Dennis Willows, FHL Director with John Blinks 3. Barbara Cable, FHL DAB Chair 4. William Ruckelshaus, co-key note speaker
 5. Five of Dr. Trevor Kincaid's (first director of FHL) six offspring: (L-R) Dorothy Stapp, Thomas Kincaid, Barbara Leaf, Marjorie Kincaid, Mary Calapp 6. Dennis Willows, FHL Director 7. William Gates, Sr., co-key note speaker and UW Regent
 8. Mark Emmert, UW President

Scholarship / Fellowship Funds

Ellie Dorsey Memorial Fund:

Generates an annual gift presented to a scholarly student in memory of Ellie Dorsey.

Fernald Fellowship Endowment:

Supports graduate students for studies of marine invertebrate development.

FHL Discretionary Fund for Excellence:

Provides funds for student aid and encourages diverse initiatives that benefit FHL.

FHL Research and Graduate Fellowship Endowment:

Supports graduate students and post-docs for marine science studies.

Anne Hof Blinks Fellowship Endowment:

Supports students of diverse backgrounds in marine science studies.

Illg Distinguished Lectureship Endowment:

Brings specialists to present lectures on invertebrate biology and to meet FHL students and researchers.

Kohn Fellowship Endowment:

Supports graduate study of invertebrate biology through research or course work.

Marine Science Fund:

A current-use fund to provide student aid for courses the following year.

Larry McEdward Memorial Fund:

Provides annual support for a graduate student in memory of Larry McEdward.

Mellon Mentor Endowment for Excellence in Research Training:

Provides faculty salary in support of internship in marine science, matched 1:1 by the Mellon Foundation.

Reed Undergraduate Endowment:

Scholarships to undergraduates for study of marine sciences.

Stephen & Ruth Wainwright Fellowship Endowment:

Fellowships for graduate students studying form and function of organisms.

Dennis Willows Director's Endowment:

Provides future FHL directors with discretionary funds for unbudgeted needs including student assistance.

Contributions to any of these funds promote the education and training of new scientists through a very special experience at FHL.

A gift return envelope is enclosed.



Elizabeth Harrison, 2004

2005 FHL Courses

Spring Quarter (Mar 28-Jun 4):

- Marine Zoology/Marine Botany (Biol 430 + Biol 445)

Research Apprenticeship Teams:

- The Neuroethology of Orientation Behavior: Analysis using an Invertebrate Model System (Biol 499)
- Marine Fish Ecology and Marine Protected Areas (Fish 492)
- Invertebrate Immunity and Metamorphosis (Biol 499)
- Developmental and Behavioral Endocrinology of Arthropods (Biol 499)

Summer Term A (Jun 13-Jul 16):

- Marine Invertebrate Zoology (Biol 432)
- Marine Algae (Biol 539)
- Comparative Invertebrate Embryology (Biol 536)

Summer Term B (Jul 18-Aug 20):

- Parasites of Marine Organisms (Fish 507)
- Fish Swimming (Fish 565)
- Evolution and Development of the Metazoans (Biol 533)
- Marine Bioacoustics (Fish 565) Dates: 8/1-8/20

Autumn Quarter (Sept 26-Dec 10):

Research Apprenticeship teams:

- Biophysics of the Aquatic Gel Phase (Biol 499)
- Gene Network Dynamics and Cellular Behavior (Biol 499)
- Pelagic Ecosystem Function in the San Juan Archipelago (Ocean 499)

Application and information available at:

<http://depts.washington.edu/fhl/>

Dennis Willows Director's Endowment Established

The Development Advisory Board of Friday Harbor Laboratories has established an endowment to honor Dennis Willows for his 32 years of dedication to FHL as Director. Dennis has announced his plans to step down as FHL's director.

The University of Washington has offered a 50% challenge match to FHL to help raise \$250,000 for the endowment. To date, \$210,000 has been raised towards the match.

This will be an endowment in perpetuity and its proceeds will be used for student support, to attract top researchers, purchase special research supplies and equipment and enable FHL's director to meet needs above and beyond the standard budgeted needs.

Dennis has made a huge impact on the labs and marine science in general and this is a perfect opportunity to honor him for all his contributions. To contribute to the Dennis Willows Director's Endowment and have your gift matched 1:2, write "FRIDENM" on the memo line of your check and mail it in the enclosed envelope.

FHL Contributors ...

We want to thank our many contributors for their kind and generous support of students and programs at FHL. Their interest in, and concerns for marine science are greatly appreciated.

Sea Star Society Members

ARCS Foundation
Assay Designs
Axxora, LLC
Biolmage
John R. Blinks, M.D.
The Boeing Company
Brighter Ideas, Inc.
Mr. and Mrs. Geary Britton-Simmons
Dr. and Mrs. John W. Brookbank
Tom and Barbara Cable
Profs. W. H. Calvin & Katherine Graubard
Carl Zeiss Microimaging, Inc.
Mr. and Mrs. Jeffrey Chandler
Chemicon International
Chroma Technology Corp
Mr. Brian Clark and Dr. Rachel Ann Merz
Dr. Tom Daniel
Mr. and Mrs. Gregg R. Dietzman
Dow Chemical Company Foundation
Drs. Megan Dethier and David Duggins
Fidelity Investments
Fiduciary Trust Company
Ms. Heather Flodstrom
Dr. and Mrs. Gary L. Freeman
Drs. Debra Friedman and Michael Hechter
Dr. Paul Gabrielson
Ms. Elizabeth H. Gladfelder
Mr. and Mrs. George E. Goslow, Jr.
Dr. and Mrs. Michael G. Hadfield
Dr. Ken Halanych
Harrison Family Trust
Drs. Melvin & Florence Harrison
Dr. Carolyn R. Haugen
Dr. Leroy Hood and Ms. Valerie Logan
Dr. John Howieson
Profs. Alan J. and Marian A. Kohn
Ms. Beverly Krasovec
Dr. and Mrs. Charles C. Lambert
Dr. Jeffrey Levinton & Ms. Joan Miyasaki
Ms. Shirley J. Lothrop
Profs. Jane Lubchenco and Bruce Menge
Mr. Robert W. Lundeen
Mr. and Mrs. Robert S. Macfarlane, Jr.
Dr. Boris Masinovsky
Mr. and Mrs. Scott W. McAdams
Drs. William McFarland & Florence McAlary
Mr. and Mrs. Robert McEdward
The Andrew W. Mellon Foundation
Ms. Chita Miller
Dr. Claudia E. Mills
Dr. M. Patricia Morse
Mr. and Mrs. Jack C. Murchio
Mr. and Mrs. William H. Neukom
Dr. and Mrs. Frederic H. Nichols
Estate of Ethel C. Nielsen
Profs. Garrett Odell & Victoria Foe
Olympus America Inc.
Omega Optical
Joann J. Otto, Ph.D.
The David & Lucile Packard Foundation
Dr. Dianna K. Padilla
Mr. and Mrs. Donald Peek
Dr. and Mrs. Anthony Pires
Mr. and Mrs. Lloyd W. Powell
Brooks & Suzanne Ragen

Dr. Mary Esther Rice
Dr. Ellis B. Ridgway
Dr. and Mrs. Gordon A. Robilliard
Mr. and Mrs. Alan Roachvarg
Mr. Charles A. & Dr. June R. P. Ross
Roger Salquist
San Juan Island Community Foundation
Dr. and Mrs. Vijay P. Sarthy
Dr. and Mrs. Volker M. Schmid
Dr. and Mrs. Allen W. Schuetz
Mr. Robert Schwartzberg
The Seaver Institute
Mr. Bruce J. Stedman
Dr. and Mrs. Richard R. Strathmann
Mr. and Mrs. John W. Stroh
The Geochemical Society
The Macfarlane Foundation
The Meid Foundation
The Seattle Foundation
Mr. and Mrs. James R. Uhler
United Way of King County
Dr. Steven Vogel
Mr. and Mrs. George Von Gehr
Dr. Frederick Vosburgh
Dr. Stephen A. Wainwright
Dr. Benjamin Walcott
Washington Research Foundation
Washington Women's Foundation
Wells Fargo Foundation
Dr. Raymond H. West
White Point Systems, Inc.
Dr. Arthur Whiteley
Prof. Dennis Willows and Dr. S. M. Mahoney
Dr. Sarah A. Woodin & Mr. David Wethey

(Sea Star Society Members are donors who give \$1000 or more annually.)

FHL Contributors

Dr. Louise C. and Mr. James L. Abbott
Stephen C. Adolph, Ph.D.
Mr. and Mrs. William C. Agosta
Ms. Fern Anderson
Mr. and Mrs. John Anderson
Mr. and Mrs. Mark R. Anderson
Anonymous Gifts-Friends
Ms. K. Anspacher-Meyer and Mr. R. Meyer
Prof. and Mrs. David A. Armstrong
Mr. Marcus Berliant and Dr. Asnes
Ms. Lillian R. Atkins
Dr. and Mrs. Gerald J. Audesirk
Lynn Bahrych, Ph.D.
Dr. and Mrs. Gerald Joseph Bakus
Prof. Karl Banse
Ms. Kim Barrett-Smith
Ms. Louise W. Beauchamp
Mr. and Mrs. Richard G. Beidleman
Mr. and Mrs. Robert H. Bender
Binney - Johnson Corp.
Dr. Judith A. Bland
Mr. and Mrs. Eric Blankenburg
Mr. Charles Goldstein and Ms. Nancy Blase
Dr. Anne Boettcher and Mr. Daniel Martin
Ms. Marilyn Boettcher
Prof. Cynthia J. Bogel
Dr. and Mrs. Stephen M. Bollens
Mr. and Mrs. T. William Booth
Dr. and Mrs. James T. Bradley
Mrs. Henry Bragdon
Ms. Ellen Broad
Profs. Marshall J. and Jane K. Brown
Ms. Gwen Marie Burzycki
Mr. and Mrs. James E. Byers
Dr. and Mrs. John H. Campbell

Mr. and Mrs. Jose R. Carrasquero
Michael J. Cavey, Ph.D.
Prof. and Mrs. Fu-Shiang Chia
Ms. Mary C. Churnside
Drs. John and Judy Clark
Drs. Mark D. Ohman and Cynthia L. Claxton
Prof. and Mrs. Richard A. Cloney
Mr. and Mrs. Joseph H. Connell
Mr. and Mrs. Roy F. Cope
Ms. Elaine Corets
Mr. and Mrs. William L. Coulson
Countrywide Home Loans
Drs. Bruce J. and Terry J. Crawford
D.A. Davidson & Co.
Dr. and Mrs. David M. Damkaer
Dr. and Mrs. Curtiss O. Davis
Ms. Elizabeth C. Davis
Mr. and Mrs. David A. Dehlendorf
Ms. Rosemond C. Demetropoulos
Jody W. Deming, Ph.D.
Ms. Barbara B. DeWolfe
Ms. Sally E. Dickman
Dr. Linda Dybas
Mr. Charles M. Eaton
Dr. James Eckman
Dr. and Mrs. Edward M. Eddy
Edmonds Marble & Granite Co., Inc.
Mr. and Mrs. William N. Frost
Mr. and Mrs. David Epel
Falmouth Track Club Corp.
Dr. Nancy N. Fitzsimmons
David Fluharty and Lisa Bergman
Mr. Roddy Foley
Dr. Lemuel A. Fraser
Ms. Renee Fricke and Mr. Shanon Chapman
Frontier Industries
Dr. Hiroshige Fujisawa
Mr. and Mrs. David K. Fukushima
Mr. Paul J. Fukushima
Ms. Georgia L. Funsten
Mr. and Mrs. Luis A. Fuste
Mr. Mark B. Gardner and Ms. Dona Reed
Bill & Melinda Gates Foundation
Ms. Patricia Gebhard
Dr. Sophie B. George
Dr. Cassandra and Mr. Parag N. Gheewala
Mr. and Mrs. Ronald E. Gill
Mr. and Mrs. John Gillespie
Betty S. Gilson, M.D.
Ms. Kerri L. Gilson
Dr. Raymon M. Glantz
Dr. and Mrs. David M. Gotelli
Mr. and Mrs. Carl A. Granquist
Drs. C. D. Harvell and C. H. Greene
Prof. Donald R. Gunderson
Dr. and Mrs. Samuel J. Ha
Mr. Saul R. Strieb and Ms. Karla L. Hahn
Mr. and Mrs. William F. Hampel
Mr. Philip Harper and Ms. Eleanor Hartmann
Dr. Gordon L. Hendler
Andrew and Judy Hengesteg
Ms. Sarah K. Henkel
Heritage Operating, L.P.
Michael and Michelle Herko
Dr. and Mrs. Colin O. Hermans
Dr. Helen Hess and Mr. Chris Petersen
Dr. Carole S. Hickman
Dr. and Mrs. Eric P. Hoberg
Prof. and Mrs. Daniel L. Hoffman
Dr. Motonori Hoshi
Dr. Margaret and Mr. Richard Hudson
Mr. and Mrs. Steven G. Hulsman
Dr. and Mrs. George L. Hunt
Dr. and Mrs. Shinya Inoue
Island Petroleum Services
Dr. and Mrs. Fumio Iwata

**You can make a difference
... only if you have a will!**

Ms. Laurinda A. Jaffe
Johnson Controls Foundation
Mr. Alan R. Kabat
Mr. Richard P. Kaiser
Ms. Jill Karr
Mr. and Mrs. William T. Karr
Dr. Paul S. Katz & Ms. Sarah L. Pallas
Mr. and Mrs. Ronald J. Keeshan
Drs. William R. and Carol R. Kern
Dr. and Mrs. Stephen C. Kempf
Dr. Susan M. Kidwell
Prof. Richard Kocan & Ms. Laura Bolles
Ms. Ellen B. Kritzman
Dr. Armand M. Kuris
Ms. Barbara P. Kwong
Udo Lang
Rosalie E. Langelan, Ph.D.
Dr. Susanne E. Lawrenz-Miller
Ms. Shannon E. Lee
Mr. and Mrs. Simon Levin
Drs. Kenneth and Catherine Lohmann
Prof. Louise M. Luckenbill
Ms. Janet Lukacs and Dr. Steven Rissing
Ms. Patricia Mace & Dr. Richard Emler
Dr. and Mrs. George O. Mackie
Ms. Anne C. MacKinnon
Mr. and Mrs. Roy M. Mamoto
Mr. Peter B. Marko
Mr. and Mrs. Robert Doug Martin
Dr. Yoshihiko K. Maruyama
John Marx and Georgia Baciuc
Ms. Irina Masinovsky
Dr. and Mrs. Ole A. Mathisen
Ms. Claudia Mauro
Ms. Deborah L. McEdward
Dr. C. S. McFadden and Mr. Paul Clarke
Dr. Tamara M. McGovern
Dr. Duane R. McPherson
Mr. and Mrs. Malcolm McWhorter
Dr. and Mrs. William A. Mehan
Merck Company Foundation
Mr. and Mrs. David J. Meredith
Ms. Jacqueline Meszaros
Drs. Judith Meyer and Eugene Helfman
Mr. and Mrs. Paul Meyer
Drs. Ronald and Carol Miles
Dr. and Mrs. Bruce S. Miller
Dr. and Mrs. Douglas C. Miller
Dr. Kathy Ann Miller
Mr. and Mrs. Norman P. Miller
Mr. Peter R. Morrison
Drs. Alexander F. and Ann G. Motten
Ms. Constance Mullin
Dr. and Mrs. James A. Murray
Ms. Sharon L. Napier
Dr. Mary E. Nicotri
Dr. and Mrs. R. Glenn Northcutt
Ms. Claire L. Ochoa
Ms. Mildred C. O'Neal
Dr. Shigeko Ooishi
Ms. Sandra V. Palm
Dr. and Mrs. Mario M. Pamatmat
Drs. Leonard Passano and Elizabeth Howe
Dr. Mark Patterson and Ms. Laurie Sanderson
Mr. Michael Lawrence Peden
Dr. Anthony Pires
Mr. R.E. Plotnick and Ms. D.J. Stewart
Dr. Robert D. Podolsky
Mr. and Mrs. Lloyd W. Powell
Mr. and Mrs. Forbes R. Powell
Mr. Robert G. Price
Mr. and Mrs. Douglas N. Rader
Mr. Williard W. Ransom
Estate of Patricia Raymond
Mr. Richard S. Rich
Mr. and Mrs. Dan W. Richmond

Dr. and Mrs. Brian R. Rivest
Pamela Roe, Ph.D.
Dr. and Mrs. Mark Ronan
Ms. Darcey C. Rosenblatt
Dr. and Mrs. Calvin F. W. Ryan
San Juan Vineyards
Dr. and Mrs. Richard A. Satterlie
Mr. and Mrs. Sam D. Saunders
Mr. and Mrs. John B. Scates
Mr. and Mrs. David Schermerhorn
Dr. Frederick R. Schram
Ms. Marian G. Schuster
Mr. Stuart Schwartzberg
Scott and Susan Schwinge
Ms. Joan T. Seaver
Prof. David L. Secord
Ms. Dorothy Perkins Sewell
Dr. and Mrs. Ross F. Shaw
Dr. J. H. Shepherd & Prof. C. D. Laird
Dr. and Mrs. Osamu Shimomura
Dr. and Mrs. Thomas C. Shirley
Mr. and Mrs. Richard H. Shorett
Dr. and Mrs. Richard M. Showman
Mr. David Shreffler and Ms. Ann Soule
Prof. and Mrs. Ronald L. Shreve
Ms. Louise A. Sieben
Prof. C. Simenstad & Ms. S. Martin
Prof. and Mrs. Felix E. Skowronek
Ms. Virginia B. Sloan
Ms. Lorene E. Smith
Dr. and Mrs. Payton Smith
Sen. Harriet and Mr. Leslie E. Spanel
Dr. and Mrs. John G. Spieth
Mr. Lowell W. Spring
Mr. and Mrs. Lee G. Squier
Mr. and Mrs. Jack Stapelmann
State of Washington
Dr. Raymond E. Stephens
Mr. and Mrs. Walter L. Stile, III
Mr. A. Summers and Ms. S. Lehman
Mr. Kimbal Sundberg and Ms. Debra Clausen
Dr. Sherman J. Suter
Dr. and Mrs. Donald A. Sutherland
Ms. Yvonne Swanberg
Swarthmore College
Mr. and Mrs. George E. Swindells
Ms. Rhonda K. Swineford
Ms. Libby Thompson
Mr. and Mrs. Frederick I. Tsuji
United Way of Tri-State
Dr. and Mrs. Robert L. Vadas
Mr. and Mrs. Robert L. Van Citters
Dr. and Mrs. Michael C. L. Vickery
Dr. Kathryn G. Vogel
Mr. Evan Vosburgh and Ms. Elizabeth Myers
Ms. Stephani Warner
Dr. Kerstin Wasson
Dr. and Mrs. Kenneth W. Watters, Jr.
Mr. and Mrs. Morris E. Weaver
Dr. and Mrs. Sefton R. Wellings
Wells Fargo Bank
Westcott Bay Sea Farms
Whit Press
Mr. John Ewer & Dr. Kathleen Whitlock
Dr. Susan L. Williams & Mr. Bruce Nyden
Dr. Marjorie Jane Wonham
Prof. Robert Michael Woollacott
Drs. J. Wootton and C. Pfister
Russell Wyeth
Prof. and Mr. Russell S. Yamada
Dr. Mitsuki Yoneda
Dr. Lydia Zepeda
Dr. Kirk Zigler

Gifts received as of October 2004.

It's been estimated that nearly 2/3 of Americans do not have a will... and many of those that do have a will have not updated it in the past 5 years.

If you do not have a will, the government may decide who gets your money, property and other assets. It may, depending on circumstances, also decide who raises your kids, cares for your elderly parents, takes care of your pets, decides how much tax your estate pays and it won't make gifts to charities and nonprofits like Friday Harbor Laboratories.

If you have a will, even if you are not wealthy, you can make a gift to the University of Washington, Friday Harbor Laboratories that will have significant impact. A bequest to Friday Harbor Laboratories can be part of your legacy and support students, faculty, programs, a professor – whatever is most important to you. You can donate specific property, a fixed sum, or a portion of your estate, and receive an estate tax deduction for your bequest.

If you wish to make a bequest, please discuss it carefully with your attorney. Our suggested bequest language is: *I give, devise, and bequeath to the Board of Regents of the University of Washington, Seattle, Washington, (specific amount, percentage of estate, or property description) for Friday Harbor Laboratories.*

As the old saying goes -
"Where there's a Will, there's a way."

**For more information, contact:
Office of Gift Planning
Phone: 206-685-1001 or
toll-free at 1-800-284-3679
Email: giftplan@u.washington.edu
Web site: <http://supportuw.washington.edu/giftplanning>**

From the Director's Office...

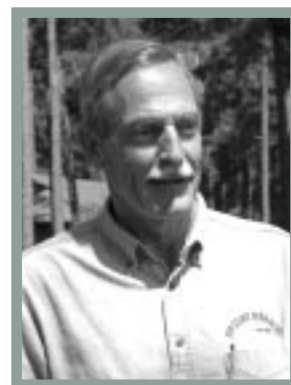
FHL is sometimes described proudly as a “Do it Yourself” kind of place. All of us at FHL take some pride in making judgment calls about things that need doing, figuring out how to do them, and then we “Just do it”. We go find what we need in the stockroom, or up in the “boneyard,” make gadgets for our experiments in the shop, put on field gear and go find the organisms we need in the intertidal, or by SCUBA, or on the R/V Centennial (or Hydah, or Nugget!). This tradition and style has been at the root of much of the best research, excellent new course options, and clever schemes for getting around bureaucratic roadblocks.

I want to present to friends and alums here a case for what may be the most important opportunity we face at present and ask you to join me to “Just do it”.

Of all the needs and opportunities I know about in the context of FHL's long-term impact upon students' lives, and the future of discovery and new knowledge in the marine life sciences, nothing else comes close to the FHL foundational courses.

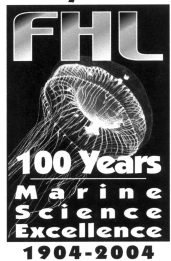
I've observed the impact of the FHL foundational courses, viz., Marine Invertebrates, Algae, Fishes, and Comparative Embryology, on the careers and lives of hundreds of students (including my own life), then on the development of new knowledge in many fields of human enterprise. It is striking how important these courses have been.

It is also striking to me, how vulnerable they are. As the University of Washington becomes more dependent upon outside funding for teaching and research, courses like these do not have the priority they once had, and fewer people recognize their importance in the lives of young people and on scholarly enquiry.



My suggestion to you is simple and painless. If you agree that these courses mattered to you, then “Just do it.” Please join me and help assure that others have that opportunity in the future by making a “Will” (or some other plan that achieves the same objective) that includes the “FHL Marine Life Endowment” in a major way. The goal is simple. Let us just endow these courses long-term so FHL will always have the resources to invite the very best faculty and students to participate. None of us is rich, so all of us must join together on this goal. It may take a few years for this kind of investment to mature but again, in the proud FHL tradition, *Let's just do it!* If, in your mind's eye, you can see me pointing a finger at you, you got it right.

Friday Harbor



Friday Harbor Laboratories

University of Washington
620 University Road
Friday Harbor, Washington 98250

ADDRESS SERVICE REQUESTED