

Aquarium Science Program

Oregon Coast Community College

Newport, OR

Bruce Koike

Cara Johnson (Nashua, NH)

Kaite Potter (Newburg, WI)

Bob Estes (Portland, OR)

Attendance made possible by support from:

Ozone Water Systems (Phoenix, AZ)

TJP Engineering (Imperial Beach, CA)

Moody Gardens

OCCC Foundation

Funding sought: NSF-Advanced Technological Education

Initial grant \$40,000 (workforce assessment-2001)

Q8. How important, if at all, are each of the following skills and knowledge for you to posses in order to fulfill your current job responsibilities? (*Circle one number for each item*)

	NOT AT ALL IMPORTANT	SOMEWHAT IMPORTANT	VERY IMPORTANT
Conducting applied research	1	2	3
Public speaking	1	2	3
Staff supervision	1	2	3
Knowledge of current job related topics	1	2	3
Basic mathematic knowledge	1	2	3
Basic science knowledge	1	2	3
Daily animal care	1	2	3
Record keeping	1	2	3
Exhibit maintenance	1	2	3
Life support design	1	2	3
Life support fabrication	1	2	3
Life support maintenance	1	2	3
Water quality management	1	2	3



Next grant: \$780,000 (3 years to develop and implement-2002)

Recruitment for students began immediately

Curriculum development (1 year): classroom, lab, practicum, field activities

Market with colleagues

Refine, improve

No campus for laboratory activities.....



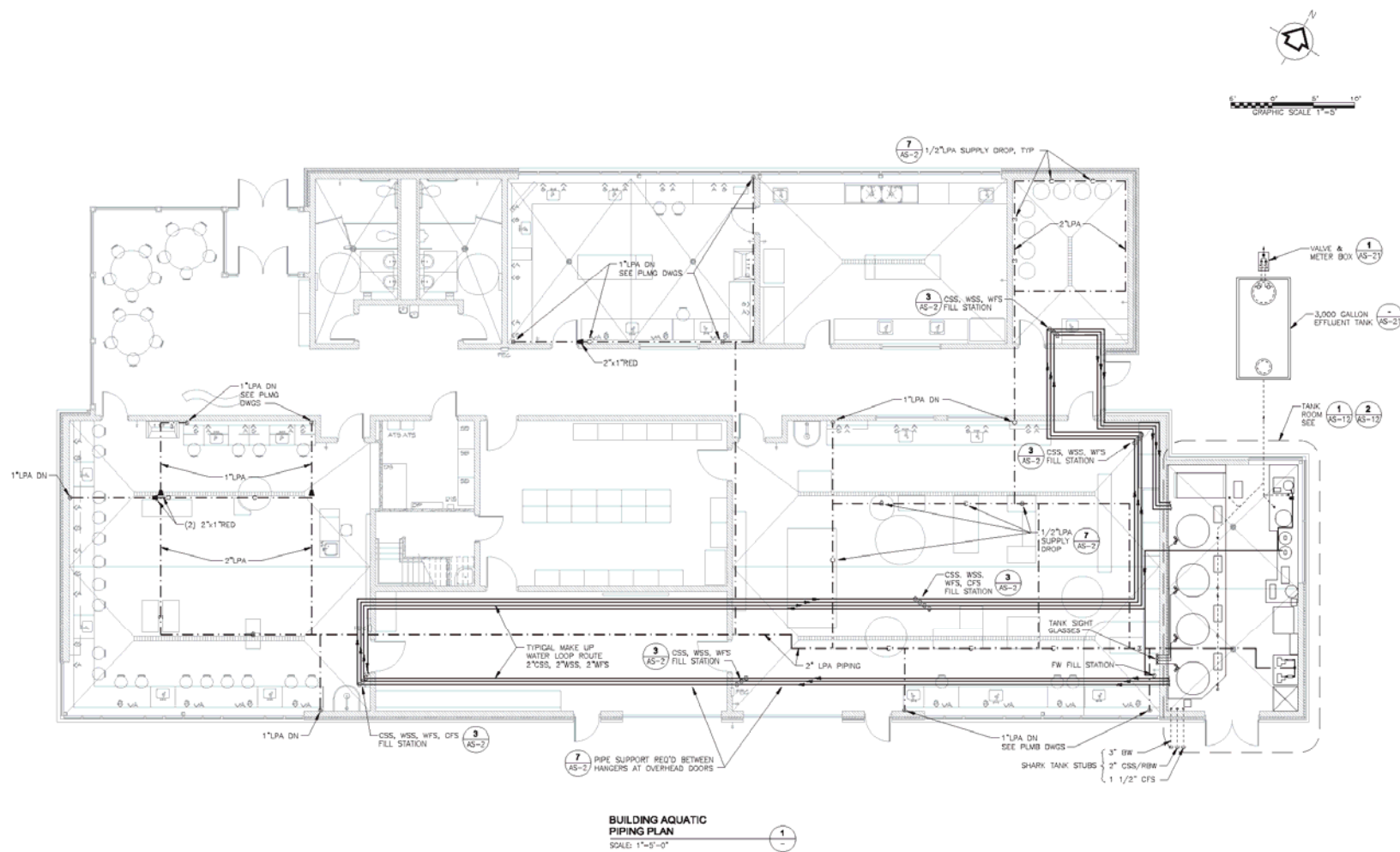


2003 Successful bond measure passage to create 3 campuses and an Aquarium Science Building, 7,500 sq. ft., ~10,000 gallons, \$5.2 million).

Grant to support increased diversity, address financial needs, and increase retention. \$443,000, 5 year project







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CHECK SET
NEW VALVES &
INCOMPLETE
FUEL/SMART
IS IN WAY TO BE DONE FOR
COMPLETION OF CONSTRUCTION
03/30/2010

CONSULTANTS

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**AQUARIUM SCIENCE BUILDING
OREGON COAST
COMMUNITY COLLEGE
NEWPORT, OR**

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△	REVISED

**BUILDING AQUATIC
PIPING PLAN**

PROJECT NUMBER
06017

DATE
03/30/2010

AS-11



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**AQUARIUM SCIENCE BUILDING
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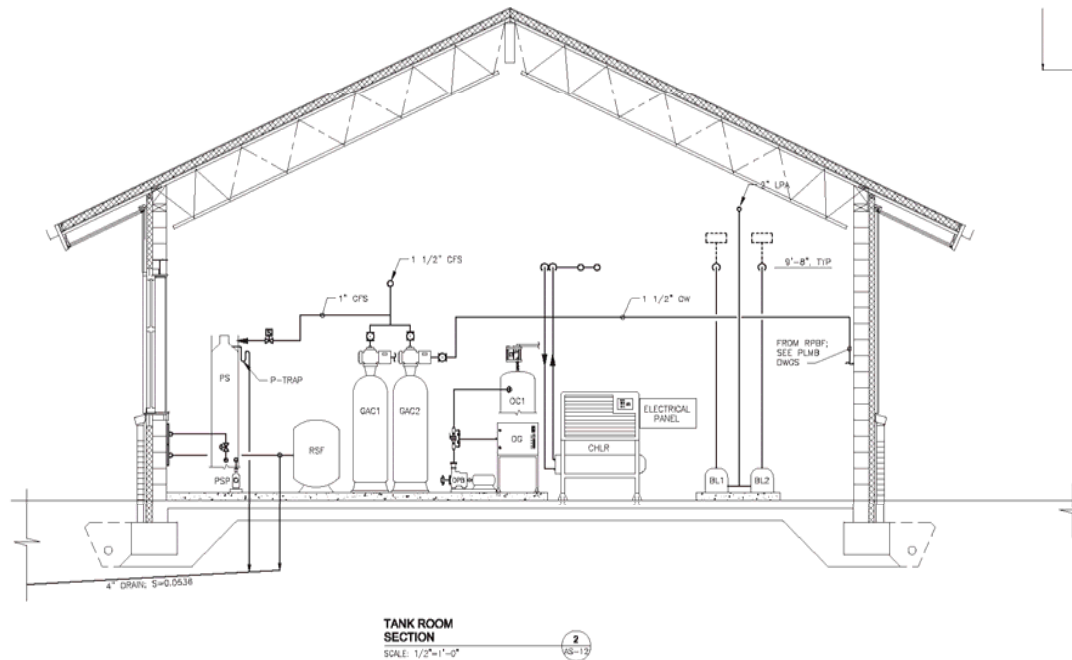
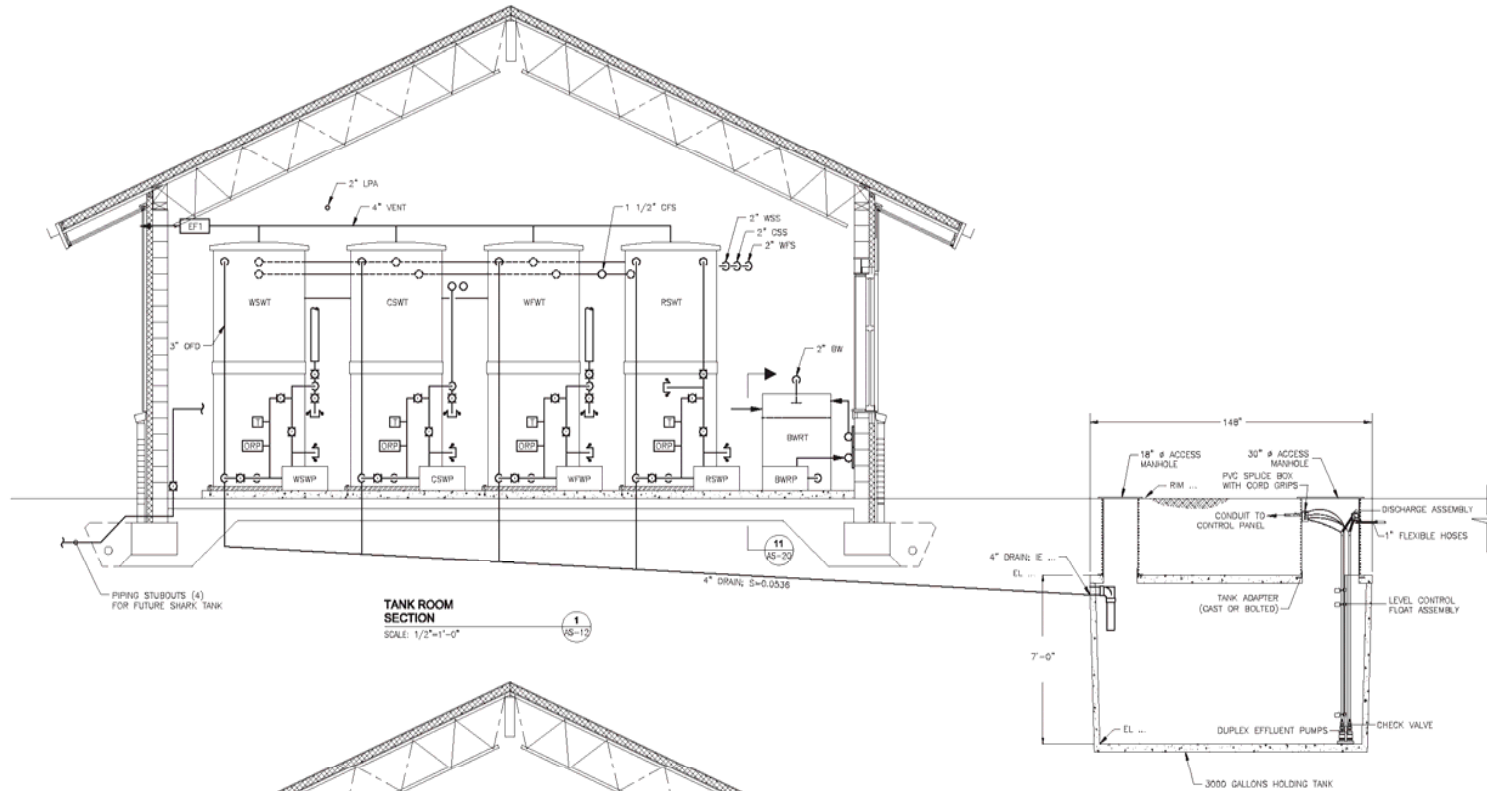
**TANK ROOM
SECTIONS &
DETAILS**

PROJECT NUMBER
05017

DATE
03/30/2010

AS-13

GRAPHIC SCALE 1/2"=1'-0"





That Life Support System Survey?

14 responses: 9 managers, 5 technicians

Majority liked the on-line format 36 base questions

93% of facilities at least 50% closed system (undefined)

43% of facilities reported at least 50% freshwater (ditto)

50% reported expansion plans, 66% anticipate an increase in LSS staff

Openings	Facilities
----------	------------

0	7
---	---

1	4
---	---

2	1
---	---

3	2
---	---

4	0
---	---

Position filled within 3 months –78%

Most recent hire: 57% with college degree

Some college: 21%

No licensure: 71%

Difficulty in hiring in the last 3 years?

67% no difficulty (balance, no qualified/freeze)

28% reported no qualified applicants (n=2)

72% reported the deep freeze (n=4)

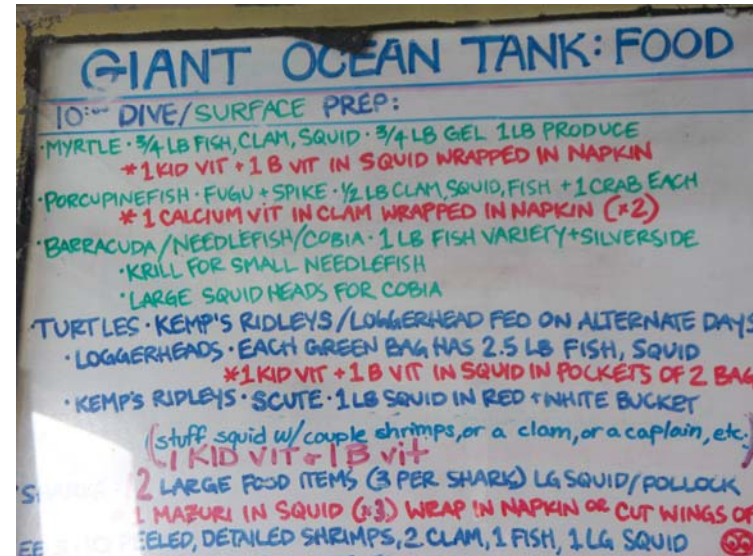
85% periodically or regularly participated in hiring.

57% had attended AALSO in the past 5 years

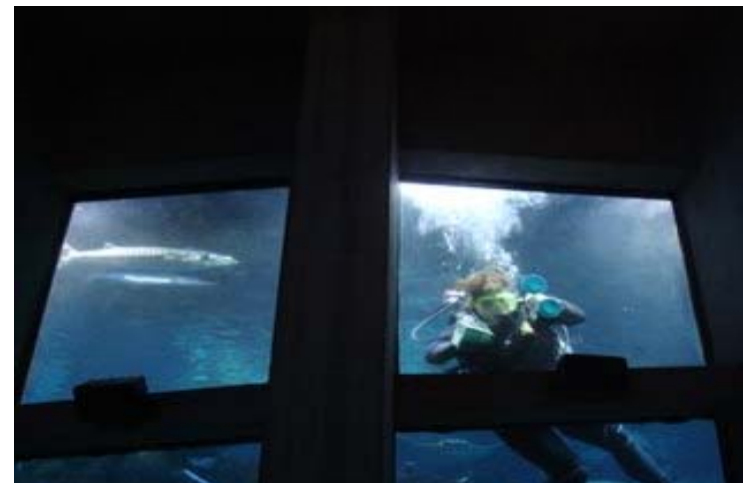
Life Support Operator level advantageous (85%)



Internship at New England Aquarium



- **Preparing Food**
- **Feeding**
- **Cleaning**
- **Diving**
- **Observing**



Practicum at Oregon Coast Aquarium



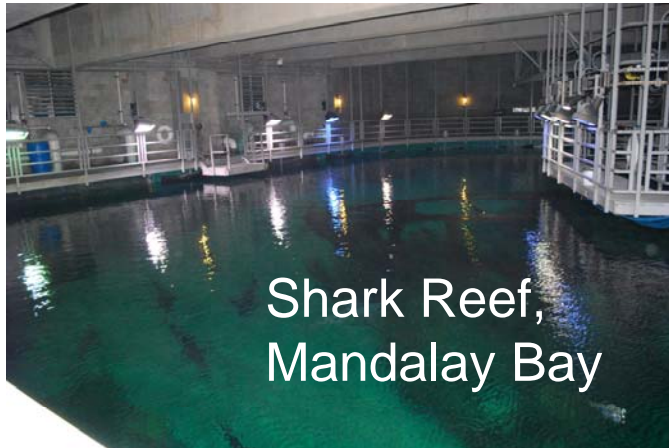
Hatfield Marine Science Center



Practicum with the Lincoln County School District



Behind the Scenes of Various Facilities



Shark Reef,
Mandalay Bay



Atlantis Marine World, Long Island, NY



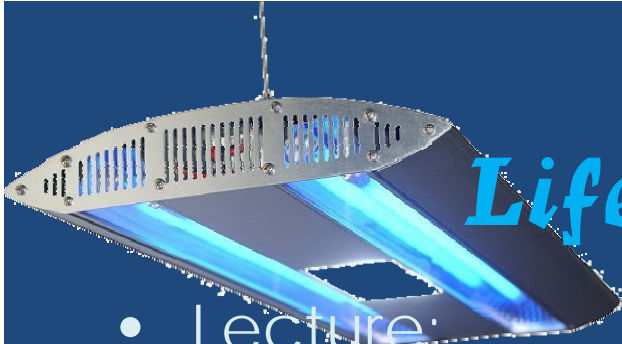
National Aquarium,
Baltimore



Mystic Aquarium, CT

Special Projects in Aquarium Science





Life Support Systems and Design

- Lecture:
 - Chillers
 - Tool safety
 - Lighting
 - Ozone
 - UV
 - Tanks, filters, water quality
 - Pumps
 - Foam fractionators
 - Reactors
 - Venturi, aeration
 - Heat exchange



Life support Class

- Presentations
 - Chris Carr
 - Aq. Of Pacific
 - Energy
 - “Every kilowatt counts!”
 - Paul Cooley
 - MWH Global Aquatics
 - “Greening” life support

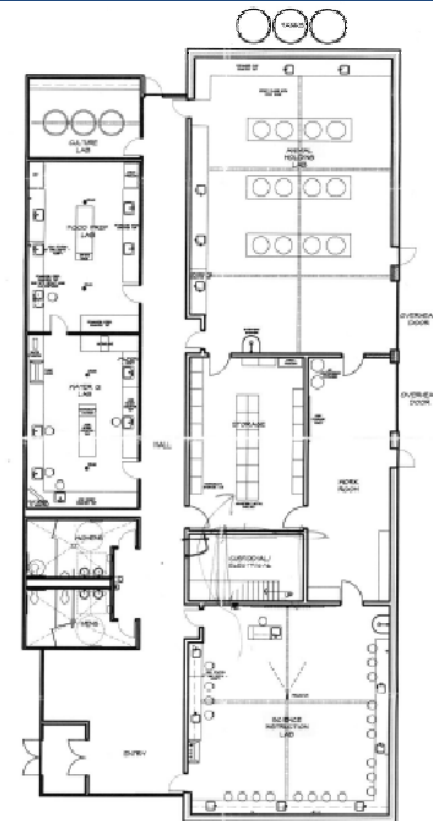


Life support Class

- Labs
 - Chiller
 - Take apart, label components, rebuild
 - Pump
 - Tool safety
 - Use each tool
 - Complete an exam on safety protocols
 - Oregon Coast Aquarium
 - Participate in a tour that goes through all the major life support components

Life support class

- Final Projects
 - Pick an LSS plan for the new AQS building
 - Coral Propagation
 - Reef tank
 - Jelly kriesel
 - Polyp propagation
 - **Aquaponic system**
 - **Rack system for small fishes**
 - Large freshwater system
 - Salt mixing tank
 - Temperate water system
 - Invertebrate holding system



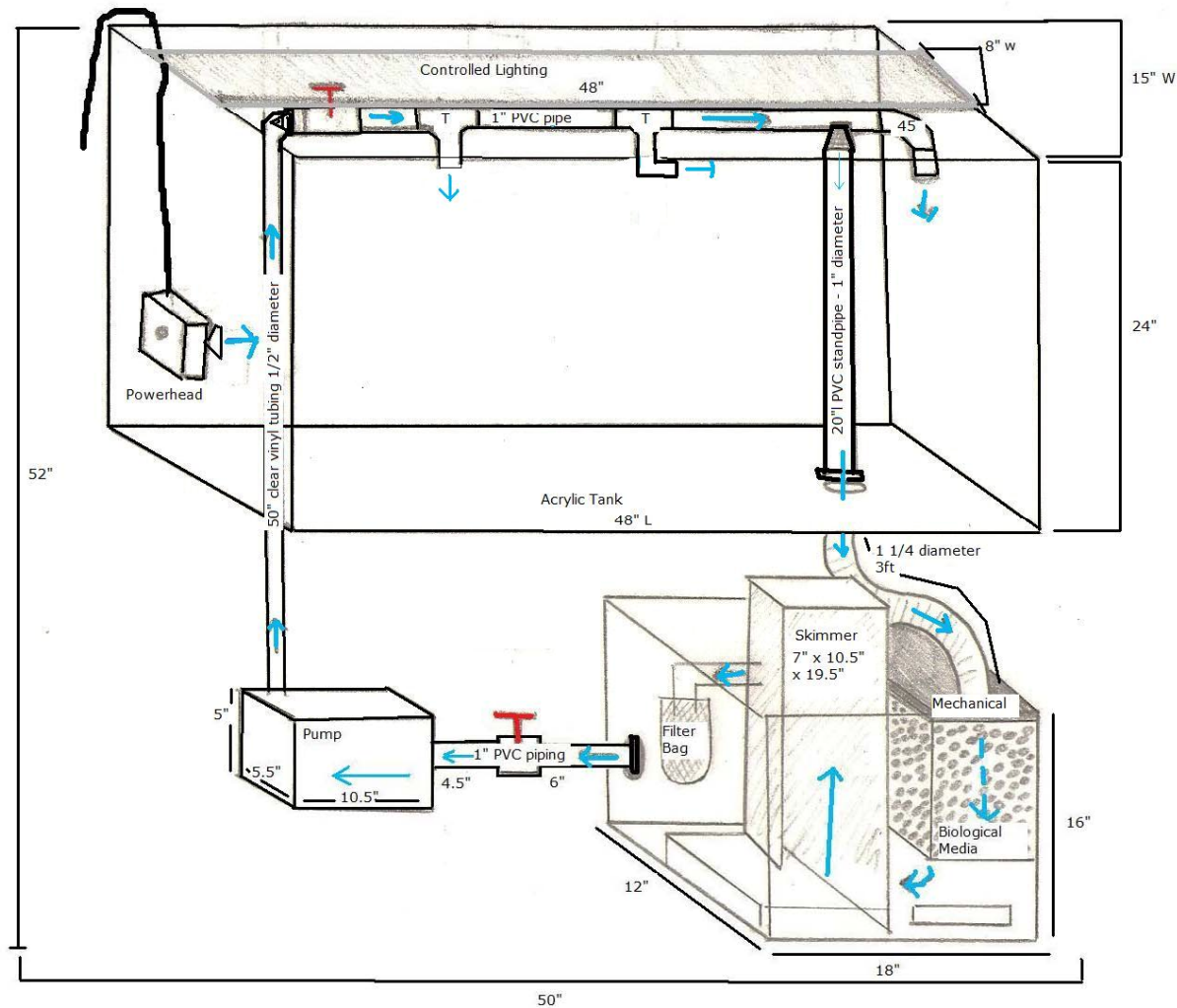
LSS Projects

- Schematic
- Cut List
- Troubleshooting and Maintenance Guide
- Species List
- Oral Presentation



Reef Tank

Life Support Class



Scale: 1" = 12"

Practicums

- NOAA – Fish Behavior Lab
 - Husbandry in a research setting
 - Basic Plumbing, Drum Filter, Chill water
- Envision Acrylics
 - Designing and Building Custom Aquariums

Spring Break 2010

- 9 students, 2 cars, 2 hotel rooms and 3 Aquariums in 3 days!
- Monterey Bay Aquarium, Aquarium of the Bay and Steinhart Aquarium





