China’s Marine Fisheries Management Since the Implementation of the Fisheries Act in 1986

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Co-organized with the Republic of Korea's Ministry of Ocean in Fisheries
1. China’s Marine & Fisheries: basic facts

Annual Aquatic Products ≈ 66.9 m.mt.
Annual value ≈ 1200.02 billion CNY.

Annual Marine Catch ≈ 13.28 m.mt (20%).
Annual value ≈ 197.72 billion CNY. (16%)

- Bohai Sea: 8%
- Yellow Sea: 28%
- East China Sea: 38%
- South China Sea: 26%

1CNY ≈ 0.15 USD
1CNY ≈ 165KRW
Marine catch value ≈ 0.26% of GDP (74358.5 billion CNY)
1.1 Coastal District & Quantity of Fishermen

- 11 Coastal Districts.

<table>
<thead>
<tr>
<th>Year</th>
<th>Marine Fishermen (million)</th>
<th>Marine Catch Fishermen (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>5.21</td>
<td>1.10</td>
</tr>
<tr>
<td>2000</td>
<td>5.55</td>
<td>1.19</td>
</tr>
<tr>
<td>2005</td>
<td>5.36</td>
<td>1.10</td>
</tr>
<tr>
<td>2010</td>
<td>5.78</td>
<td>1.06</td>
</tr>
<tr>
<td>2015</td>
<td>5.76</td>
<td>1.02</td>
</tr>
<tr>
<td>2016</td>
<td><strong>5.65</strong></td>
<td><strong>1.00</strong></td>
</tr>
</tbody>
</table>

Total Rural Residents: 589.73 million people (fishery: 3.39%)
Total Chinese Population in domestic: 1.38 billion people
1.2 Top 10 Species of Marine Catch

The Harvest: Variety of species
The output >0.5m.mt species: hairtail, anchovy, brown striped mackerel scad.
Top 10 \( \approx 42\% \) of total marine catch
Fishing is getting smaller and smaller

### Table: Top 10 Species of Marine Catch

<table>
<thead>
<tr>
<th>Year</th>
<th>Hairtail (t)</th>
<th>Anchovy (t)</th>
<th>Brown-striped Mackerel Scad (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>118.68</td>
<td>59.81</td>
<td>56.3</td>
</tr>
<tr>
<td>2011</td>
<td>111.82</td>
<td>76.66</td>
<td>56.17</td>
</tr>
<tr>
<td>2012</td>
<td>109.66</td>
<td>82.41</td>
<td>58.1</td>
</tr>
<tr>
<td>2013</td>
<td>109.68</td>
<td>86.68</td>
<td>57.06</td>
</tr>
<tr>
<td>2014</td>
<td>108.42</td>
<td>92.65</td>
<td>60.23</td>
</tr>
<tr>
<td>2015</td>
<td>110.57</td>
<td>95.58</td>
<td>58.72</td>
</tr>
<tr>
<td>2016</td>
<td>108.72</td>
<td>98.37</td>
<td>60.09</td>
</tr>
</tbody>
</table>

**Hairtail** 8%, **anchovy** 7%, **brown-striped mackerel scad** 5%, **pacific mackerel** 4%, **yellow croaker** 4%, **Golden-line barbel** 3%, **marine butterfish** 3%, **lucidus eel** 3%, **other** 58%
1.3 Quantity and Capacity of Vessels

The Number of Marine Fishing ≈181.9 thousands.

<44.1 KW: 121.3 thousands
Approximately 66.68% fishing vessels small-scale fisheries…

44.1-441 KW:58.74 thousands

>441KW: 2515
1.4 Fishing Gear by harvest

Trawling ≈ 40% of total fishing gear

Trawling ≈ 47%, increasing...

1985
- Trawling 40%
- Gill net 12%
- Seine net 15%
- Set net 26%
- Fishing tackle 2%
- Other 5%

2015
- Trawling 47%
- Gill net 23%
- Seine net 8%
- Set net 12%
- Fishing tackle 7%
- Other 3%

Trawling increasing from 40% to 47%.
What’s role the policies play in the development of Fisheries in China? From 1980 to now: strategy for fishery development is mainly focus on "aquaculture".

<table>
<thead>
<tr>
<th>Year</th>
<th>Total output</th>
<th>Farmed Fish</th>
<th>Wild Catch</th>
<th>Growth rate of Wild Catch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>1000</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>1965</td>
<td>5000</td>
<td>4000</td>
<td>1000</td>
<td>10%</td>
</tr>
<tr>
<td>1980</td>
<td>7000</td>
<td>6000</td>
<td>1000</td>
<td>15%</td>
</tr>
<tr>
<td>2000</td>
<td>6000</td>
<td>5000</td>
<td>1000</td>
<td>10%</td>
</tr>
<tr>
<td>2015</td>
<td>8000</td>
<td>7000</td>
<td>1000</td>
<td>5%</td>
</tr>
</tbody>
</table>

b. 1971-1979: gradual increase
c. 1980-1999: accelerated to its PEAK
d. 2000-present: decreased slightly from its peak, then gently increases
2. China’s Marine Fisheries Management during 1986-2018

- Freshwater
- Marine Culture
- Marine Catch
- Percentage of marine catch

Mt

% 

Year

State-owned fisheries
Actively develop fishing
Variety Operating
Jap-Han Fisheries Agreement
Fishery resources breeding protection
Control of fshore farming
Double control
Fishing permit
Ocean Agenda 21
TAC
Fuel subsidy
Ocean ranch
Zero Growth
Aqauric resources protection area
Marine Catch
Marine Culture
Fishery Law
Marine Environment Protection Act
Marine Economic Zone
Cost subsidy
Marine fisheries resources protection
Seasonal Moratorium
Fishing vessel Privatization
Ocean ranchsilk road
Resources enhancement 21st maritime silk road
Cost subsidy
## 2. China’s Marine Fisheries Management after 1986

<table>
<thead>
<tr>
<th>Input Controls</th>
<th>Output Controls</th>
<th>Technique Controls</th>
<th>Other Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishermen relocation program - 2003</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Have these policies worked?

The answer is affirmative!

However, Challenges & Difficulties still remain!
3. Challenges & Difficulties?

- 3.1-Input Controls
  - Fishery Law- Basic law - 1986

The first condition for applying for a **fishing license** is that the applicant must be a unit and individual who has a certificate for the inspection of fishery vessels and a certificate for the registration of fishing **vessels**.

Secondly, according to register information of the fishing license: the type of fishing operation, the location, the time limit, fishing licenses (fishing vessel registration certificates, fishing vessel inspection certificates), the holder of engage in fishing activities.

Q1: Cannot distinguish traditional fishermen (small scale fishermen to make living by marine catch) or non-traditional fishermen (Commercial Unit). In particular: Resource fee (1% ~ 3%) the average annual output value of the ex three years of the fishing.

Q2: Does not have a clear limit on allowable catch of the fishing vessel.
• 3.1 Input Controls-“Double Control” System

**total number and engine-power-1987-**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of vessels</td>
<td>193401</td>
<td>239477</td>
<td>265620</td>
<td>279729</td>
<td>214560</td>
<td>204456</td>
<td>181930</td>
</tr>
<tr>
<td>Engine-power(kw)</td>
<td>6278040</td>
<td>8889877</td>
<td>9361302</td>
<td>12017986</td>
<td>12363850</td>
<td>13040623</td>
<td>14343686</td>
</tr>
</tbody>
</table>

• 3.1 Input Controls- Fishermen relocation program-2003

Q1: Limited inspection and enforcement power by local government.

Q2: Illegal vessels still existed, difficulties in law enforcement

Q3: Compensation standard is lower than income by marine catch, Lack of ideal way to transfer new jobs, different social welfare system between fishermen/rural & urban residents.

Q4: New fishermen (Income of rural in middle-west is lower than income of coastal fishermen.)
3. Challenges & Difficulties?

- **3.2-Output Controls**
  - Zero Growth Target - 2000
  - Total Allowable Catch - 2017
  - Catch share (Quota) program Pilots - 2017
    (Liaoning, Shandong, Zhejiang, Fujian and Guangdong)

- **Q1**: lacked continuous scientific investigation and accurate estimation of the stock of marine fishery resources.
- **Q2**: Difficulties in set reasonable distribution principles and distribution methods of fish quotas. This system cannot be fully replicated by other coastal places and its effectiveness is still being explored in pilot areas for one specie in one pilot.
3. Challenges & Difficulties?

- **3.3-Technique Controls**
  - Seasonal Closed Zone: Summer Moratorium -1995

  1995 to 2017: Bohai Sea June1-Sept1
  1999 to 2017: South China Sea May16-Aug1
  East China Sea (North of 26°30′N) Jun1-Sept16
  Others May 16-Aug1
  Yellow Sea (North of 35°N) Jun1-Sep16
  (South of 35°N) Jun1-Sept16

  After 2017: The close all marine fishing zone adjusted to 12:00 on May 1 of each year. 4 full moths seasonal moratorium.

- Q1: Lacks specificity to sufficiently cover all species. (some species should be harvest in the season, but missed)
- Q2: Rush into the sea immediately when moratorium is over.
3. Challenges & Difficulties?

3.3 Technique Control - Minimum mesh size regulation (2004)

<table>
<thead>
<tr>
<th>Gears</th>
<th>MMS (mm)</th>
<th>Application</th>
<th>Sea Area</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trawl</td>
<td>54 39(40,2005)</td>
<td>Yellow, East South</td>
<td></td>
<td>Al</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>II</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>Al</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>II</td>
</tr>
<tr>
<td>Drift gillnet</td>
<td>137 90 90</td>
<td>Bohai, Yellow, East Yellow, East</td>
<td>Silver pomfret</td>
<td>Chinese herring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Spanish mackerel</td>
</tr>
<tr>
<td>Codend of Winged</td>
<td>50</td>
<td>East</td>
<td></td>
<td>Hairtail</td>
</tr>
<tr>
<td>stow nets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

National Standard and Industry Standard.

Fishing nets with meshes smaller than the minimum mesh size.

Q1: A few number of legally bind standards for mesh size

Q2: Standards (Update)
4. Discussion & Recommendations:

4.1 Output Control:

a. TURF (Quotas) in future? Yes! But not replicated and Precondition: Improve the **Total Allowable Catch** system, scientifically assess the status of China's marine fishery resources, and reasonably determine the total allowable fishery in line with the rate of resource regeneration and reproduction.
4. Discussion & Recommendations:

4.1 Output Control:

b. According to the degree of development of marine fishery resources, endowment conditions, and ecological characteristics, **improve the marine fishery resource zoning system**, and implement differentiated treatment of different sea areas (Category of fishery resources area: Priority, Restricted and Forbidden area).

c. Improve the ecological compensation system (**Seasonal Moratorium and fishermen relocation**), and unify social welfare system between fishermen and farmer.
4. Discussion & Recommendations:

4.1 Input Control:

a. **License adjustment** - For traditional fishermen, the fishery rights system of coastal fisheries and sea areas can be explored; For commercial fisheries, explore the system of restricting access rights.
4. Discussion & Recommendations:

- 4.2 Input Control:

b. Improve the system of resources fee. For commercial fisheries, explore the resource tax ladder tax system and play a role in resource conservation to regulate resources.

c. Strengthening fisheries enforcement, Strengthening the illegal and illegal fishing supervision and reporting system.
THANKS!