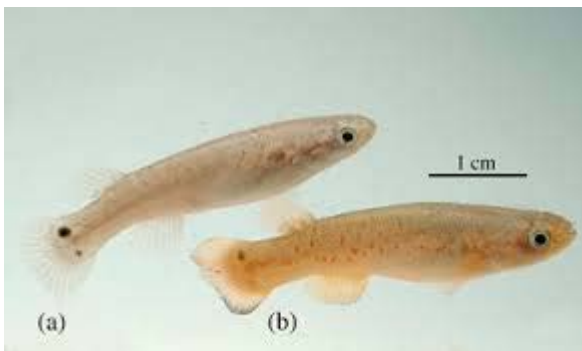




# Aquatics Oversight at UCSF

(Fish and Frogs are not Rodents)



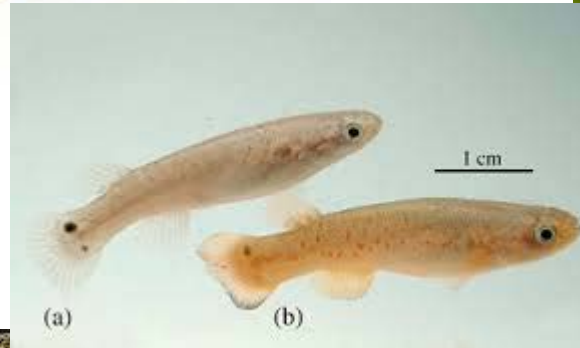
# UCSF: Current Aquatics

## Lab Care

Zebrafish

*Xenopus tropicalis*

Mangrove Killifish



## LARC Care

*Xenopus laevis*

Axolotl



# Research Use of Aquatics at UCSF

## *Xenopus laevis:*

Harvest of oocytes as assay for ion channel expression experiments

## *Xenopus tropicalis:*

Transgenic analysis to determine function of neurodevelopmental disorder-associated genes

## Zebrafish:

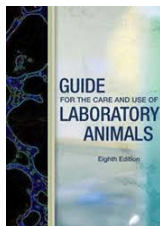
Transgenic analysis of many disease processes – neuro, cardiopulmonary, toxicologic

## Axolotl:

Characterization of neurotransmitter receptors and ion channels, electrosensory behavior observation

# Regulations Covering Aquatics

- *The Guide for the Care and Use of Laboratory Animals*
  - AAALAC's primary reference standard for accredited institutions in the U.S.
  - Current edition: **expanded information on aquatic animal care**
- NIH – OLAW
  - Defines vertebrates “at hatching”
  - Includes larval amphibians and fish
- CA Fish and Wildlife
  - Transgenic fish and frogs considered detrimental species and must be included on a permit



# UCSF: Aquatics Policies and SOPs

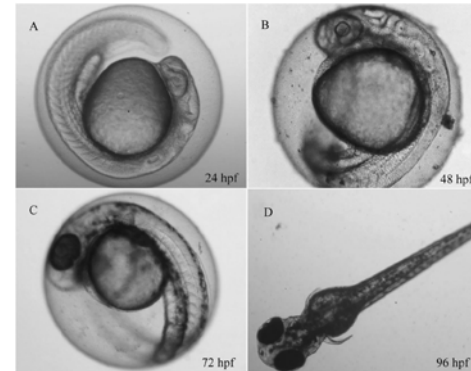
- Policies:

- Zebrafish Inclusion in IACUC Protocols

- Based on OLAW definition of live vertebrate animals “at hatching” => must be counted at 72hpf

- Zebrafish (Aquatics) Care Standards

- Based on the Guide
    - Lab SOPs must include all aspects



Schiwy et al 2014



## Water quality parameters

Parameter	Desired value	Tolerable amplitude
Temperature	28 °C	27 – 29 °C
pH	7.5	7.3 – 7.7
Conductivity	1200 µS	1150 – 1250
Ammonia	0 ppm	0 – 2 ppm
Nitrite	0 ppm	0 – 2 ppm
Nitrate	0 – 10 ppm	0 – 100 ppm
Hardness	> 80 ppm CaCO <sub>3</sub>	80 – 300 ppm CaCO <sub>3</sub>
Dissolved oxygen	> 5 ppm	6 – 8 ppm



# UCSF: Aquatics Policies and SOPs

## Aquatics

Zebrafish zygote collection  
and crossing

*Xenopus* oocyte harvest  
(cat D)

Fin clipping (cat D)

## Rodents

Production of Genetically  
Modified Mice

Tissue Collection for  
Genotyping

# Lab Care of Aquatics

What are we aiming for?

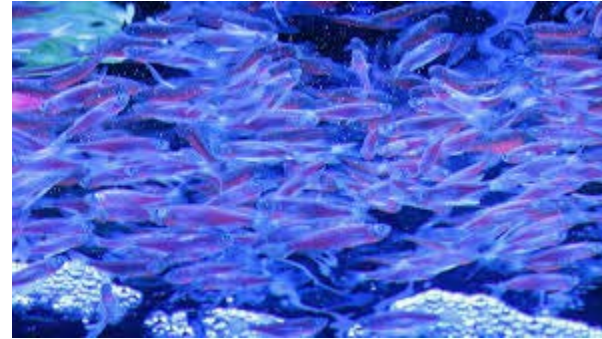
- Demonstrate LARC and lab care of aquatics consistent with centralized care of other animals on campus
  - Husbandry and recordkeeping
  - Health care
  - SOPs
  - Emergency response
  - Housekeeping
  - Occupational Health and Safety





# Husbandry and recordkeeping

- Housing/Husbandry:
  - Check tank densities
  - Check sump tanks
  - Food in date
  - Live food managed
- Recordkeeping
  - Feeding/Daily assessment
  - Water quality monitoring
  - Room temp/humidity
  - Mortality
  - **Census:** average daily



## Water quality parameters

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# Health Care



- LARC Veterinary Staff
  - Veterinarians and rodent/aquatics nurses – approx monthly visits to lab facilities
  - RVTs round aquatics under LARC care
  - If increased illness or mortality: contact veterinary staff, on call veterinarian
- Sentinel testing
  - Per lab SOP or LARC veterinary advice
  - Health surveillance data for receiving institutions
- Surgery records

# SOPs

- Should reflect what actually happens
- Updated version available in facility
- All users familiar with them, can answer questions about them
- Most current uploaded to RIO as protocol attachment



# Emergency response



- Animals checked daily, water environment allows for some leeway before parameters change to a dangerous level
- **However:**
  - Know ER contacts - should be posted (and accurate)
  - Water parameter alerts are to reach main users - email or text
  - Users know how to communicate with Facilities - most aquatics rooms monitored through them

# Housekeeping

- Clean shelves and floors
- Address corrosion
- Tank visibility, condition, clean tops, sanitization schedule
- Check expiration dates, labels
- Food Storage



# Occupational Health and Safety

- Are you enrolled in the Occupational Health Program?
  - Answer should be **yes**
  - Animal users on the protocol complete a MHS
- MS-222: stock solutions made in chemical hood; chemical waste disposal of solutions
- Zoonoses: [ehs.ucsf.edu/zebra-fish-zoonoses](http://ehs.ucsf.edu/zebra-fish-zoonoses)



# Summary



- Aquatics animals are cool
- Aquatic animals are included in the UCSF Animal Care and Use Program
- When you are in Aquatic animal facilities under researcher care (most), ask **lots** of questions about their care

# Questions

