



AQUAVET

Photo: Melchior de Bruin

# AQUAVET<sup>®</sup> Information for 2018

# AQUAVET®

## Background Information

- ◆ *Need for trained veterinary professionals*
  - ◆ *contribute to the health/welfare of aquatic animals and their environment*
  - ◆ *Began in the spring of 1977*
- ◆ *Historically sponsored by*
  - ◆ *University of Pennsylvania*
  - ◆ *Cornell University*

# AQUAVET®

## Course Information

- ◆ *Four opportunities*
  - ◆ **AQUAVET® I**
    - ◆ *Introduction to Aquatic Veterinary Medicine*
    - ◆ *4 week course*
  - ◆ **AQUAVET® II**
    - ◆ *Comparative Pathology of Aquatic Animals*
    - ◆ *2 week course*
  - ◆ **AQUAVET® III**
    - ◆ *Clinical Aspects of Captive Aquatic Animal Medicine*
    - ◆ *5 week course*
  - ◆ **AQUAVET® Summer fellowship**
    - ◆ *Usual Location: Fish Diagnostics Lab at Cornell*
    - ◆ *Usual Topic: a selected fish viral disease*
    - ◆ *Duration: 8 weeks*

# Logistics – AQUAVET<sup>®</sup> I & II

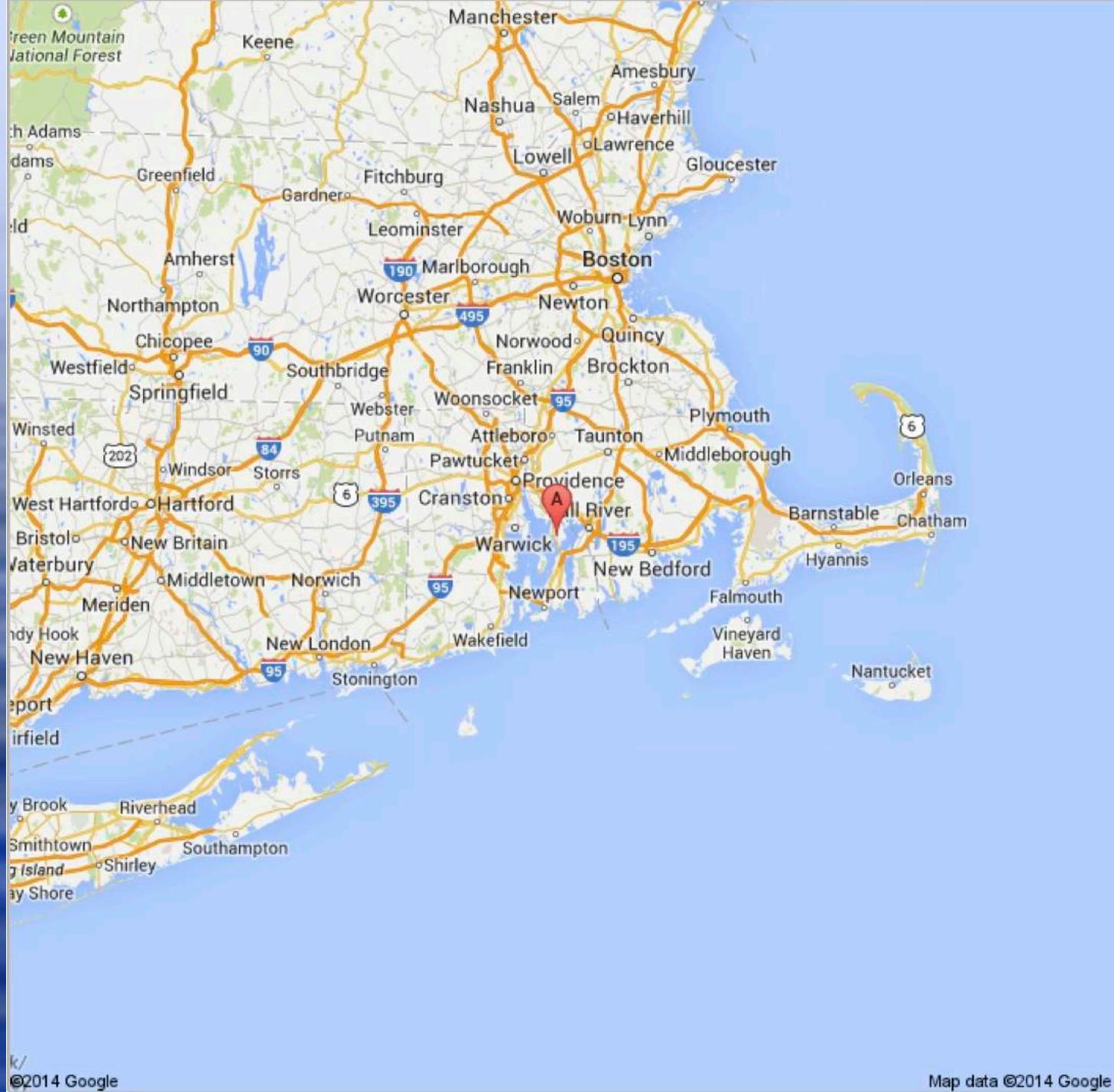
- ◆ **Roger Williams University - Bristol, RI**
  - ◆ *Classrooms and labs*
  - ◆ *Library*
- ◆ **Tuition** *covers course work, housing and most meals*
- ◆ **Housing** – *suites with kitchen and 2 bedrooms*
  - ◆ *4 students per suite*
  - ◆ *roommate*
  - ◆ *no pets*
- ◆ **Meals** – *cafeteria meal plan*
  - ◆ *Breakfast, lunch, dinner*
  - ◆ *5-10 stations*



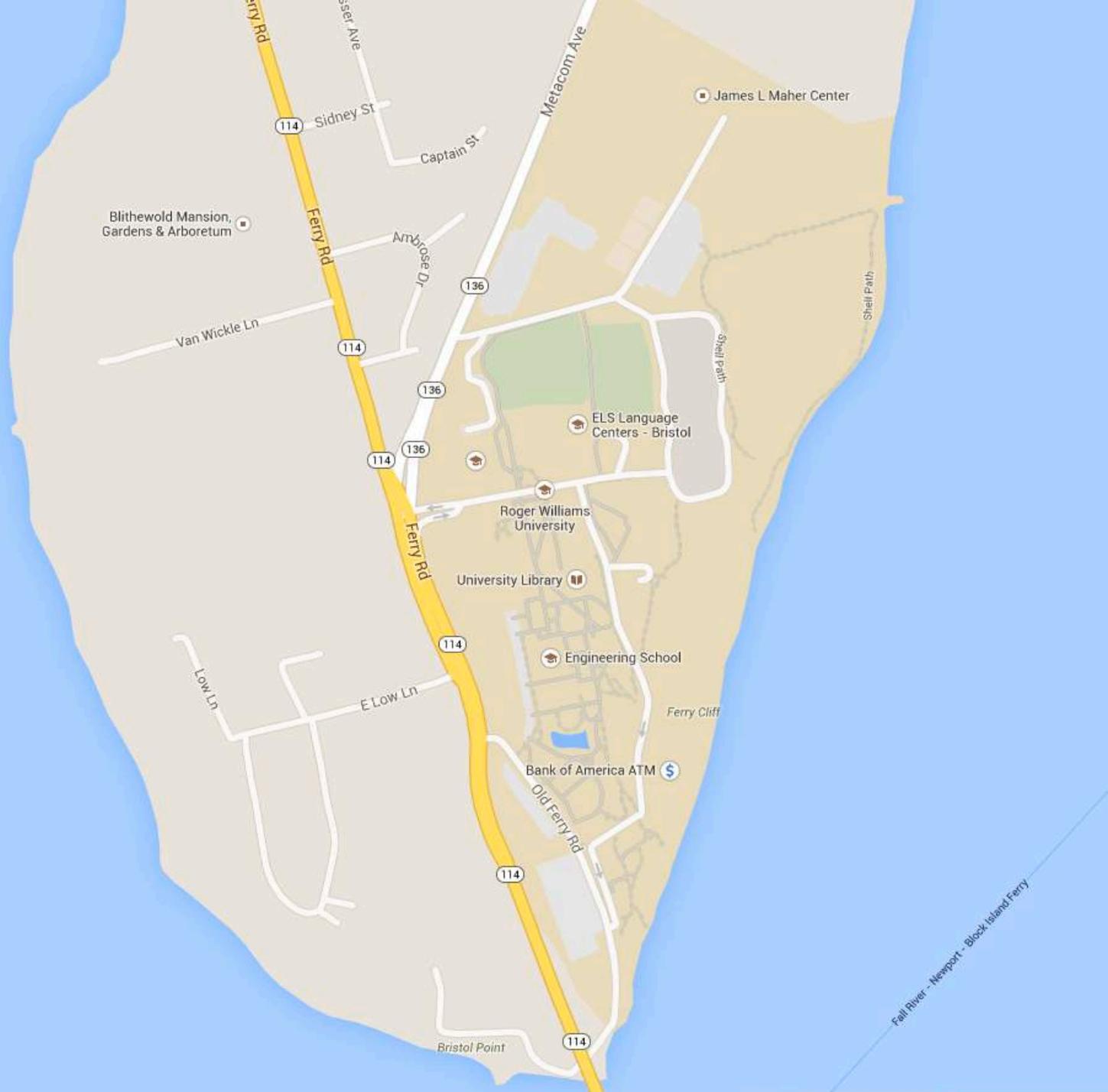
# Bristol, R.I.

Just 1-1.5 hours to:

- Boston
- Mystic
- Barnstable



# RWU Campus







Columban Dr

Gym

Dorms

Ferry Rd

Cafeteria

Ferry Rd

Marine Science Building

Library



Roger Williams University

# COURSES at RWU

## **AQUAVET® I:**

### **An Introduction to Aquatic Veterinary Medicine**

4 weeks: total immersion course

28 May to 24 June 2017

22-24 Students

Approx. 46 invited faculty

## **AQUAVET® II:**

### **Comparative Pathology of Aquatic Animals**

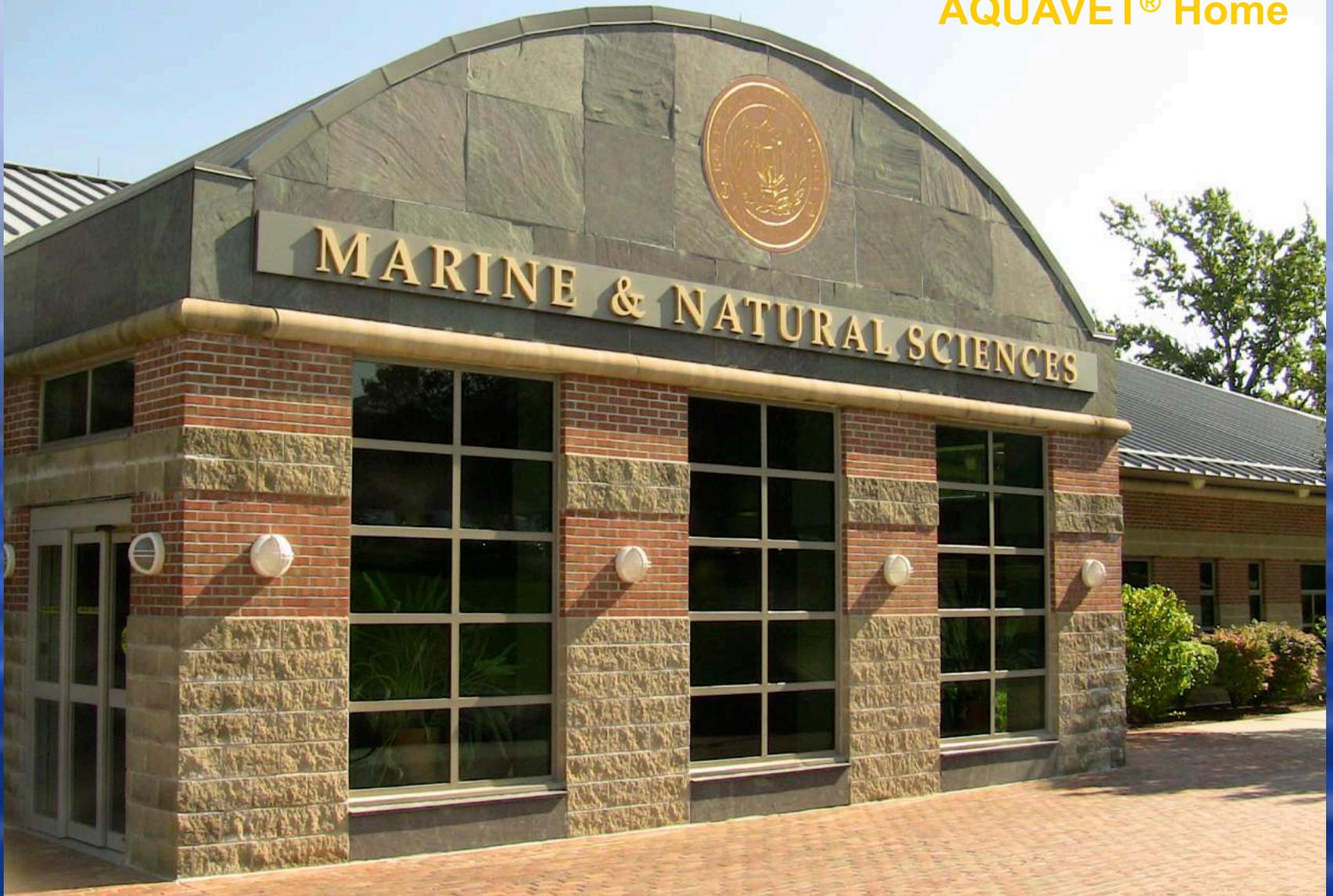
2 weeks: total immersion course

28 May to 10 June 2017

12-18 students

Approx. 15 invited faculty

AQUAVET® Home



**Marine and Natural Sciences Building**



# Typical Dorm Room





**AQUAVET® I 2016 Class - Woods Hole**

# AQUAVET® I

## Introduction to Aquatic Veterinary Medicine

- ◆ *Four weeks – begins May 28 and ends June 24*
- ◆ *Classes routinely five and one half days a week (and most evenings)*
  - ◆ *Water Quality*
  - ◆ *Invertebrates to marine mammals*
  - ◆ *Lectures and laboratory sessions*
  - ◆ *Student seminars*
  - ◆ *Field trips*

# AQUAVET® I

## Introduction to Aquatic Veterinary Medicine

### *Invertebrates to marine mammals*

- ◆ *Aquatic invertebrates*
- ◆ *Fish*
- ◆ *Amphibians and Reptiles*
- ◆ *Sea Turtles*
- ◆ *Aquatic Birds*
- ◆ *Marine Mammals*

# AQUAVET® I

## ◆ *Field trips*

- ◆ *Intertidal Invertebrate Collecting*
- ◆ *Fish Hatchery*
- ◆ *Shellfish Hatchery*
- ◆ *Mystic Aquarium*
- ◆ *New England Aquarium*
- ◆ *Atlantis Marine World*
- ◆ *Riverhead Foundation for Marine Research and Preservation*
- ◆ *WHOI (Woods Hole Oceanographic Institute)*

# AQUAVET® I

- ◆ ***Tuition for Students - \$2,375***
  - ◆ *Less \$200 from anonymous donor = \$2,175*
  - ◆ ***Includes***
    - ◆ *Tuition*
    - ◆ *Room and board (almost all meals) - 4 weeks*
- ◆ ***Required to attend class***
  - ◆ *Foundation covering 2/3 of cost*
- ◆ ***Credit Available – depending on school***
  - ◆ ***Evaluation based on***
    - ◆ *Participation in all aspects of the course*
    - ◆ *Especially student seminars*

# AQUAVET® I

- ◆ **Tuition** - \$2,375 - \$200 = \$2,175
  - ◆ **Compare:**
  - ◆ **AQUAVET® I – 4 weeks**
    - ◆ *about \$600/week - Includes*
    - ◆ *Tuition*
    - ◆ *Room and board (practically all meals)*
  - ◆ **MarVet – 2 weeks for about \$2,000**
    - ◆ *About \$1,000/week*
    - ◆ *Includes only some meals*
  - ◆ **SeaVet – about \$490 for 10 days**
    - ◆ *About \$345/week*
    - ◆ *Includes only some meals*
    - ◆ *Doesn't include housing*



Photo: Melchior de Bruin



Scenes from AQUAVET® I



Scenes from AQUAVET® I



Scenes from AQUAVET® I



Scenes from AQUAVET® I



Scenes from AQUAVET® I

(photos – Robert Maze)



STUDENTS & FACULTY



STUDENTS & FACULTY



# Interacting with Faculty

# Networking

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**Not All Fun and Games**

## ◆ **Classes**

- ◆ *routinely five and one half days a week*
- ◆ *(and most evenings)*
- ◆ **Required to Attend Class**

◆ **8 am to noon**

◆ **1 pm to 5 pm**

◆ **6:30 pm to 8:30 pm or later**



# AQUAVET<sup>®</sup> I

- ◆ ***Student seminars***
  - ◆ *25-30 minute*
  - ◆ *PowerPoint*
  - ◆ *Topics*
    - ◆ *Invertebrates to marine mammals*
    - ◆ *Marine plants*
    - ◆ *Ecology*
  - ◆ *prepare early*

## Piping Plover

- Small shore bird:
  - Adults ~55 g and 6-6.5 inches tall
- Sandy-colored feathers with grayish-brown crowns and backs
- White foreheads
- Dark, incomplete rings encircle the necks
- Straight bills



## Anesthesia in sharks

By: Marilyn McDowell V10  
Cummings School of Vet Med at Tufts University (TCSVM)



## Why Are Fish Important As Patients?

- We are veterinarians
- Fish as food
- Fish as a research tool
- ~\$500 million/year spent on ponds/aquaria
- Variety
- 80% of fish owners own other pets

# Diving adaptations of sea turtles

Colin McDermott  
University of Pennsylvania:  
School of Veterinary Medicine  
Aquavet I  
June 6 2008

## Marine Mammal Prosthetics

Emily Morse V'11  
AQUAVET I  
May 29<sup>th</sup>, 2008



## Conservation of the Hawaiian Monk Seal

*Monachus schauinslandi*



<http://www.kauaimonkseal.com/Home.html>

<http://archives.starbulletin.com/2006/10/37/news/stn-y15.html>

## The American Paddlefish



[www.photopumpkin.com/](http://www.photopumpkin.com/)

Past, Present and Future

Ari Eustukjian

# Unihemispheric Sleep in the Dolphin, *Tursiops truncatus*



Aquavet I  
Lauren Sechler

# Leafy Sea Dragons

## *Phycodurus eques*

Katie Seeley  
DVM Candidate  
Cornell University  
Class of 2011



<http://www.oneygallery.com>

# Amebocytes found in Gorgonian Sea Fans



Katharine Holder  
North Carolina State University  
College of Veterinary Medicine

# The Body Language of Cuttlefish



Mark Norman

<http://www.thecephalopodpage.org/Sapama.php>

Melissa Vetter  
Aquavet I

# Amblyrhynchus cristatus

Galapagos Marine Iguana - Marine Iguana - Sea Iguana

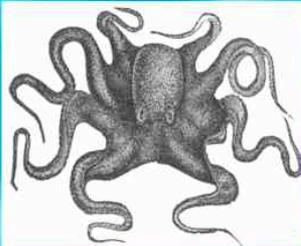


Cassie Bolton  
Aquavet I 2006  
Kansas State University  
cbolton@vet.ksu.edu

# Koi Herpesvirus

May 27, 2004  
Isadora Marion

## Natural History of the Octopus



Presented by  
Alexandra Outlaw, D.V.M.

## Manatee Biology



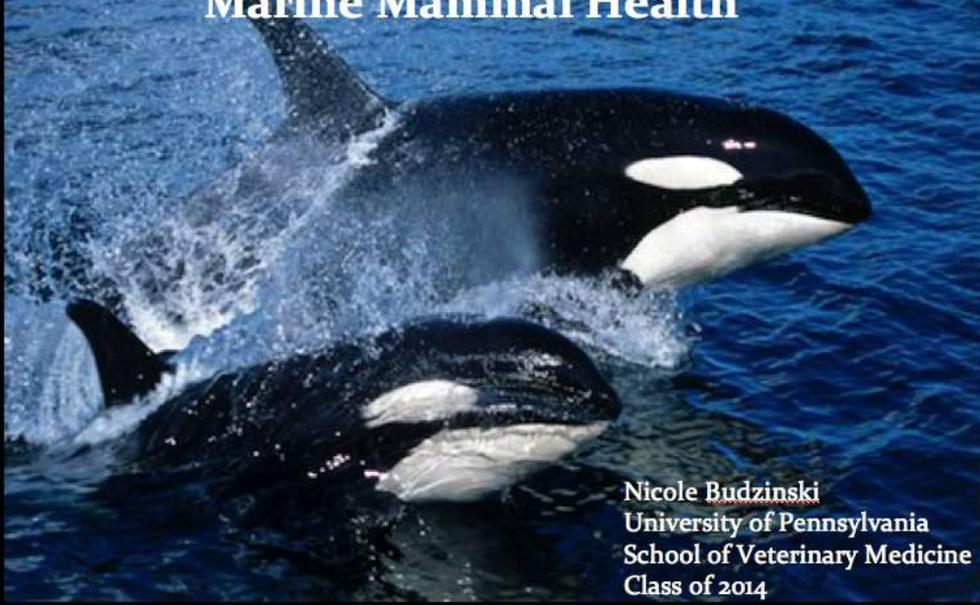
Barbara Carver  
NCSU College of Veterinary Medicine  
Aquavet I  
March 30, 2006



## Amphibians and the Controversy of the Effects of Exposure to Atrazine

Presented by: Mónica Mayol-Sabatier  
University of Pennsylvania  
School of Veterinary Medicine  
VMD candidate Class of 2013  
[mmayol@vet.upenn.edu](mailto:mmayol@vet.upenn.edu)

## Effects of Underwater Noise Pollution on Marine Mammal Health



Nicole Budzinski  
University of Pennsylvania  
School of Veterinary Medicine  
Class of 2014

## Endoscopic Evaluation of Gender and Gonad Development for Use in Sturgeon Conservation



Wade Edwards  
The University of Georgia  
College of Veterinary Medicine  
DVM Candidate, Class of 2014  
[bwade.edwards@gmail.com](mailto:bwade.edwards@gmail.com)

Tony Gilbert

## Aquaculture in Norway

Solveig Kvinge Stavenjord  
AQUAVET I  
June 17, 2011





**AQUAVET® II 2016 Bristol, RI**

# AQUAVET® II

## Comparative Pathology of Aquatic Animals

### FOCUS

Pathology and Pathogenesis of diseases

- of important **aquatic invertebrates and fish**
- biomedical research models
- cultured species

# AQUAVET® II

## Comparative Pathology of Aquatic Animals

- ◆ *Prerequisites: AQUAVET® I or equivalent*
- ◆ *Two Weeks – May 28 to June 10*
- ◆ *Classes 5.5 days a week and most evenings*
- ◆ *Lectures, slide review, and occasional wet labs*
  - ◆ *Primarily Fish and Invertebrates*
  - ◆ *Comparative Anatomy*
  - ◆ *Parasites*
  - ◆ *Bacterial, Viral and Fungal Diseases*
  - ◆ *Toxicology*
  - ◆ *Histopathology*

# AQUAVET® II

- ◆ *Student Tuition - \$1,425*
  - ◆ *Includes course instruction and room and board*
- ◆ *Required to Attend Classes*
  - ◆ *Foundation covering 2/3 of cost*
- ◆ *Course Credit possible*
  - ◆ *Depends on school requirements*
- ◆ *Evaluation*
  - ◆ *Based on class participation*



Scenes from AQUAVET® II

# AQUAVET® II - Lots of Microscope Work





## Free Time





**Whale Watch**



**Finback Whale**

**Humpback Whale**



**Finback Whale**



**Photo: Melchior de Bruin**



# AQUAVET® Summer Fellowship

- ◆ *Research project under guidance of AQUAVET® faculty*
- ◆ *8 week duration (July and August)*
- ◆ *Aquaculture Based Project (funding requirement)*
- ◆ *Limited positions – usually 1*
- ◆ *Pays limited stipend \$1,500 plus living expenses reimbursement*
- ◆ *Publication often generated at the end of project*

A group of approximately 12 people, mostly wearing blue caps and white t-shirts with "Dolphinaris" printed on them, are smiling and posing around a large dolphin in a pool. The dolphin is partially submerged, with its head and tail visible. The background shows a stone wall and a blue canopy. The water is clear and blue.

AQUAVET® III 2016 finishes  
at Dolphinaris in Cozumel, México



# AQUAVET® III

## ◆ **3 Venues**

- ◆ *Georgia Aquarium, Atlanta, GA*
- ◆ *University of Georgia, Athens, GA*
- ◆ *Dolphinaris Facilities, Cancún, México*

## ◆ **Dates**

- ◆ *June 25<sup>th</sup> to July 30<sup>th</sup> - 5 weeks*

## ◆ **Credit Available – depends on school**

### ◆ **Evaluation based on**

- ◆ *Participation in all aspects of the course*
- ◆ *Also Case Reports*

# AQUAVET® III

- ◆ *Prerequisites*

- ◆ *AQUAVET® I – or equivalent*

- ◆ *Class Size*

- ◆ *6-8 students*

- ◆ *Not Included*

- ◆ *Transportation to and from Atlanta*

- ◆ *Airfare to Cancún and from Cozumel*

- ◆ *Some meals*

# AQUAVET® III



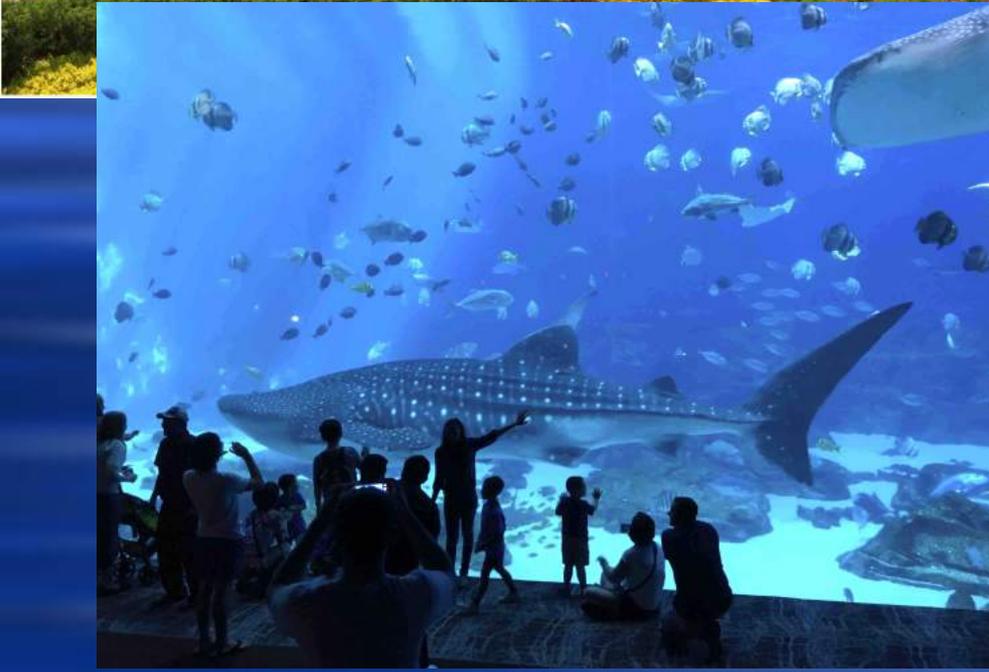
## ◆ *Georgia Aquarium*

◆ *2 Weeks – Mon through Sat*

◆ *2-4 hours lecture per day*

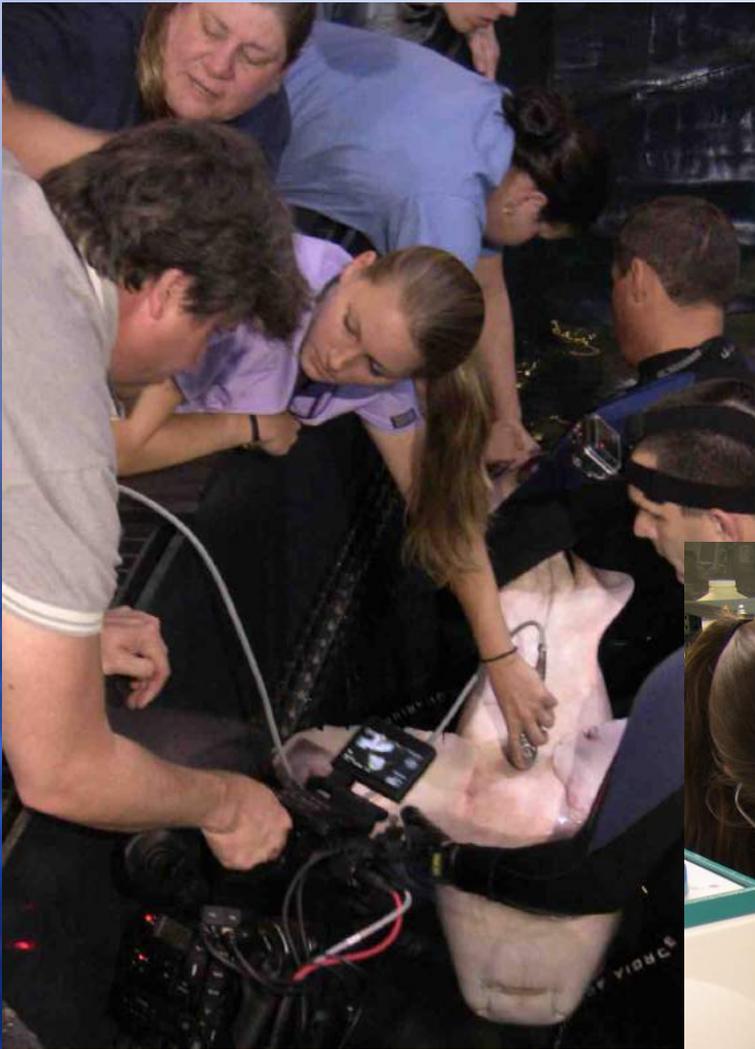
◆ *Hands on care with veterinary staff*

- ◆ *Marine Mammals – Belugas, Pinnipeds, Dolphins, Otters*
- ◆ *Largest Tank in USA – one of largest in the World*
- ◆ *Fish including Elasmobranchs – Whale Sharks, Manta Rays*
- ◆ *Penguins and other birds*
- ◆ *Sea Turtles, Crocodillians and other reptiles*





*Morning Rounds*







# AQUAVET® III

- ◆ *University of Georgia*
  - ◆ *3<sup>rd</sup> week*
  - ◆ *AM lectures*
  - ◆ *PM Endoscopy*
    - ◆ *Turtles*
    - ◆ *Fish*
  - ◆ *Fish Surgery*
  - ◆ *Lectures and Student Case Reports*





# AQUAVET® III

- ◆ ***Student Case Reports***
  - ◆ *Aquarium Cases*
  - ◆ *55 minutes*
  - ◆ *PowerPoint*
  - ◆ *Preparation – first 2 weeks*
  - ◆ *Presentation – 3<sup>rd</sup> week*

# AQUAVET® III



- ◆ ***Dolphinaris***

- ◆ ***Dolphin Medicine Only – 3 species***

- ◆ ***2 Weeks – Mon through Sat***

- ◆ ***3 Venues***

- ◆ ***Cancún***

- ◆ ***Playa del Carmen***

- ◆ ***Cozumel***

- ◆ ***Days are a mix of lectures and hands-on activities***

# AQUAVET® III - Cancún



# AQUAVET® III



## ◆ *Dolphinaris*

### ◆ *Sampling of Lecture Topics*

- ◆ *Dolphin Medicine and Physiology*
- ◆ *Nutrition*
- ◆ *Reproduction*
- ◆ *Importance of Training*
- ◆ *Endoscopy*
- ◆ *Ultrasound*
- ◆ *Hematology and Cytology*

# AQUAVET® III

- ◆ *Dolphinaris*
  - ◆ *Sampling of Hands On Training*
    - ◆ *Blood Collection and Hematology*
    - ◆ *Chuff Collection and Cytology*
    - ◆ *Semen Collection and Analysis*
    - ◆ *Endoscopy*
    - ◆ *Ultrasound*

# AQUAVET® III

- ◆ *Dolphinaris*
  - ◆ *Sampling of Hands On Training*
    - ◆ *Blood Collection and Hematology*
    - ◆ *Chuff Collection and Cytology*
    - ◆ *Semen Collection and Analysis*
    - ◆ *Endoscopy*
    - ◆ *Ultrasound*





**Learning to do  
dolphin examinations  
in a beautiful  
location.**



**Learning some  
training  
techniques.**





**Learning to process and analyze biological samples.**



**Learning ultrasound,  
first in the lab and  
then in the pool.**



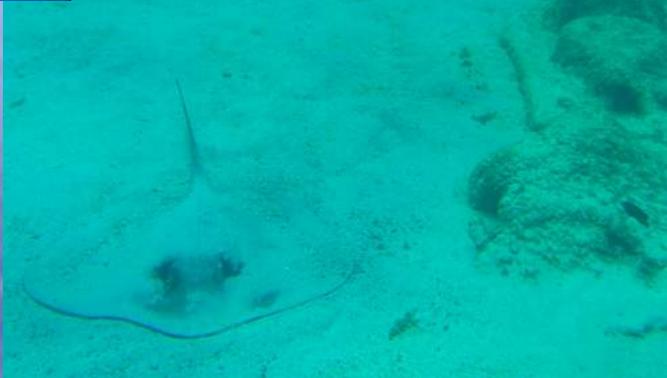
***3 days in the water doing ultrasound***



**Learning how to use  
a flexible endoscope.**



**Not all Work and No Play**





# AQUAVET® III

- ◆ **Tuition** - \$3,900 (\$4,950 Non-student)  
**Includes**
  - ◆ *Tuition*
  - ◆ *Room and majority of board - 5 weeks*
- ◆ **Tuition** - \$3,900 (\$4,950 Non-student)
  - ◆ *\$7,900 is actual tuition (which doesn't cover all costs)*
  - ◆ *\$4,000 paid by anonymous donor*
  - ◆ *Additional funds paid by anonymous foundation*
    - ◆ *(to help keep tuition and expenses lower)*
- ◆ **Course Credit Available**
  - ◆ **Evaluation based on**
    - ◆ *Participation in all aspects of the course*
    - ◆ *Also Case Reports*

# APPLICATION PROCESS

Application forms [www.aquavet.info](http://www.aquavet.info)

Down-load the application form

MS Word and pdf

Please Submit **Electronically**

**APPLICATIONS DUE 15 Jan 2017**

# APPLICATION PROCESS

What you must submit:

1. The application form
2. Undergraduate transcripts
3. Veterinary school transcript

# APPLICATION PROCESS

## NOTES:

- If applying for more than one course, need to submit application for each, however, only one set of transcripts
- If applying for a second year (e.g. AQV2 or AQV3), only the updated veterinary school transcript is required (and application)
- Veterinary school transcript must include recent work (fall of the year before application due)
- CV accepted but NOT required
- Letters of recommendation accepted but NOT required
- Transcripts must be official copies sent directly to the director
  - Transcripts should be sent electronically by the university to the director
  - Paper transcripts are problematic, but IF NECESSARY will be accepted at director's address

# APPLICATION PROCESS

**Where to submit:**

Should be electronic: [aquavetmail@gmail.com](mailto:aquavetmail@gmail.com)

If transcripts must be sent by mail:

**Donald W. Stremme, V.M.D.**  
**AQUAVET® Director**  
**Cornell University**  
**College of Veterinary Medicine**  
**Microbiology and Immunology**  
**C5181 Vet Medical Center**  
**Ithaca, NY 14853**



# APPLICATION PROCESS

- ◆ *Applications due Jan 15, 2017*
- ◆ *Application forms - website*
  - ◆ *Via E-mail as PDF file preferred*
- ◆ ***Essay** - highlight any aquatic experience*
  - ◆ *Can be separate word document*
  - ◆ *This is most important part of your application*
- ◆ *Acceptance to the program*
  - ◆ *Competitive Basis*
  - ◆ *Announced in February*

# APPLICATION PROCESS

## The application process is competitive

What does the admission committee look for?

An indication that you will use the information in the future

What have you done in the past in the aquatic sciences  
and/or aquatic animal medicine.....  
and/or even other exotic animal work

Formal courses

Other courses

Paid and volunteer work experience

Other: e.g. hobbies (keep aquarium fish)

Membership: IAAAM, WAVMA, AAFV, AAZV, ARAV, etc.

Application form, essay –

**Why you think you will benefit from the course.**

Probably the most important part of the application.

Follow the instructions regarding length of your essay.

Proof read it.

# Further information

- ◆ Website [www.aquavet.info](http://www.aquavet.info)
- ◆ Contact Information

**Donald W. Stremme, VMD**  
**(609) 350-3044**  
[aquavetmail@gmail.com](mailto:aquavetmail@gmail.com)

