

# FISHERIES RESEARCH IN DEVELOPING COUNTRIES

Osamu Baba

Tokyo University of Marine Science and Technology  
Konan 4-5-7, Minato-ku, Tokyo, Japan

## ABSTRACT

In the coastal areas around Indonesia, the local fishers are engaged in various traditional fishing activities, in unregulated manners, without any consensus of sustainability for fisheries resource management. The living standard of local fishers' households is still at low level, due to the long-term trend of the coastal stock decline. In order to stabilize the fisheries production level and to improve the fishing activities for coastal communities, it is important to formulate a development model of fishing communities for the sustainable resource management through the introduction of appropriate fishing technologies and the organization of local fishers. In Japan, the set-net fishing has been traditionally controlled under the community-based management system; so that, this "community-based set-net" is expected to be effective on the economical empowerment of fishing community and the environmental conservation of coastal fishing ground.

Our project aims to introduce the Japanese-type of set-net fishing system, which effectively maintains the fisheries resources under the local fishers' consensus in coastal areas, to promote the cooperative works among individual fishers, to reduce the total fishing effort and to develop the optimal fishing ground use in coastal communities. In addition, the formulation of group activities among local fishers will effectively lead the fishing communities to stabilize their fishing incomes and revitalize their social and economic activities, through the improvement of marketing system and fish processing strategy. This project will be carried out at the designated fishing communities in Pallete village, Bone District; however, it can be also expected to formulate an effective development model of coastal community for sustainable fisheries and to disseminate such a "community-based set-net fishing" into other coastal communities around Indonesia.

Implementing organization of this project is composed of  
Japanese side:

- Tokyo University of Marine Science and Technology
- IC Net Limited
- Himi City

and Indonesian side:

- Pallete Fishers' Association
- Department of Fisheries & Marine Affairs in Bone District Gov.
- National Bone Fisheries High School
- Faculty of Marine Science and Fisheries, Hasanuddin University
- National Steering Committee for Set-net, Ministry of Marine Affairs and Fisheries

Technical staff of *Department of Fisheries and Marine Affairs, Bone District Government* and teaching staff of *National Bone Fisheries High School* can take the leading roles to supervise the Pallete Fishers' Association, and to disseminate the community-based development model by the introduction of set-net fishing, through their positive participation of this project's activities, under the academic cooperation given by the Faculty of *Marine Science and Fisheries, Hasanuddin University*, and the legislative supervision by the *National Steering Committee of Ministry of Marine Affairs and Fisheries*. Tokyo University of Marine Science and Technology focuses on education and research in fisheries and maritime fields and has accomplished many technical and research cooperation with universities or institutes in developing countries.

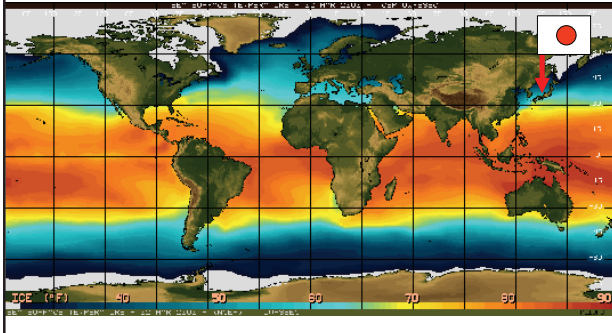
Through this project, the following outcomes are expected to be brought.

- 1) Local fishers can establish the group activities to introduce the small-scale set-net at a proper fishing ground, for establishing the community-based sustainable fisheries under the consensus of community.
- 2) Local fishers' group can manage the set-net fishing operation, through their cooperative works for constructing and maintaining the gear under the co-management manner.
- 3) Local fishing community can establish the proper marketing channels for set-net catch, fresh or alive, and can take initiatives for the fish processing products, in order to increase its profitability through the value-adding and preservation.
- 4) The profit of set-net can be managed by the local fisher's group, through the deposit management to establish the sustainable operation system, with the consideration of the profit sharing in the local community.

## **KEYWORDS**

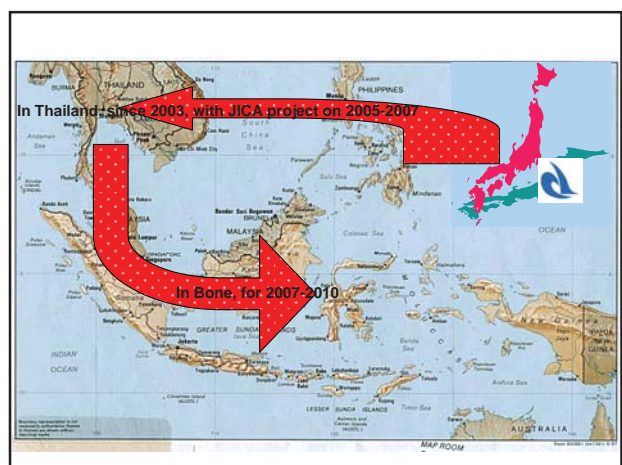
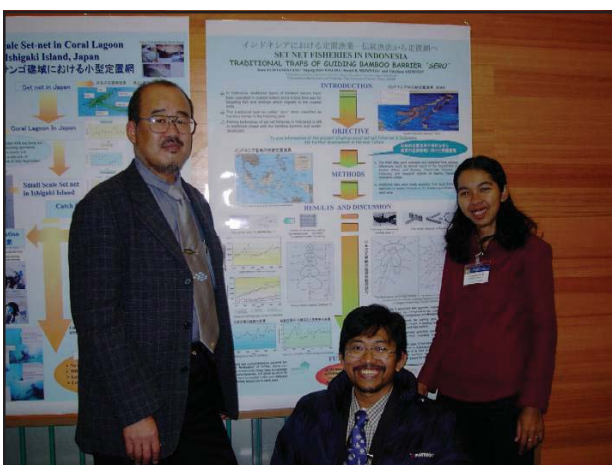
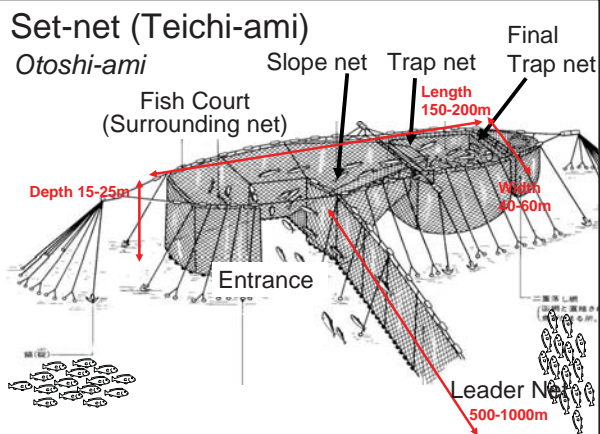
set-net, community-based, cooperative work, sustainability, fisheries resource management

- JICA Grass-root Partnership Project -  
**Set-net (Teichi-ami)** from Japan,  
 via Thailand, to Bone in South Sulawesi



Empowerment of Coastal Fishing Community  
 in South Sulawesi,  
 through **Technology Transfer of Community-based Set-net**  
 for Sustainable Fisheries

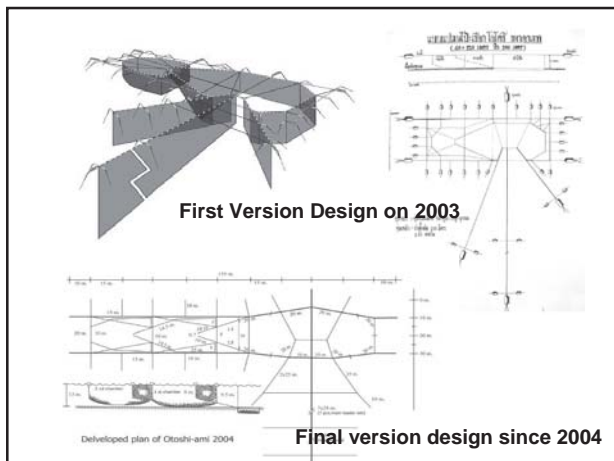
Set-net of the fishers, by the fishers, and for the fishers  
 T.Arimoto and O.Baba (Tokyo Univ.of Marine Sci.&Tech)  
 in collaborations with Himi City, IC Net, SEAFDEC/TD  
 and UNHAS, SUPM Neg.Bone

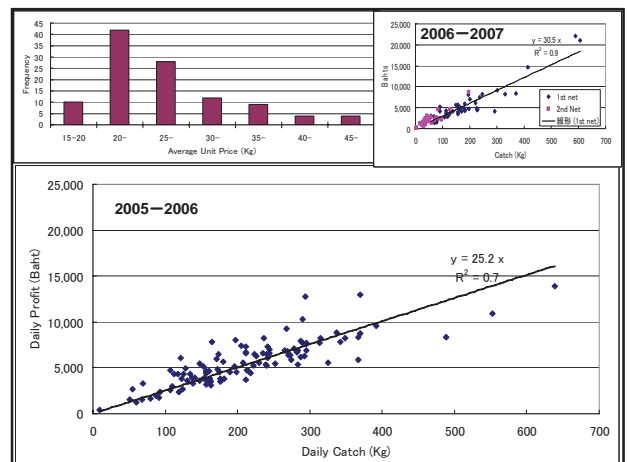
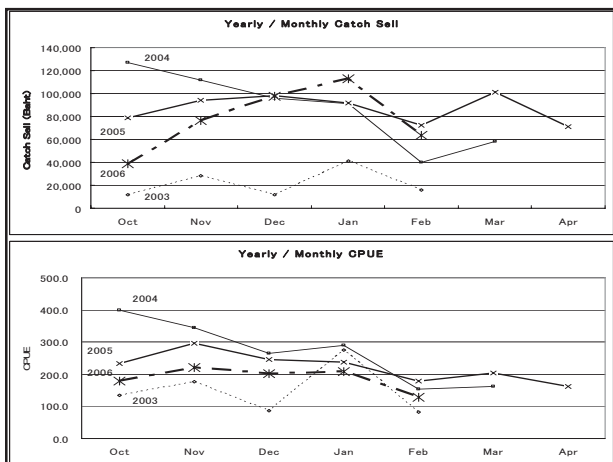
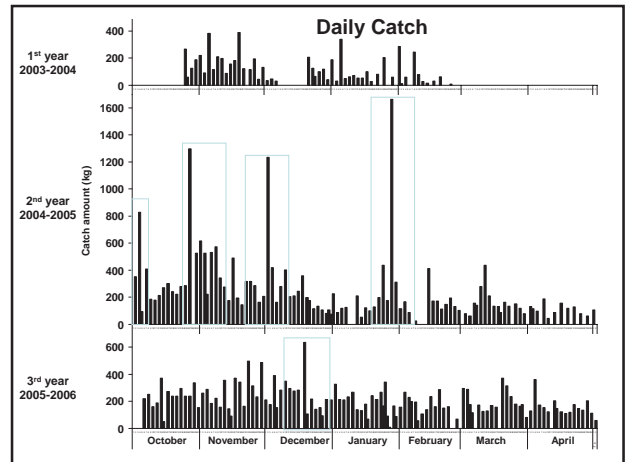
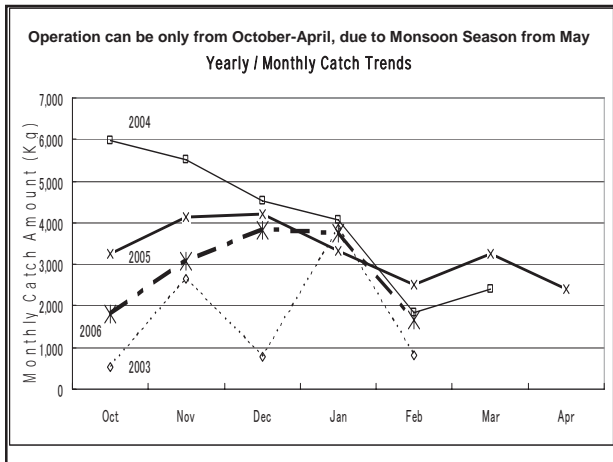




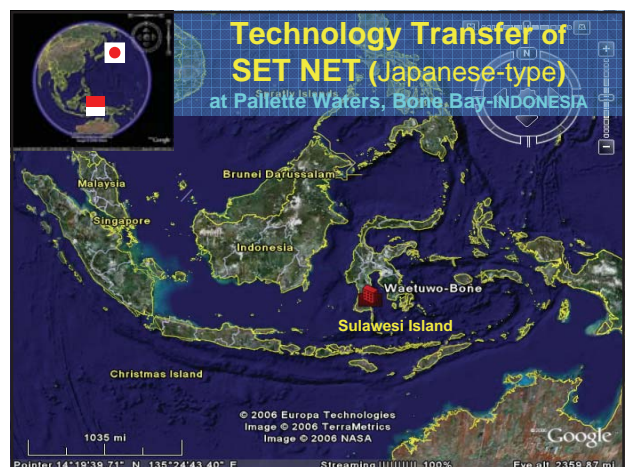
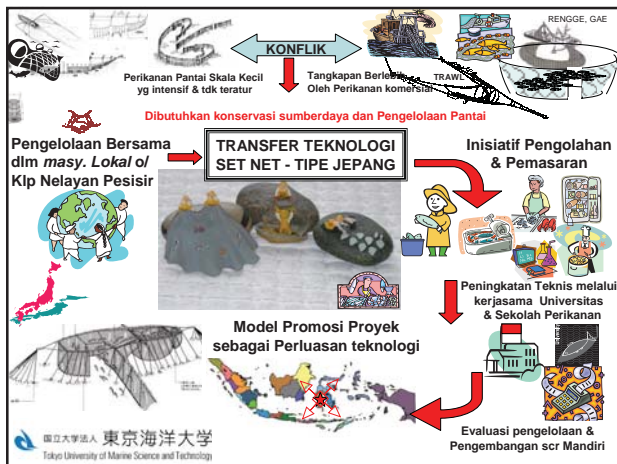
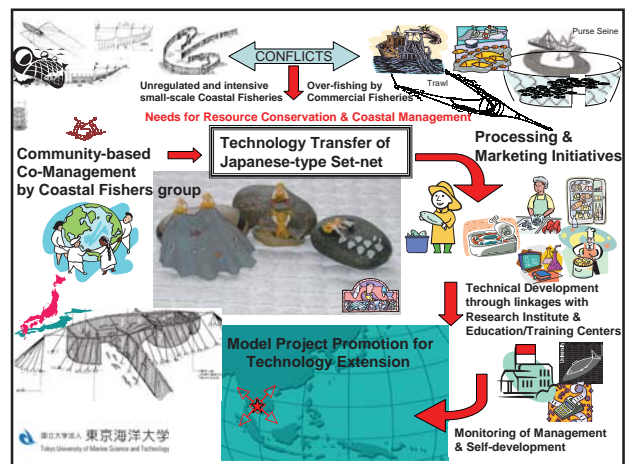
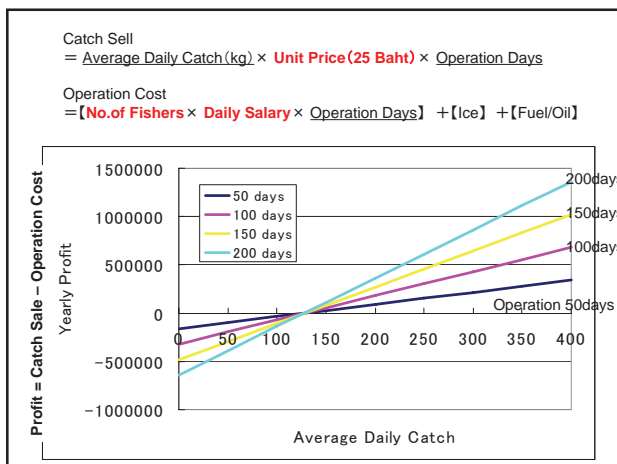
## Process of Technology Transfer in Thailand

- 2002 Nov. World Set-net Summit in Himi City
- 2003 April SEAFDEC Project started
- 2004 Sep First Technical Support from Himi City & TUMSAT for Gear Installation
- **2005 JICA Grass-root Project (2005–2007)**
- 2005 April Training Course in Himi City
  - Sep. Gear Installation, Dec. JSPS Seminar
- 2006 April Training Course in Himi City
  - Sep. Gear Installation
  - Oct. International Seminar,
  - Dec. 2<sup>nd</sup> Unit installation
- 2007 April Training Course in Himi City
  - Sep. Gear Installation
  - Dec. Evaluation Seminar









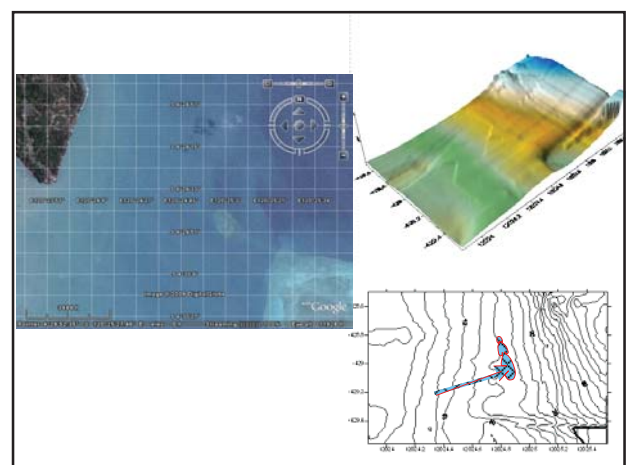


## Why in Bone?

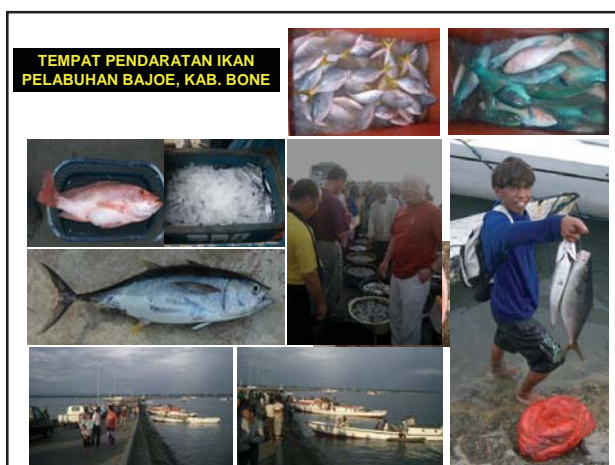
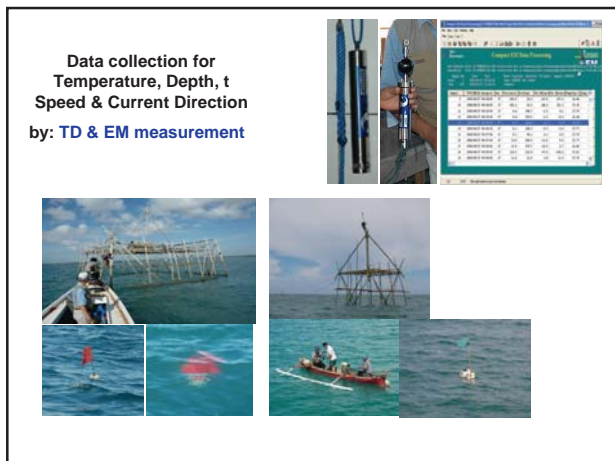
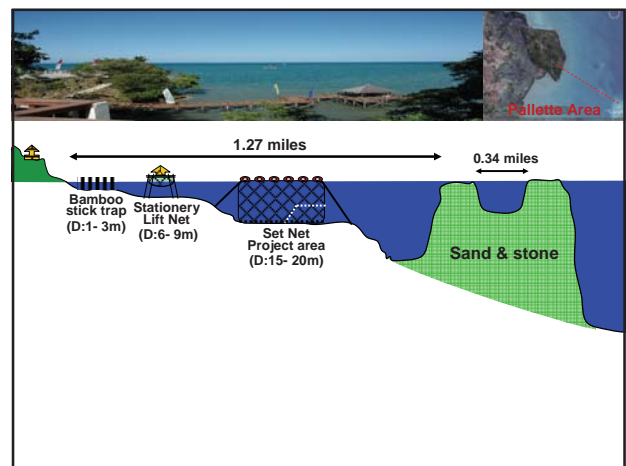
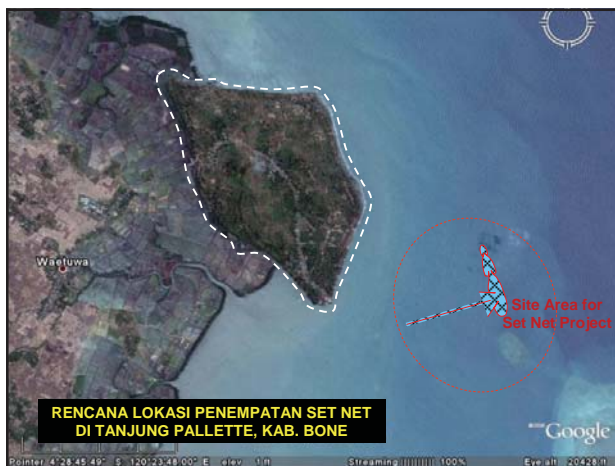
- Fisheries High School can supply the technical supports and space/facilities
- Graduates got the Training Course on Fishing Technology in Japan.
- Every year, 3 Ex-Trainees on 3-years Set-net course will return back to Bone.
- Both Local Government and UNHAS is willing to support the Project.
- Less conflicts in local community, due to the intensive activities on sea weed farming

## Needs of Pre-Survey

- Fishing Ground
  - Depth Contour, Current Speed / Direction
  - Fish Seasonal Migration
- Fishing Gear / Boat Designing
- Setting Site identification
- Socio-Economics
  - Fishing activities and Income Analysis
  - Marketing/Processing Analysis











### Needs for Precautionary Consideration

- What is Super Goal for Community Empowerment?
- What is the Success of ODA Project?
  - End of Project means End of Success...?
- Optimum level of Technology and Materials
- Initial cost optimization for Local fish price
- Negative Impact Analysis
- Special aspects for set-net tech.transfer
  - Preventing the conflicts, for fishing ground occupation
  - Any chance for higher price to fresh and live fish marketing
  - Big variation of catch amount....needs of marketing and processing for accidental big-catch cases

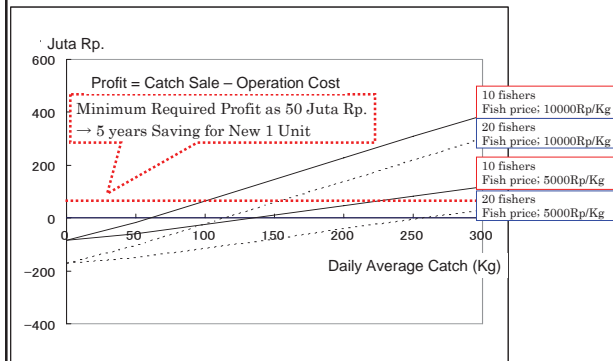
### Needs for Technology Transfer of Set-net

- Social Acceptance and Fishing Licensing
- Acceptance and Willingness of Local Fishers
- Capability on Net works and Rope works
- Capability of Leadership and Team Working for Group Operation & Cost-Profit Management
- Technical Supports from Set-net Experts/Ex-Trainees
- Scientific Supports from Universities/Research Centers
- Extension Services from Local Government

### Steps for Technology Transfer

- Fishing Ground Survey
- Gear Construction
- Gear Installation
- Fishing Operation
- Daily Gear Maintenance / Cleaning
- Periodical Gear Cleaning / Changing
- Marketing / Processing
- Financing for Profit Sharing & Money saving

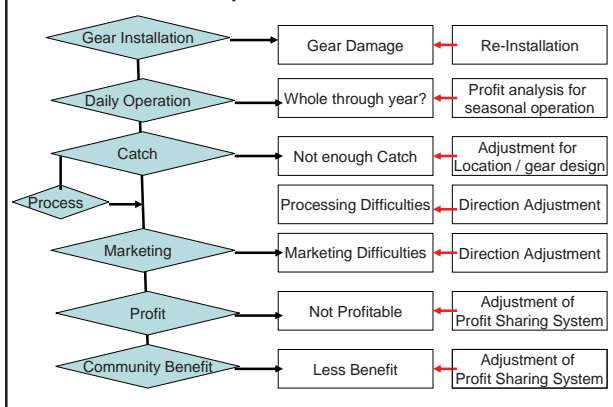
## Simulation of Profit Analysis in Bone Set-net 2007 – 2010



## Best Pilot Model Approach for Set-net Technology Transfer

- Concentrated On-site Efforts
- Operational Cost Analysis
- Profit Analysis with Catch/Marketing
- Self- or Governmental-Regulation System
- Extension Activities in the region and to other regions
- Comparative study among regions with Profit analysis and Impact Analysis

## Risk Analysis and Possible Solution



## Research Needs for Monitoring and Evaluation

- Catch Trends by Current/Temperature
- Seasonal Trends of Catch Species/Sizes
- Current Speed/Direction and Gear Geometry
- Daily Catch Analysis
- Catch and Marketing according to Species/Size
- Profit Sharing System and Analysis, including Community Benefit
- Regulation System for minimizing conflicts

