The Evolving History of Lake Biwa Weir

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Introduction-1

Lake Biwa-Yodo River Region: Osaka, Kyoto, Hyogo downstream, Shiga upstream

Regional Profile: Downstream highly industrial and urban, upstream still agricultural but rapidly developing

Historical: On of the major political, economic and cultural centers in Japan, with long historical interactions

Weir History: Original one (1905) was replaced with a new one (1961), and the latter was improved with a bypass(1992)

Introduction-2

1. AN OVERVIEW OF LAKE BIWA AND YODO RIVER BASIN

1.1. Physical and Geographical Features

- **Physical:** 670km^2 surface area, with a maximum depth of 104m, and a volume of 27.3 billion m^3.
- **Geography:** Shiga Prefecture upstream, Osaka Prefecture downstream
- **Demography:** Some 18 million population, with 14 million dependent on lake water in the Lake Biwa - Yodo River Basin.
- **History:** Centuries of conflicts, with over 120 years or so of major infrastructure interventions

1.2. Flood Control

- **Downstream:** Historically highly populated and densely inhabited
- **Upstream:** Historically agricultural and rural, but rapidly urbanizing today

1.3. Water Resources Development

- **Downstream:** Mainly drinking and industrial
- **Upstream:** Mainly agricultural but drinking and industrial growing

Methods

2. A LEGACY OF LAKE BIWA FLOOD CONTROL

2.1. Constraining Topography of Lake Biwa

2.2. Upstream–Downstream Conflicts over Dredging of Seta River

- Flood Control: Having been a major challenge for the region over centuries
- Water Resources: Emerged as a major challenge since 1960's

3. RELATIONSHIP BETWEEN SETA RIVER DREDGING AND WEIR

3.1. Synchronizing the Weir Operation for Upstream and Downstream Needs

- Intricate operational rule
- Need for accommodating the upstream and downstream needs simultaneously

3.2. Conflicts Over Fully Closing the Seta Weir

- On the occasions of major rainfall event, the Lake Biwa water has to be kept within the lake to save the downstream from flooding

Results-1

4. WATER RESOURCES AND REGIONAL DEVELOPMENT NEEDS

4.1. Lake Biwa Comprehensive Development Project (LBCDP)

- A major comprehensive national project (1972-1997, 25 years, with two extensions)
- Basically for downstream water needs, combined with enhanced flood control, together with environmental infrastructure development

4.2. Policy Framework of LBCDP

- Special law enacted to support the project, with national, prefectural and municipal policy linkages
- Ministry of Construction (then) was the lead agency at the national level.

4.3. Implementation Schemes of LBCDP

- Planned management of Lake Biwa water Level
- Seta River dredging and shoreline flood management measures
- Formulation of weir operating principles
- Development of the Yodo River Basin Management Plans

Results-2

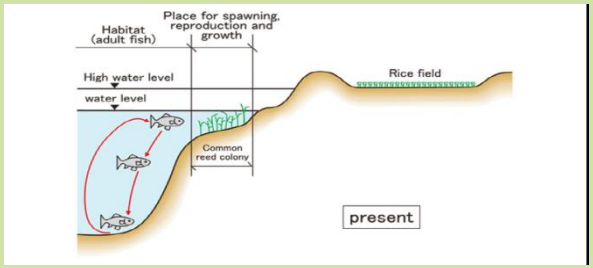
5. RESTORATION OF ECOSYSTEM INTEGRITY AND WATER QUALITY

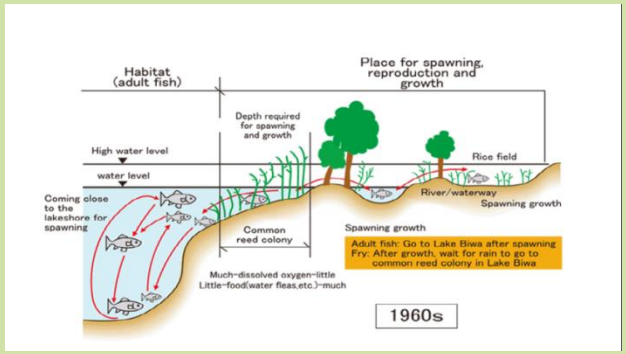
5.1. Lake Biwa Comprehensive Conservation Plan(LBCCP)

- Emphasis on “ecosystem restoration” with broad societal participation
- Shiga Prefectural plan, with no special national
- Downstream governments reluctant to fund projects

5.2. Appraisal of First 10 Years of LBCCP (1998-2010)

- The first phase plan was a government-driven plan with inadequate societal engagement in its development and implementation
- The second phase plan (2011-2020) needs to be improved to meet the emerging needs, particularly of the changing ecosystem behavior





Conclusions

6. THE CHALLENGES AHEAD

- **LBCDP as a Background**: ameliorated the contentious relationship
  - a most dictating factor for the regional socioeconomics
  - but with enormous environmental-ecosystem implications
- **LBCCP as another Background:** the post-LBCDP sustainability framework for Shiga Prefecture
  - what about the downstream Yodo region?
- **Emerged and Emerging Frameworks for Meeting the Future Challenges**
  - Yodo River Improvement Plan, 2009
  - Integrated Management Lake Biwa – Yodo River System, A Proposed Conceptual Framework, 2011
  - a new regional institutional framework: the autonomous basin policy framework (the Kansai Broader Region Collaboration Framework), 2012
  - Passing of the “Basic Law for Circulatory Management of Water”, necessitates the Biwa – Yodo region to develop a “Basic Plan for Circulatory Water Management”, 2014