Reservoir & Lake Management

Cayelan Carey, Lisa Borre, Mengyuan Zhu, Huiyun Li, Dave Johnson, Gerardo Perillo, Bomchul Kim, Jonathan Doubek, Margaret Dix, Veronica Gil, Deniel Conde, Nelson Mello, Meilan Jiang, Lu Zhang, Delik Akyuz, Ana Laura Ruibal-Conti, Guangwei Zhu

17 persons
8 countries
Open Discussion

Reservoir as an unique ecosystem

In social aspect, how do human activities influence reservoir dynamics?
- cultural change
- tourism
- social activity
- landuse + development on water quality
- Migration population problem
- flooding pattern change

Temperate vs tropical reservoirs?
Natural lakes versus reservoirs?

Does reservoir usage affects its physics, chemistry and biology?
- hydropower;
- drinking water supply;
- agricultural water supply;
- combination of these.
Open Discussion

HF buoy and Model in Reservoirs

What aspects of reservoir dynamics can we better understand by using buoys?
- stratification;
- TSI;
- residence times
- metabolism.

Which reservoirs has HF data?
- Kentucky, Korea, Qiandao, Dashahe, NY DEP reservoirs, Ford Lake, FCR...

Where to set a buoy system in a reservoir to meet the model and management need?
- Inflow, for calibration model in Korea
- Dam, for ecological process monitoring

What kind of models we use to analyze a reservoir?
- 2D CEQUAL – W2 model from USA, simulate turbidity current, TP, TN etc.
- 3D ELCOM-CAEDYM for temperature, DO, TN, NO3, NH4
Open Discussion

GLEON meet management demand

How our high frequency data meet the public and management demand?
- DO, Turb, Chla, flow rate in Korea
- DO as an indicator of reservoir restoration in Brazil

What kind of ecological, environmental and social problems we meet in reservoir management.
- Turbidity    - Bloom    - Fishery    - migration fish protection    - biodiversity

Management strategies to control or improve reservoir water quality.
- oxygen systems
- selective water withdraw from Dam
Relation to Purple Wall

Buoy application design and work with model
- Reservoir as unique ecosystem
- Buoy as a management tool

Reservoir and Lake management

Sensor evaluation
- Advance in environmental Observatories

Eutrophication
- Lake and Climate Change

Sustainable use of lake and reservoir services
Products and timeline

Collect basic reservoir information inside of WG and GLEON.
- Response person: Guangwei
- geography, hydrology  - environmental issues  - drivers of ecological change
- Deadline: 30NOV13 – release survey form
  31DEC13 – end of data input and share to result to WG participants

Paper 1: Link HF buoy monitoring to lake management.
- Response person: Lisa
- Case: - NY reservoir; - Taihu; - Sunapee; - Rotorua; - Ford Lake ... ...
- Deadline: 15 Dec – Outline; 15Dec - Case study sites, 31JAN14 – Draft

Paper 2: Apply HF buoy for bloom forecasting in reservoir.
- Response person: Guangwei
- Case: - Xinanjiang reservoir and other interesting cases
- Deadline: 15 Dec – Outline; 15Dec - Case study sites, 31JAN14 – Draft

Paper 3: Management strategy overview to control water quality in Reservoir.
- Response person: Jonathan
- Deadline: 31JAN14 – Outline; Summer 2014 - Draft