Hawaii
Status of Bioassessment

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Basic History

- State Aquatic Resource Protection Responsibility is shared by two State Departments, the Department of Land and Natural Resources (DLNR), and the Department of Health (DOH)
- Subject to various other federal mandates and interests - FWS(ESA), NOAA, USGS, USDA-NRCS
- Also influenced by other scientific, economic and community interests

Mission Statements

DLNR-CWRM - ‘set policies, protect resources, defines uses, establish priorities while assuring rights and uses, and establish regulatory procedures’

DLNR-DAR– ‘manage, conserve and restore the state’s unique aquatic resources and ecosystems for present and future generations’

DOH – ‘protect and improve the health and environment for all people in Hawai'i’

Decision Mandates

- DLNR
  - Allocation of water resources
  - Protect stream channels from alteration
  - Restoration
  - Allocation of biological resources
- DOH
  - CWA Compliance
    - Standards
    - Permit conditions

Monitoring Approaches

- Water Sampling
  - Conventional Samples
  - Bacteria Samples
  - In-situ auto analyzers

Monitoring Approaches

- **Hawaii Stream Bioassessment Protocol (HSBP) developed by UH Manoa - 2002**
- **Hawaii Stream Visual Protocol (HSVP) developed by NRCS - 2001**

Big Issues

- Hawaii not comparable to continental US
  - 21 Orders of insects are absent
    - We do not have EPT
      - 4 species of introduced Trichoptera
  - Mussels and most snails are signs of degradation
  - Vast majority of insects are introduced

Difficulties

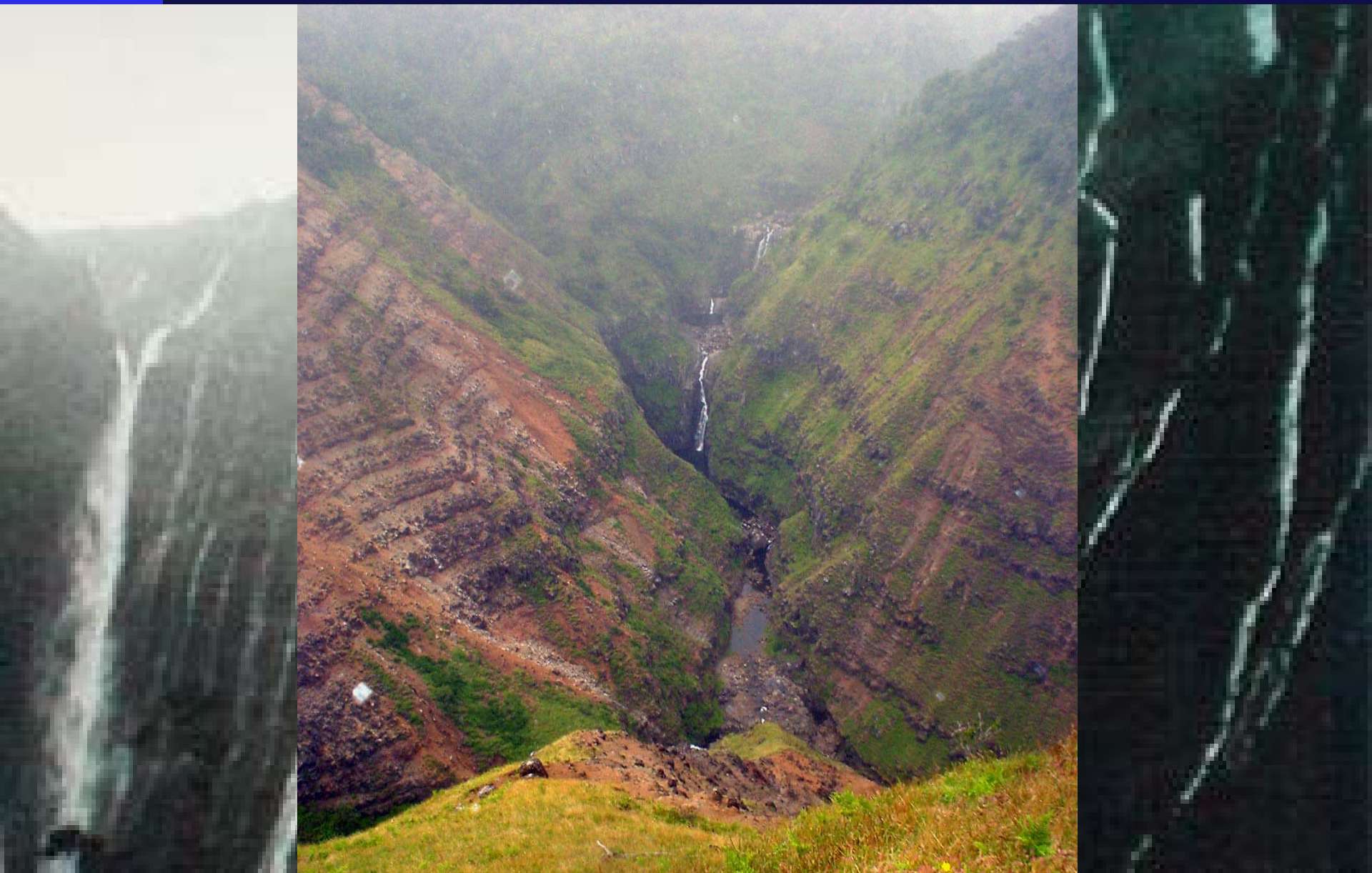
- **Physical differences**
  - **Each Island is very different and unique**
  - **Each Island has ‘ecoregions’**
  - **Each Stream has different components**
- **Biological differences**
  - **Species composition**

Volcanic History

And Yes, we have snow!

Deserts on the Leeward Sides

Extremely Wet Windward Sides



Erosion over geologic time

Extreme Waterfall Heights

Biological Component

Biological Component

Biological Invasives

There have been planned/unplanned releases

- Bass – both large and small mouth
- Catfishes – Asian and Channel
- Tilapia – several species
- Aquarium fishes and reptiles
- Extensive array of invasive plant species
- Wild Pigs, Deer, Sheep, Goats and various game birds

Invasives

Examples from last week

- Went to Big Island to finish up a contract
- Drove to the Kohala mountain range to check out several stream systems
- Discovered that the GIS stream layer was incorrect
- But learned some interesting things

Conclusion

- Progress is very slow and difficult
  - Need more manpower and intellectual resources
- What we need
  - Get buy in from DLNR
  - Develop good ties between designated uses, impairment and biological assessment methodology

Acknowledgements

- EPA – Region IX for the funding!
- Reuben Wolff - USGS
- Katie Kamelamela - intern
- Momi Wheeler – great pictures