CCAC National Workshop: Fish and Wildlife

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About me:

- Consider myself a fish physiologist/biochemist/toxicologist
  - Why fish/wildlife?
  - Involved with the uOttawa Aquatic Care Facility since its inception (~1990)

- If designing, beware!!!
  - Knowledgeable people, knowledgeable people, knowledgeable people, …………
  - Engineers don’t read (or care about) the Fish or Wildlife Guidelines!!
Why fish/wildlife?

- **Environmental concerns:**
  - Societal interests
  - Sentinel species – ‘canaries’ of aquatic and terrestrial environments
  - Environmentally ‘trapped’

- **Scientific questions:**
  - Diversity and evolution – huge; vertebrates thus distantly-related to mammals
  - Mechanistic questions – ‘model’ species
  - Practical issues – e.g. fish as food

- **August Krogh Principle** – basis of ‘biological’ research
Key design issues:

- Space and flexibility ............
  - Generally we are speaking of ‘biologists’ – bit of an ‘odd’ group
  - Facility expansion and remodelling
  - Storage (field studies???)
  - Water quality into tanks and potentially out of the tanks; temperature ‘ranges’
  - Space for performing surgery, preparing exposure, terminating experiments

- Need to think about these things before rather than after the fact!
uOttawa Facility

- **uOttawa Aquatic Care Facility**
  - Multi-purpose – used by 14 profs + 100 trainees
  - Aquatic care technician + research technicians

Photos by A. Morin

http://www.aquatichabitats.com/
Fish species:

- Zebrafish, *Danio rerio*
- Goldfish, *Carassius auratus*
- Brown Ghost Knife Fish, *Apteronotus leptorhynchus*
- African Lungfish, *Protopterus annectens*
- Rainbow Trout, *Oncorhynchus mykiss*

Photos by A. Morin
Other non-fish species:

Xenopus – http://www.tecniplast.it/

Photos by A. Morin
Other species:

Photos by G. Blouin-Demers

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Issues to deal with:

- Extremely complex – facility evolves; one-size fit all model not appropriate
- Limited ACVS input – ‘flies under the radar’
- Limited SOPs for operations
  - Mechanical systems - few
  - Chemical testing, cleaning, nets - absolute
  - Personal not simply animal care technicians, but …
- Maintaining animal records
  - Incoming animal numbers – linked to protocols
  - Use numbers – reliance on users?
uOttawa Aquatic Care Facility

Mechanical room ‘nightmare’!!!

Photos by A. Morin
uOttawa zebrafish facility
Other issues:

- Animal suppliers
  - Variable quality; seasonal variability
- Transportation costs
  - More than cost of animals
  - International and provincial rules
  - ACVS requirements for transport
- The Field
  - Insurance for researchers
  - Field animals to vivarium and their return
  - Storage of equipment
  - PAM?
“Best practices”:

- Guidelines exist but training is less prescribed
  - Primarily supervisor directed
  - Lucky for “Experimental Fish”, but is this enough?
- Veterinarians and ACCs need to become more involved with non-traditional animal use
  - Better training of veterinarians and ACCs – workshops, courses, webinars
  - Appropriate ACC representation
  - Appropriate Protocol forms; PAM?
  - Mutual respect between researcher, vet and ACC – things coming out of ‘left-field’ (‘pain management’)
Bottom-line:

Better, more reliable data
Reduced animal use
Reduced costs
Much better Science

http://www.happyfish.net/gallery.html
Thanks!!

- CCAC seeing the need for guidelines
- Colleagues that developed these guidelines
- Canadian fish research community that has accepted and utilized these guidelines to generate better research outcomes
- uOttawa and funding sources
- uOttawa ACVS and ACC for working with the fish researchers in a collegial fashion