

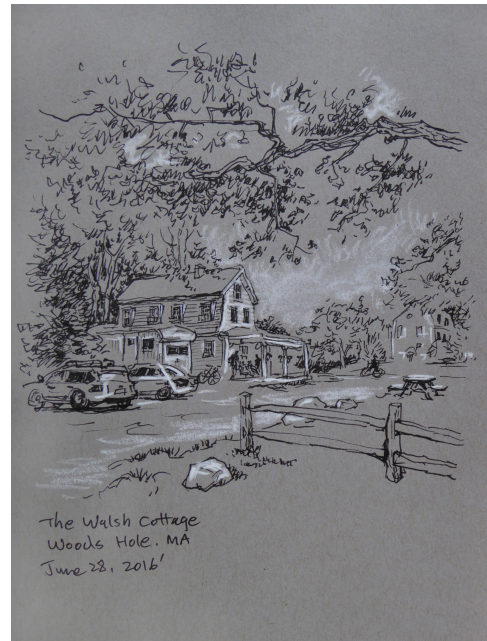
GFD Newsletter 2016

Faculty of Walsh College



The 2016 GFD Photograph.

in the not-too-distant background, the administration of the summer was effortlessly seen through by Julie Hildebrandt, capably supported by Michelle Slattery on the off days that the atmosphere at Walsh evidently became too overpowering. As ever, Anders Jensen worked technical marvels in the lab.



Walsh Cottage by Jun Zhang, drawn for Joe Keller

A Sketch of the Summer

The GFD Program in 2016 ran with the theme of “Fluid-Structure Interaction (FSI) in the Living Environment”. Mike Shelley (New York University) and Peko Hosoi (M.I.T.) led the charge with two weeks of thrilling lectures covering topics ranging from swimming and swarming to cycling and sprinting. Jun Zhang (New York University) interjected some more traditional GFD midway through. At the beginning of August, the Sears Lecture was superbly given by Mimi Kohl (U.C. Berkeley) on oceanographic applications of FSI and entitled “Swimming and Crawling in a Turbulent World”. The summer also saw the first Week-three Award Ceremony, in which a number of prizes, some serious, some less so, were given out to Program participants. Notably, Basile Gallet and Ian Hewitt were the winners of the newly created, annual Batty Scholarship for “Their Academic Achievements and Participation in the GFD Program.”

It was with great sadness that we noted the passing of two giants of GFD, Willem Malkus and Joe Keller, slightly before and after the summer. Their presence on the porch of Walsh Cottage will never be forgotten.

Steadfast, WHOI Education provided the administrative backbone to the summer, and Walsh Cottage was perfectly unchanged in its intimacy and rustic atmosphere. With the organizational talents of Janet Fields



Lecturers' impressions. Peko: “I have no idea what the directors are doing...” Mike felt no need for a verbal response.

Schedule of Principal Lectures

Monday, June 20: Mike Shelley,
A primer on continuum and fluid mechanics

Tuesday, June 21: Mike Shelley,
Canonical fluid-structure problems

Wednesday, June 22: Mike Shelley,
Flapping flight

Thursday, June 23: Peko Hosoi,
High Reynolds number FSI in sports

Friday, June 24: Peko Hosoi,
Swimming at Low Reynolds number, part I

Monday, June 27: Peko Hosoi,
Swimming at Low Reynolds number, part II

Tuesday, June 28: Mike Shelley,
Low Reynolds number phenomena

Wednesday, June 29: Mike Shelley,
Collective behavior at low Reynolds number

Thursday, June 30: Peko Hosoi,
Thin films with elastic boundaries

Friday, July 1: Peko Hosoi,
Hydrodynamics of textured surfaces



Fellows' Reports

Oceane Richet, Ecole Polytechnique: *Kelvin and Rossby waves in the Denmark Strait overflow*

Paula Doubrawa, Cornell University: *A vortex method for modeling multiple wakes*

Qi Li, Princeton University: *Morphodynamics of a tidally forced wetland*

Colin Meyer, Harvard University: *Meltwater percolation and refreezing in compacting snow*

Keaton Burns, MIT: *Rolling resistance on sand*

Anna Skipper, Georgia Institute of Technology: *Splash & spray of partially submerged rotating disks*

Sahil Agarwal, Yale University: *Ice distribution and mixed layer depth in the Fram Strait*

Jason Olsthoorn, University of Cambridge: *Eroding bodies in a background flow*

Michael Gomez, University of Oxford: *Capillary sorting: thin-film flows of particles*


Chris Miles, University of Michigan: *Dynamics of active droplets*

Extracts of Willem and Joe (plus some other familiar faces) from the GFD photograph collection. It is impossible to overstate the immense impact Willem and Joe had on the GFD program, and indeed fluid mechanics and applied mathematics in general. Willem will be remembered in part for his relentless demand for scientific excellence; Joe for the significant contributions he made to almost all of the physical problems that have been touched by mathematical analysis.

2016 Sears Public Lecture
Geophysical Fluid Dynamics Program


Thursday, August 4th, 2:00 pm
Redfield Auditorium, WHOI
Reception to follow at Walsh Cottage

Professor Mimi Koehl
Univ. of California, Berkeley



“Swimming and crawling in a turbulent world”

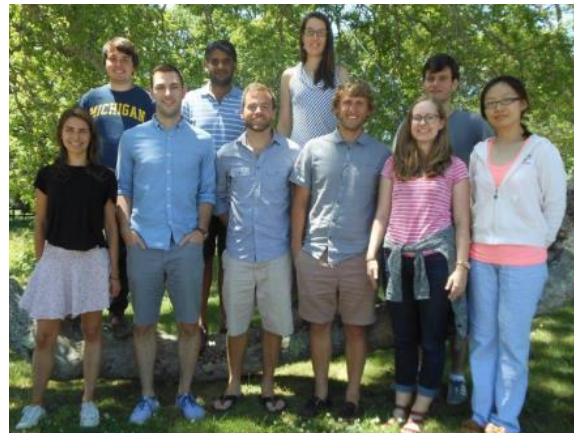
*Many bottom-dwelling marine animals produce microscopic larvae that are dispersed to new sites by ambient water currents. How do these larvae manage to land on the sea floor in suitable habitats? We study this question using larvae of the Hawaiian sea slug, *Phestilla sibogae*, which must settle on reefs where their prey, the coral *Porites compressa*, is abundant. These larvae allow us to address the more general question of how the locomotion of microscopic organisms swimming or crawling across the substratum is affected by turbulent water currents and waves in marine habitats.*



The poster for the 2016 Sears Lecture. Mimi elegantly and insightfully conveyed us through the turbulent world of marine organisms, describing the impact of the ambient fluid mechanics



The Batty Scholars, Ian Hewitt (left) and Basile Gallet (right) receiving their awards from one of the summer's directors during the inaugural Week-three Award Ceremony.



Fellows' key question of the summer. “Does anyone know what the directors think they are doing?”



Grae Worster demonstrating his award for “Best-Dressed GFD person”



Anna demonstrating why experiments remain an essential part of fluid dynamical research



Directorial squabbles. Colm: “I have no idea what we’re doing!” Neil felt no need for a verbal response.

- electronic versions of proceedings and newsletters
- lists of alumni and visitors
- application materials
- picture galleries
- useful information and links.

The Current GFD Faculty

Neil Balmforth *University of British Columbia*
 Colm-cille Caulfield *University of Cambridge*
 Oliver Buhler *New York University*
 Claudia Cenedese *W. H. O. I.*
 Eric Chassignet *University of Miami*
 Greg Chini *University of New Hampshire*
 Charles Doering *University of Michigan*
 Glenn Flierl *M. I. T.*
 Pascale Garaud *U. C. S. C.*
 Karl Helfrich *W. H. O. I.*
 Miranda Holmes-Cerfon *New York University*
 Norman Lebovitz *University of Chicago*
 Stefan Llewellyn Smith *U. C. S. D.*
 Philip Morrison *University of Texas at Austin*
 Joe Pedlosky *W. H. O. I.*
 Antonello Provenzale *ISAC-CNR, Torino*
 Tiffany Shaw *University of Chicago*
 Edward Spiegel *Columbia University*
 Jean-Luc Thiffeault *University of Wisconsin*
 Mary-Louise Timmermans *Yale University*
 George Veronis *Yale University*
 John Wettlaufer *Yale University*
 Jack Whitehead *W. H. O. I.*

Contributions

The GFD program has an endowment fund which is administered by WHOI. Contributions by check (made payable to WHOI) can be mailed to

Woods Hole Oceanographic Institution
 GFD Fund, MS 40

Woods Hole, MA 02543

Donations can also be made by credit card by calling the Development office at 508-289-4895.

The GFD Website

The summer’s lectures notes and reports are available online at gfd.whoi.edu. The GFD website also contains:

- lecture and seminar schedules

Please contact njb@math.ubc.ca or cpc12@cam.ac.uk if you have any comments.

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