A Brief Introduction to the Shantou Intertidal Wetland, Southern China

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1 Introduction

- Shantou City is one of the most developed cities in southeast coastal area of China.
- It had a high population of 4,846,400. The population density was 2,348 per km², GDP was 1,700 US $, in 2003.
The current use of the Shantou Intertidal Wetland includes:
- briny and limnetic aquaculture,
- reclamation for farmland and municipal estate,
- transition to the salt field or tourism park,
- natural wetland as the habitat of resident and migratory wildlife.
2. Characteristics of Shantou Intertidal Wetland

2.1 Environmental characteristics

The total area of the Shantou Intertidal Wetland is 1,435.29 ha. The demonstration site’s area is 3,475.2 ha, including 4 parts:

Fig. 1 Demonstrated content of sub demonstration sites

<table>
<thead>
<tr>
<th>No</th>
<th>Demon site</th>
<th>Demonstrated Content</th>
<th>Area/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hexi</td>
<td>biodiversity of water weed</td>
<td>512.4</td>
</tr>
<tr>
<td>2</td>
<td>Sanyuwei</td>
<td>aquiculture and the biological treatment of waste water</td>
<td>1639.5</td>
</tr>
<tr>
<td>3</td>
<td>Suaiwang</td>
<td>secondary mangrove for birds habitat</td>
<td>388.7</td>
</tr>
<tr>
<td>4</td>
<td>Waisha</td>
<td>Eco-tourism</td>
<td>934.6</td>
</tr>
</tbody>
</table>
Site Map of Shantou Interidal Wetland Demonstration Site
2.2 Climate

- The climate is warm all year round with high temperatures and abundant light, and clearly differentiated dry and wet seasons.
- Mean annual duration of sunshine: 954.2 hrs.
- Historical average air temperature: 23.1 °C.
- Average high temperature: 38.8 °C
- Average low temperature: 15.8 °C.
- Annual mean precipitation: 2,382.3 mm.
3 Biodiversity

• The Shantou Intertidal Wetland includes diverse types of habitats, such as estuary, lagoon, intertidal mudflats, non-peat swamp, etc. It is one of the most biodiversity rich and important environments.

Fig. 2 The biodiversity of general taxa in Shantou Intertidal Wetland Demonstration sites

<table>
<thead>
<tr>
<th>No</th>
<th>Taxa</th>
<th>Species</th>
<th>No</th>
<th>Taxa</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plants</td>
<td>233</td>
<td>5</td>
<td>Amphibians</td>
<td>10</td>
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<tr>
<td>2</td>
<td>Zooplankton</td>
<td>302</td>
<td>6</td>
<td>Reptiles</td>
<td>31</td>
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<tr>
<td>3</td>
<td>Macrobenthos</td>
<td>223</td>
<td>7</td>
<td>Birds</td>
<td>179</td>
</tr>
<tr>
<td>4</td>
<td>Fish</td>
<td>213</td>
<td>8</td>
<td>Mammals</td>
<td>12</td>
</tr>
</tbody>
</table>

Provided by Jiang Guoding, Chang Hong et al., 2002
4 Overview of current issues and management strategy

4.1 Current issues

1) Lack of human and financial capacity
2) Lack of integrated laws and regulations on wetland management
3) Lack of clear wetland boundary designations
4) Overlapping wetland administration
4.1 Current issues (continue)

• 5) Lack of operation of some nature reserves
• 6) Pressure for wetland exploitation from development
• 7) Destruction of wetlands outside nature reserves
• 8) Pollution of wetlands
4.2 Management strategy

• 1) Relevant national laws and regulation
• There are no special laws or regulations on the protection of wetlands in China at present.
• Relevant laws and regulation:
• (1) legislation on land and marine resources,
• (2) legislation on animals and plants,
• (3) legislation on the construction and management of Nature Reserves.
2) Establishment of wetland nature reserves

The establishment of wetland nature reserves is an important policy measure used to protect their valuable ecological system, species of wildlife, and natural monuments in a more strict and effective way.

From 2006~2010, Guangdong Province plans to set up 22 wetland nature reserves, totalling 427,078.8 hm², which represents 22.81% of the total area of wetlands in Guangdong.
3) Establishment of relevant institution

- The Shantou Municipal Government is highly committed to wetland conservation, and has made great efforts to conserve and restore the wetland.
- Since 1998, 205,000 US $ has been paid out, an area of 1,644.6 ha of mangrove has been restored at a survival rate of 85%.
• For preventing the wetland from degradation and loss, the Shantou Municipal Government established some management institutions and correspondence mechanism, such as wetland combination committee, wetland and wildlife protecting institution.
4) Infrastructure construction

• In order to map the boundary clearly, the local government has spent lots of money on infrastructure construction.

Installation of direction signs and boundary markers
5) Establishment of Integrated Mangrove – Aquiculture Systems (IMAS)

• A recent research (Chen Guizhu et al., 2004) indicates that IMAS can effectively purify the water quality and increase the aquatic production in certain extent. So the local government tried to construct such a system in the sub demon site.
Introduction of IMAS

• Three species - *Sonneratia caseolaris* (Sc), *Kandelia obovata* (Ko), *Aegiceras corniculatum* (Ac) were planted in each pond in certain areas.
The research indicates that:

- Mangrove can reduce effectively the concentration of nitrogen and phosphorus in aquiculture water;
- Planting different mangroves species makes difference of the aquaculture production.
- Aquatic production was largest in ponds planted with Ac, lowest in ponds planted with Sc.
6) Scientific research

- Scientific researches have been and will be conducted in the demo sites, including investigation, monitoring and experiments on the wetland plants, birds, benthic animals, soil and water quality.
7) Education and public awareness

- The public awareness program has been taken into practice by youth volunteers from Sun Yat-sen University. Through sharing knowledge, delivering posters and documents to the local communities. Furthermore, the wetland education center will be established in the demonstration site.
5 Conclusion

• 1) Specialized administrative organizations responsible for wetland protection and management should be created and improved at all levels, with hiring of professional staff.

• 2) Additional wetland nature reserves should be established, with particular emphasis on important wetland sites.

• 3) Public outreach and education on the function, values, and protection of the wetlands should be intensified.
Thank you