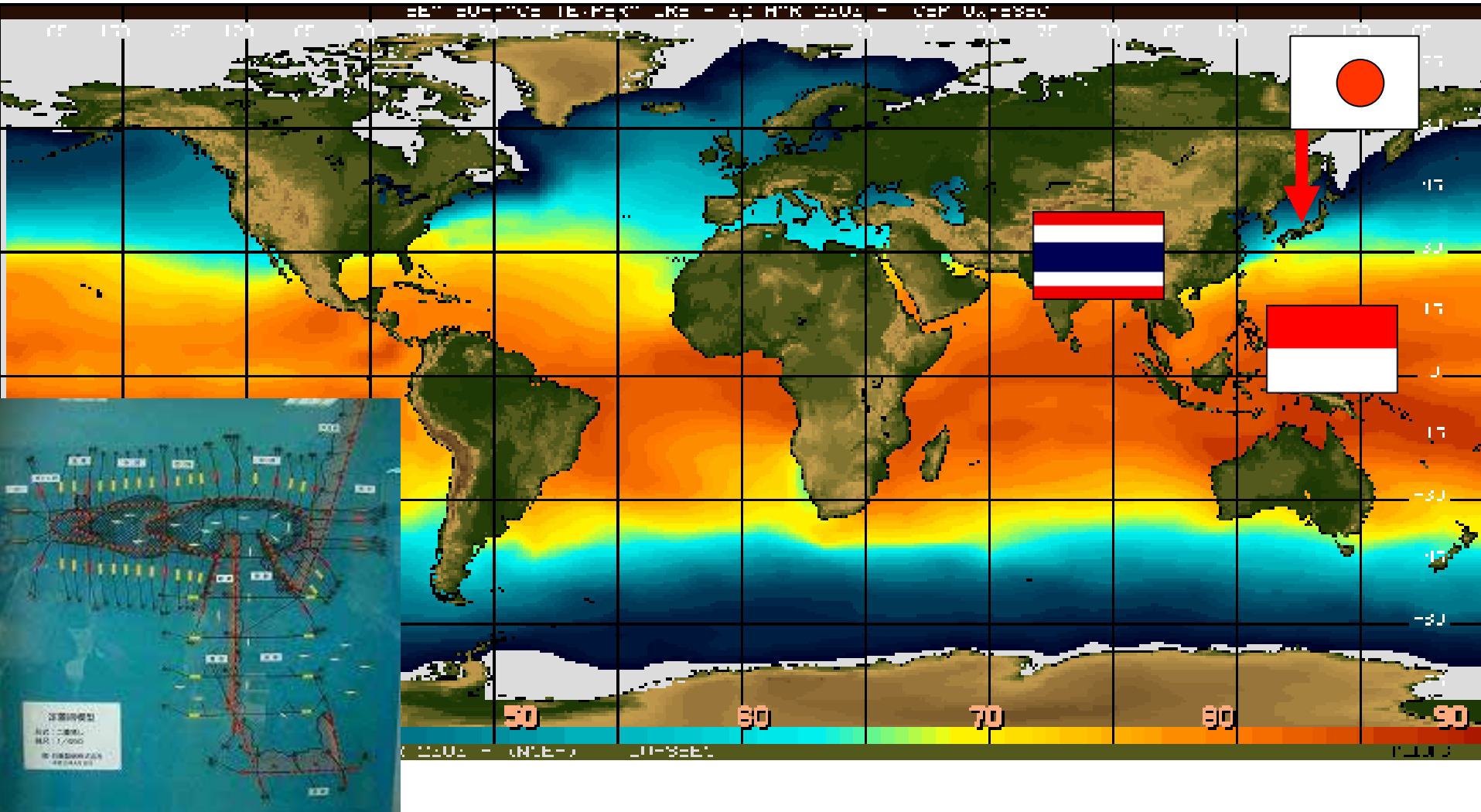


# Technology Transfer of community-based **Set-net (Teichi-ami)** from Japan, to Southeast Asia





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

**Set-net of the community,  
by the community,  
and for the community**

**T.Arimoto (Tokyo Univ.of Marine Sci.&Tech)  
in collaboration with Himi City, IC Net, SEAFDEC/TD  
and UNHAS, SUPM Neg.Bone**

# Set-net (Teichi-ami)

*Otoshi-ami*

Slope net

Chamber net

Final Chamber

Fish Court  
(Surrounding net)

Length  
150-200m

Depth 15-25m

Width  
40-60m

TEICHI ; means fixed net in Japanese,

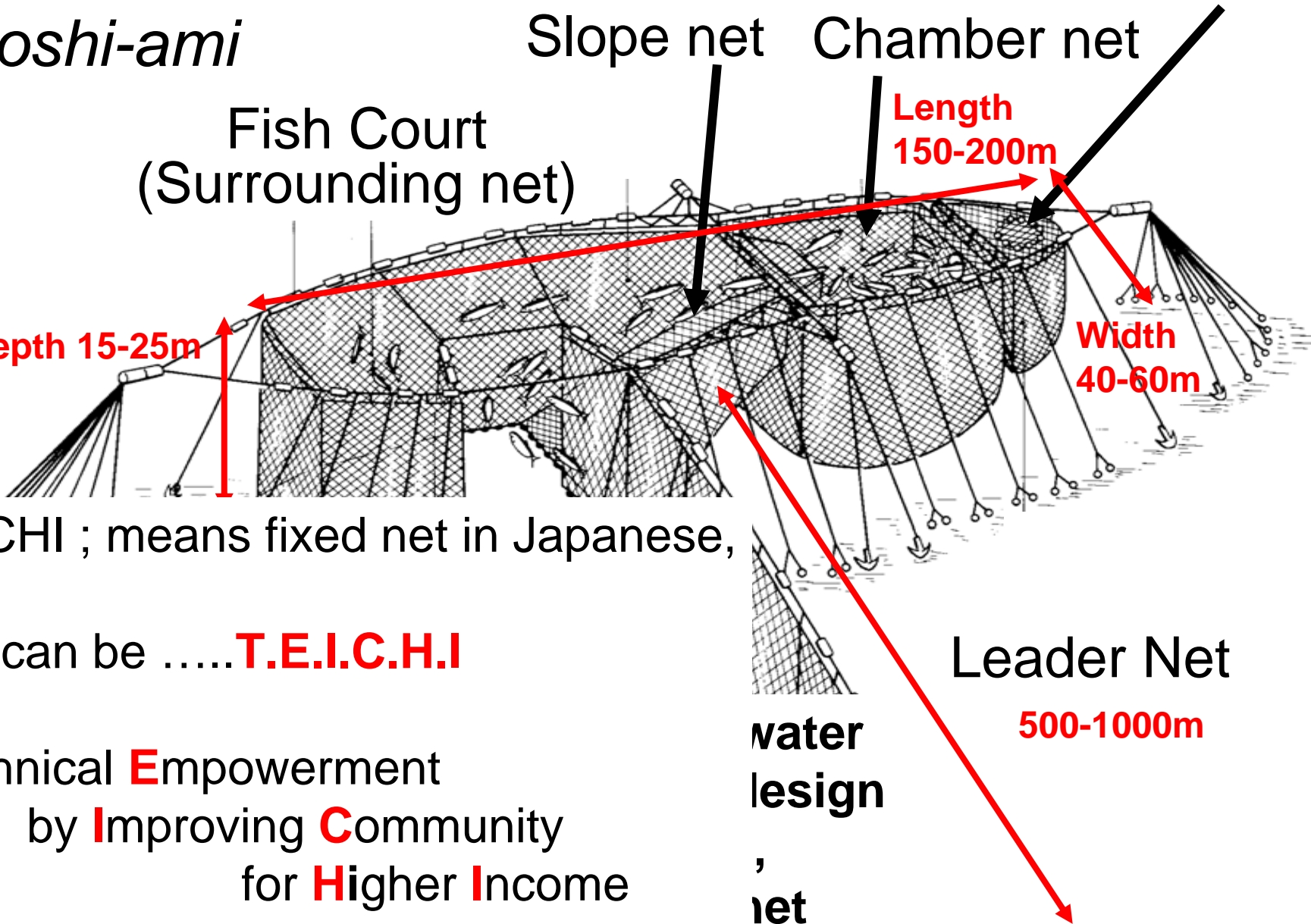
and can be .....**T.E.I.C.H.I**

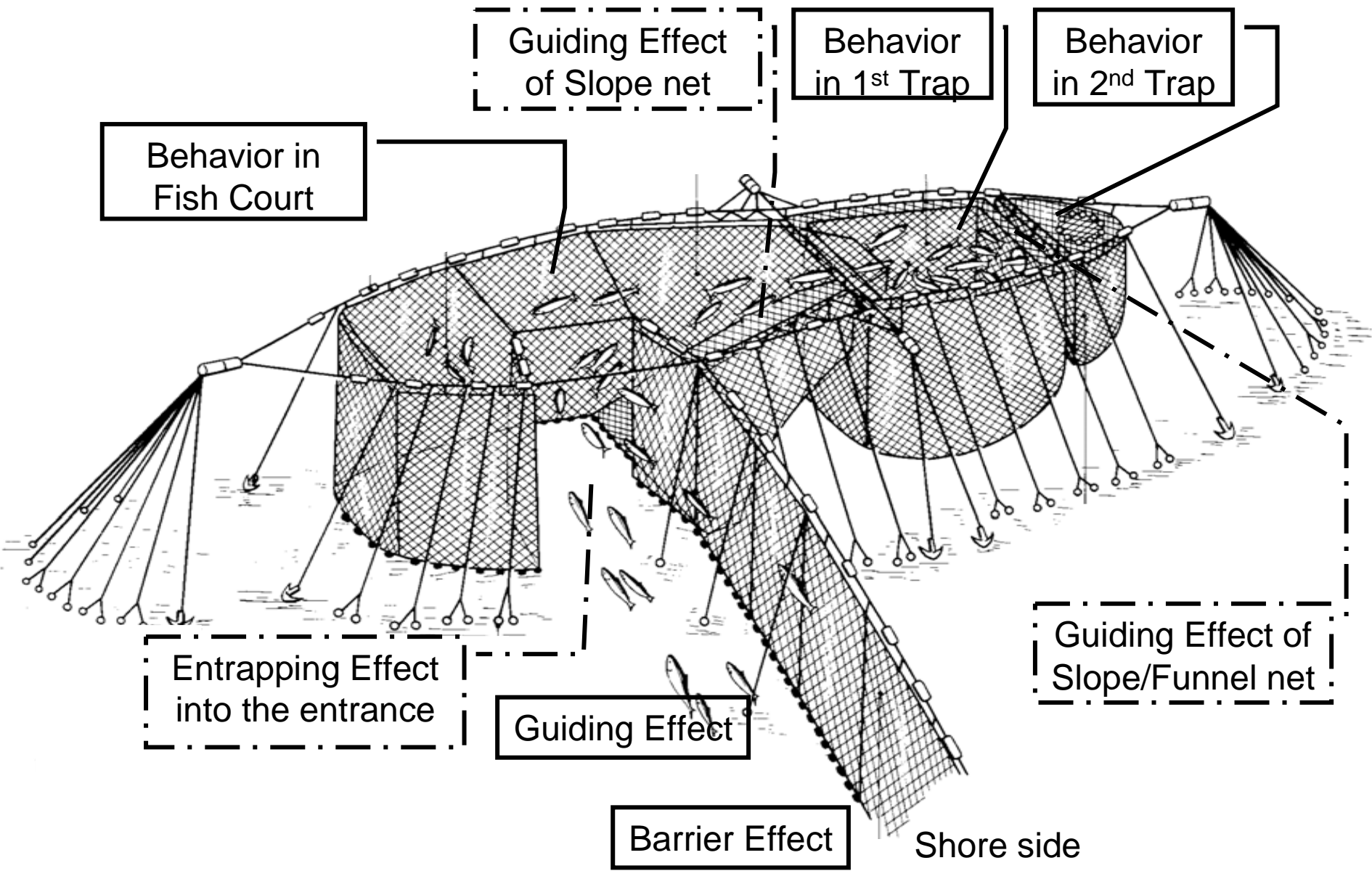
**T**echnical **E**mpowerment  
by **I**mproving **C**ommunity  
for **H**igher **I**ncome

water  
design  
,  
net

Leader Net

500-1000m





**Fish behavior around and inside of Set-net**

# SET-NET

未来へ向かう環境に優しい漁具一定置網  
An Eco-friendly Fishing Gear for the Future

โป๊ะเชือก เครื่องมือประมงที่เป็นมิตรกับสิ่งแวดล้อมเพื่ออนาคตอันยั่งยืน

持続可能な漁業  
SUSTAINABLE FISHERY

การประมงอย่างยั่งยืน

環境に優しい  
ECO-FRIENDLY

ความเป็นมิตรกับสิ่งแวดล้อม

生物多様性

HIGH BIO-DIVERSITY

ความหลากหลายทางชีวภาพ

増殖  
SOURCES ENHANCEMENT

การเพิ่มพูนทรัพยากร

共同管理

COOPERATIVE MANAGEMENT

การจัดการแบบสหกรณ์

漁場保護

FISHING GROUND PROTECTION

การปกป้องแหล่งประมง

台浮子  
Main float  
ทุ่นหลัก

65 m

90 m

30 m

250 m

垣網  
Leader net  
ลิ้นชัก

抽網  
Wing net  
ธง

土俵  
Sand bag  
ถุงทราย



Nov. 2002



World Set-net Summit in Himi City, on Nov.2002





In Thailand - since 2003, with JICA project on 2005-2007



In Bone, for 2007-2010

Boundary representation is not necessarily authoritative. Names in Vietnam are shown without diacritical marks.

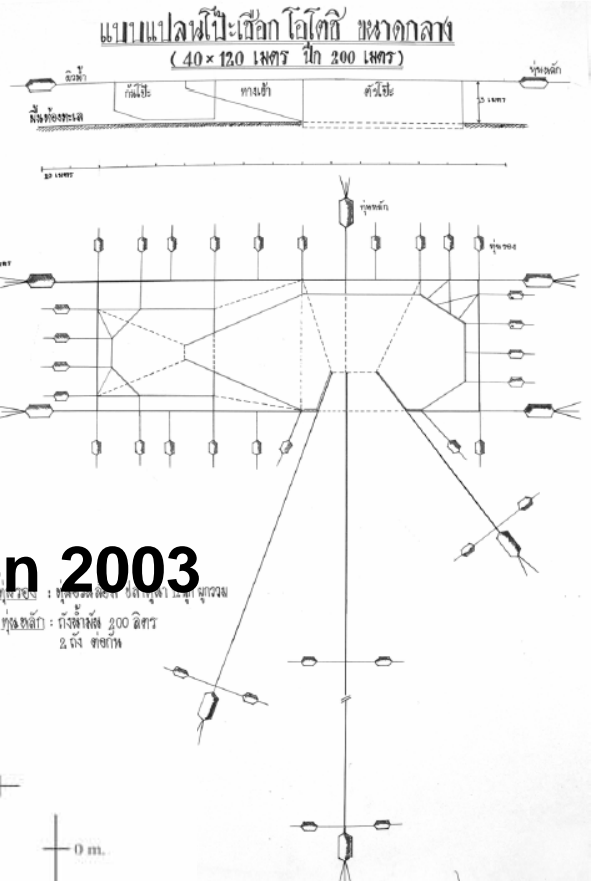
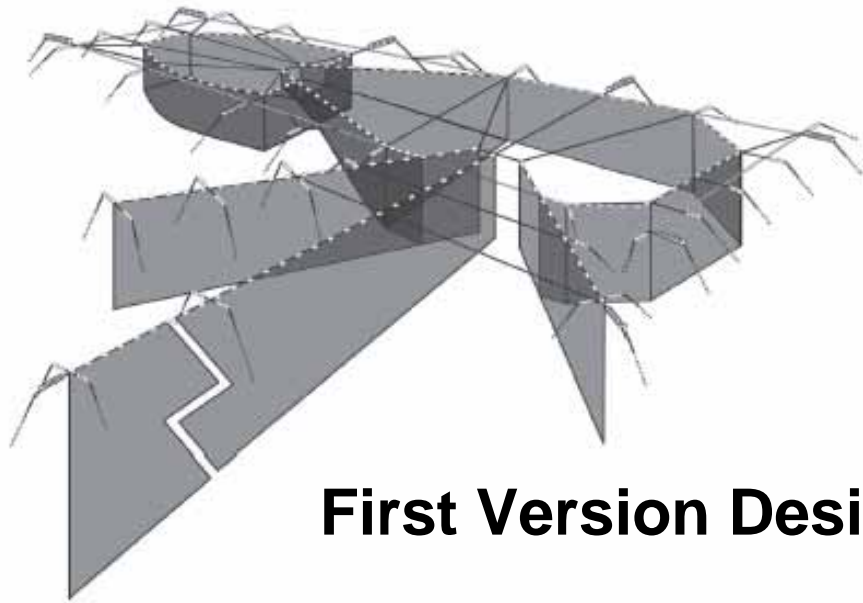


# Process of Technology Transfer in Thailand

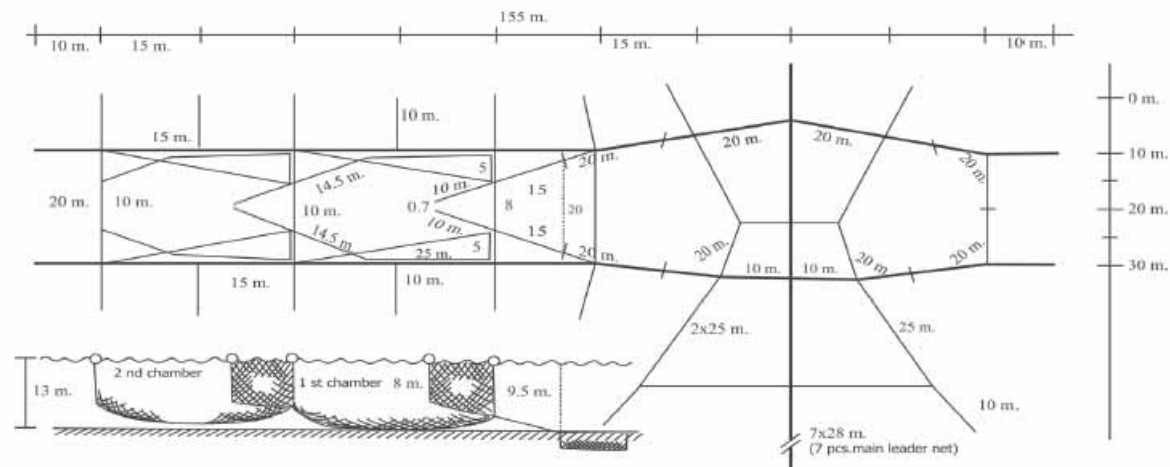
- 2002 Nov. World Set-net Summit in Himi City
- 2003 April SEAFDEC Project started
- 2004 Sep First Technical Support from Himi City & TUMSAT for Gear Installation
- **2005 JICA Grass-root Project (2005 - 2007)**
- 2005 April Training Course in Himi City
  - Sep. Gear Installation, Dec. JSPS Seminar
- 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



First visit by Thailand and Indonesia



## First Version Design on 2003



Delveloped plan of Otoshi-ami 2004

## Final version design since 2004



# Training on Frame-work



# Training on net panel construction











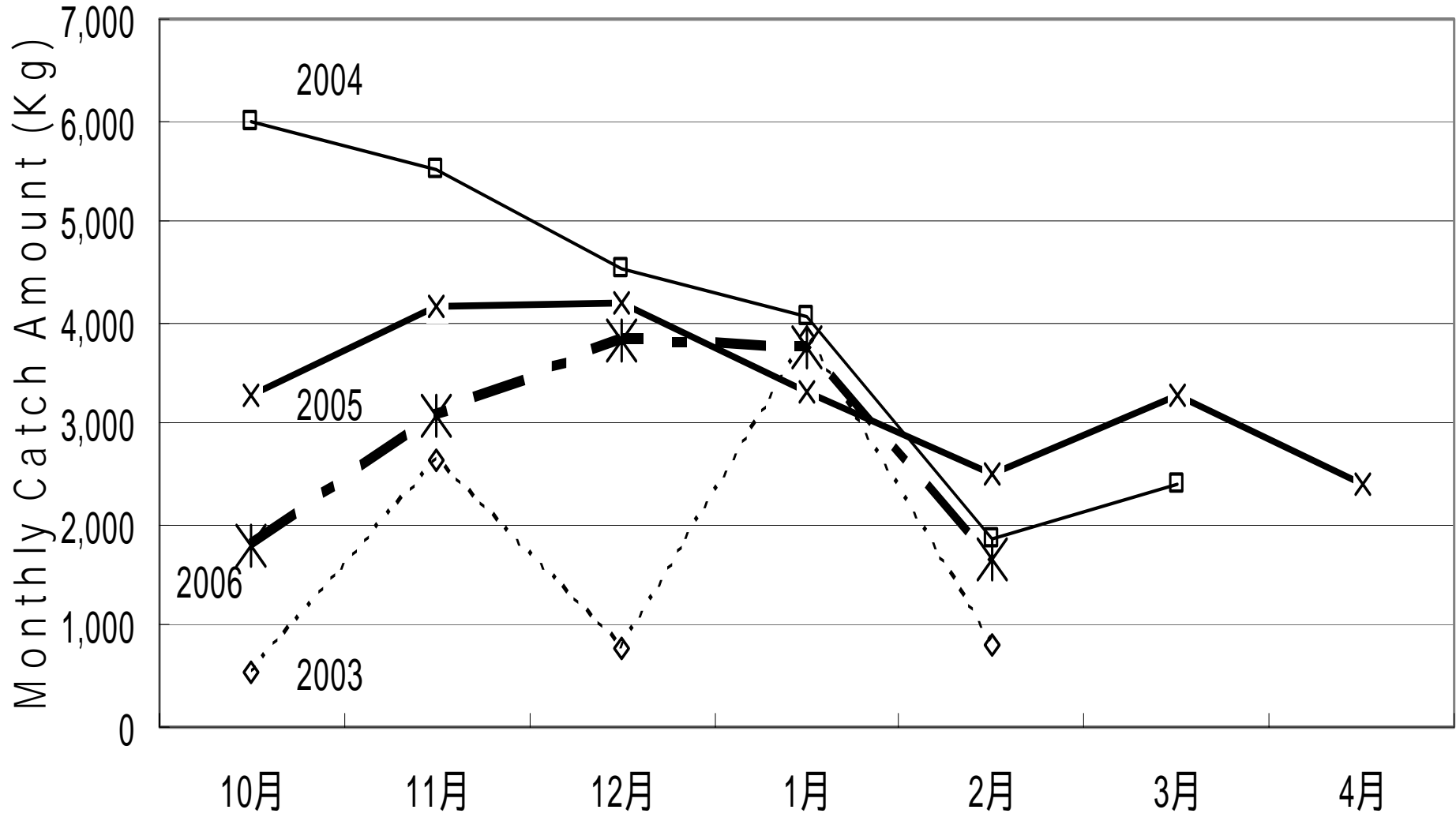




Main Catch Species, including Oyster Shell

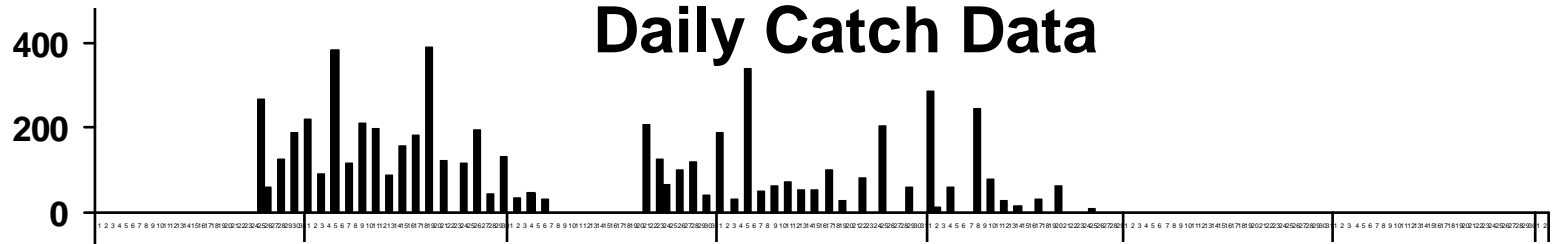
# Operation can be only from October-April, due to Monsoon Season from May

## Yearly / Monthly Catch Trends

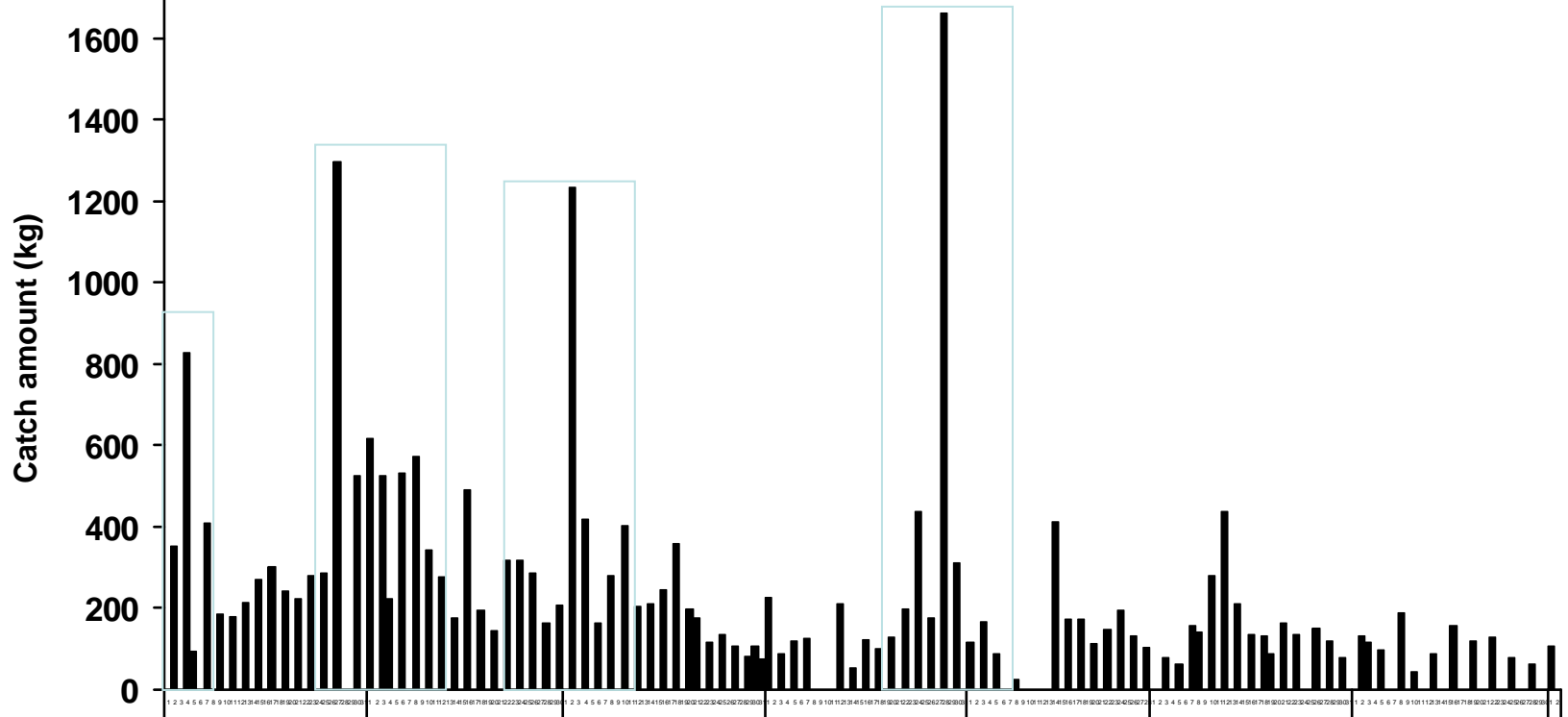


# Daily Catch Data

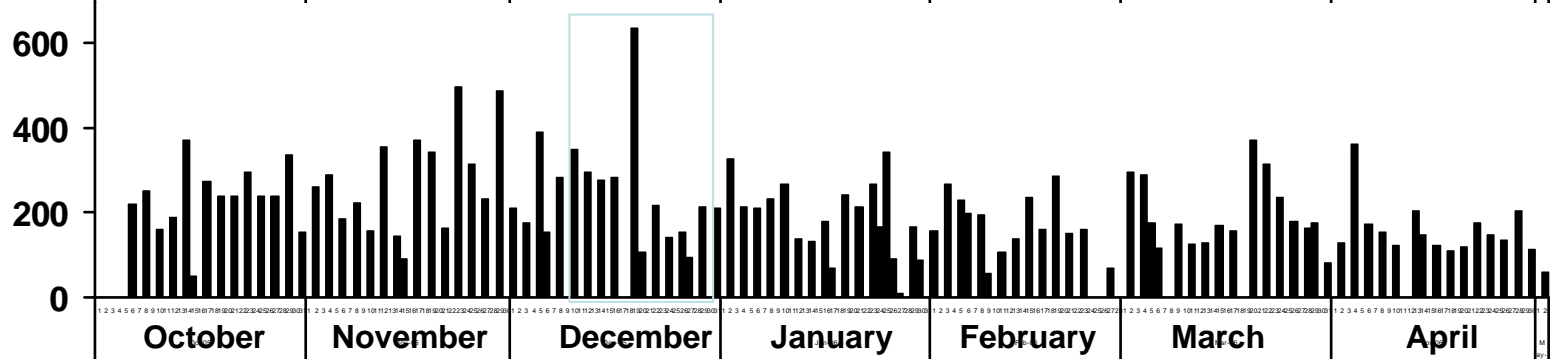
1<sup>st</sup> year  
2003-2004



2<sup>nd</sup> year  
2004-2005



3<sup>rd</sup> year  
2005-2006



October

November

December

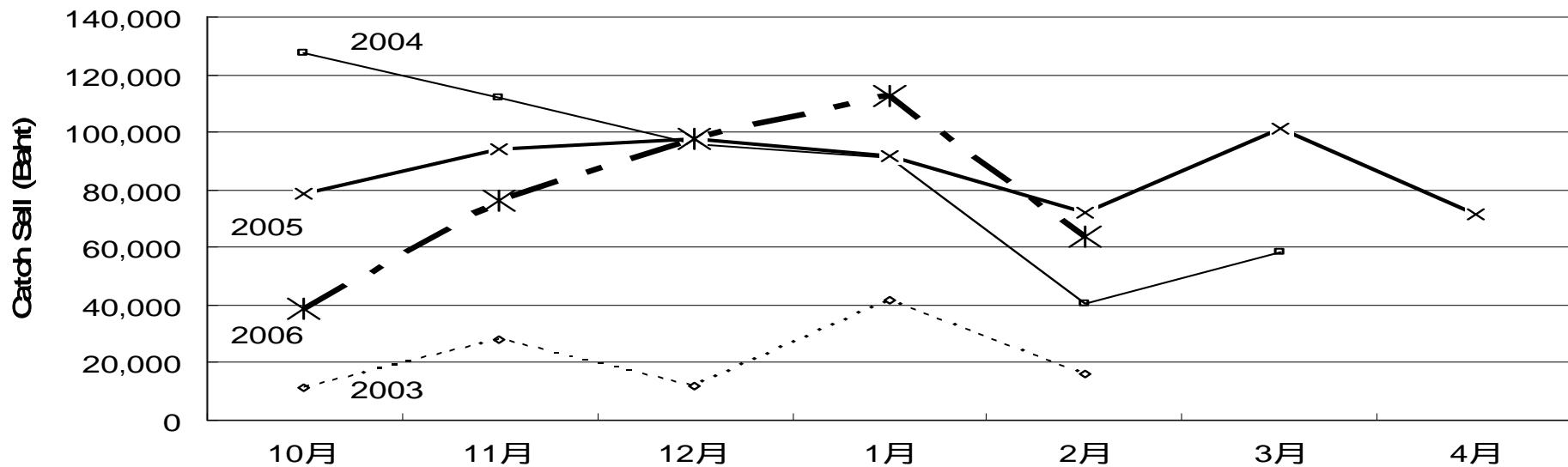
January

February

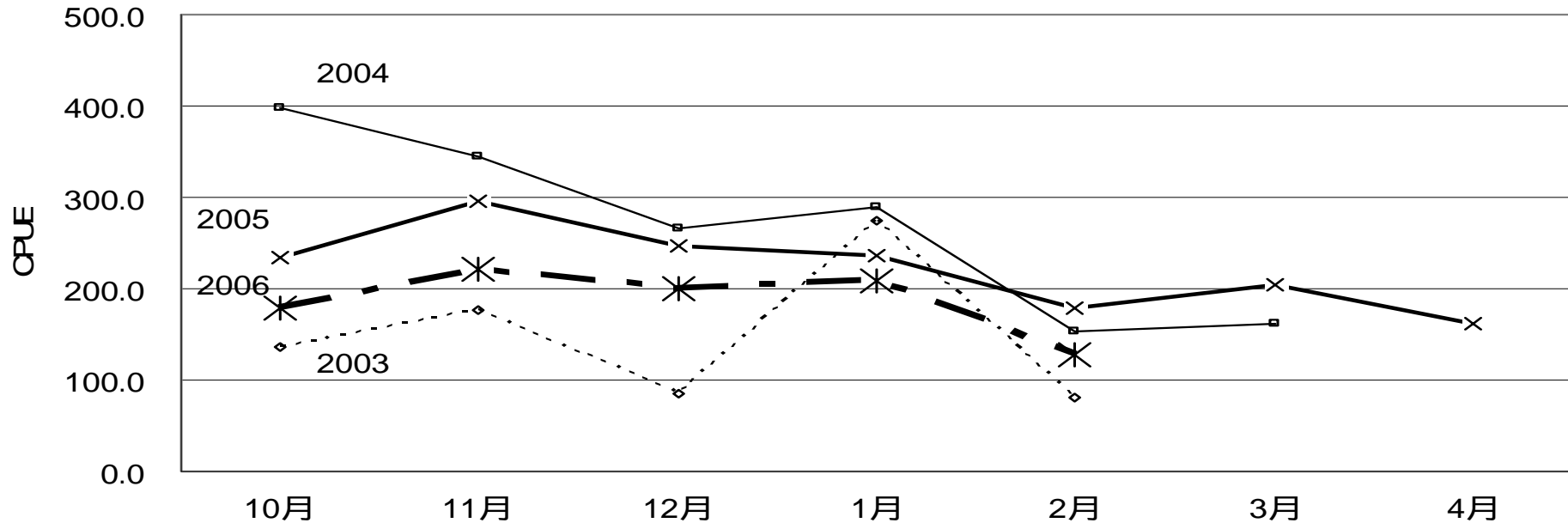
March

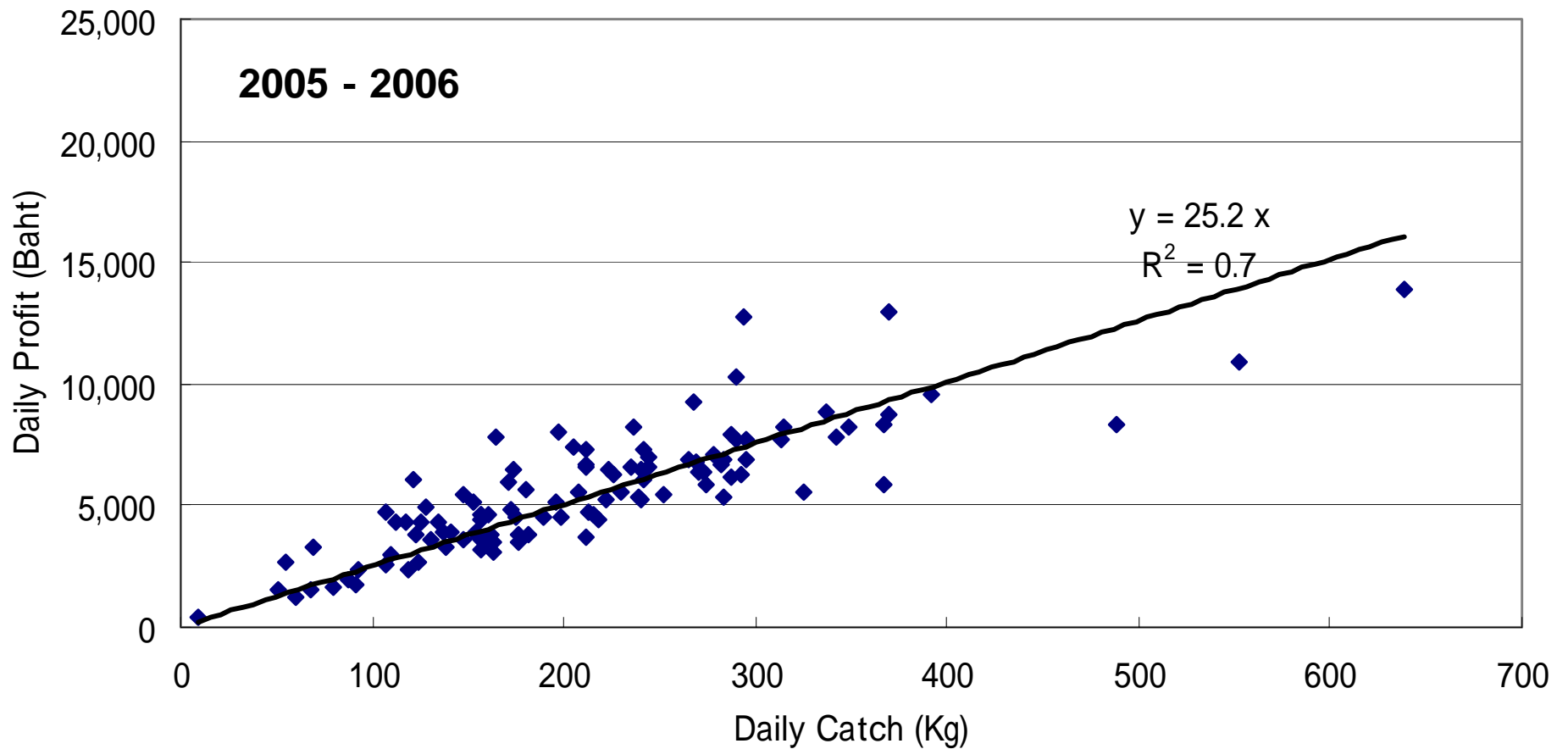
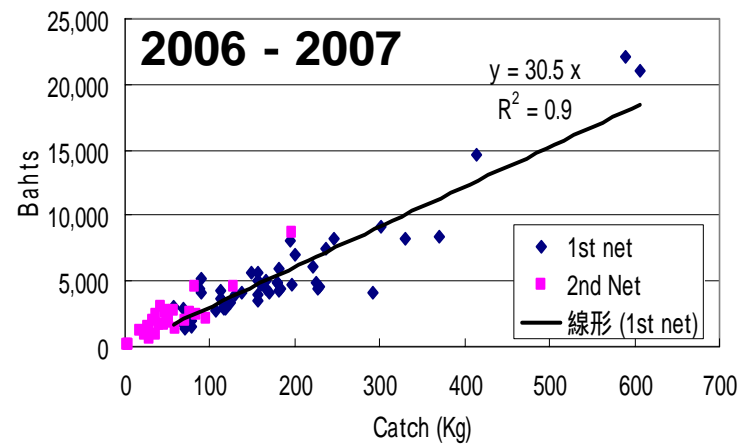
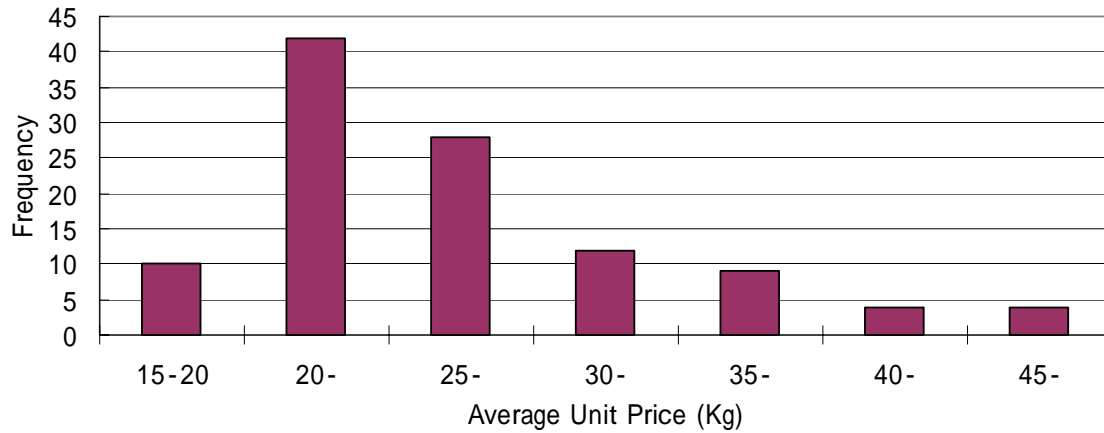
April

Yearly / Monthly Catch Sell



Yearly / Monthly CPUE



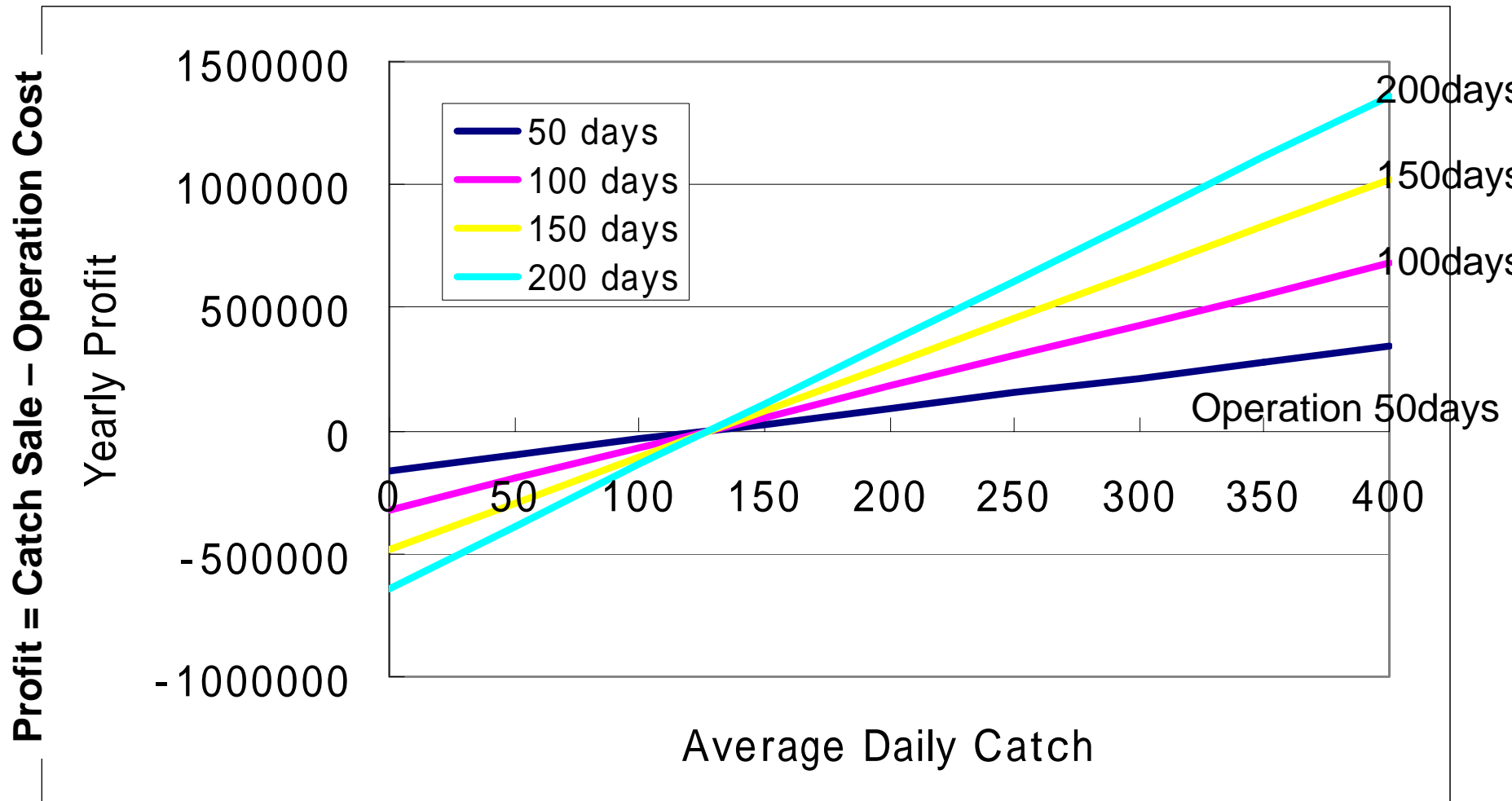


Catch Sell

$$= \text{Average Daily Catch (kg)} \times \text{Unit Price (25 Baht)} \times \text{Operation Days}$$

Operation Cost

$$= [\text{No. of Fishers} \times \text{Daily Salary} \times \text{Operation Days}] + [\text{Ice}] + [\text{Fuel/Oil}]$$



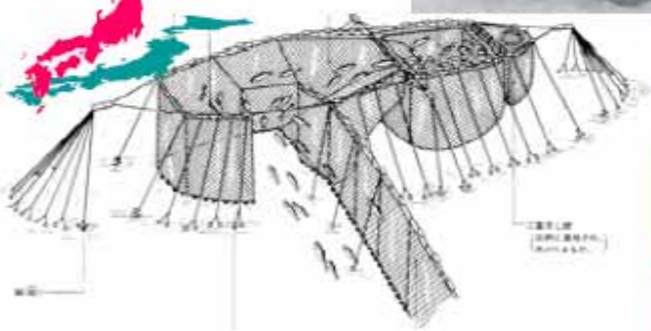




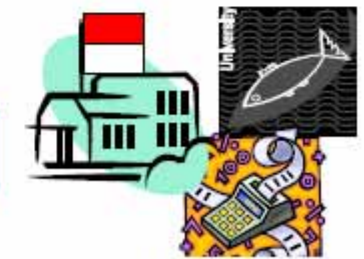
**Community-based Co-Management by Coastal Fishers group**

**Technology Transfer of Japanese-type Set-net**

**Processing & Marketing Initiatives**



**Technical Development through linkages with Research Institute & Education/Training Centers**



**Monitoring of Management & Self-development**

FOR RAYONG SET-NET FISHING GROUP

แด่ กลุ่มโป๊ะเชือกระยอง

祝

福



東京海洋大学



**ต้องการการอนุรักษ์และการจัดการทรัพยากรชายฝั่ง**

ความร่วมมือของ  
กลุ่มชาวประมง  
พื้นบ้าน

**การถ่ายทอดเทคโนโลยี  
ไปะเขือจากญี่ปุ่น**

การรักษาคุณภาพและ  
ทำการตลาดเบื้องต้น

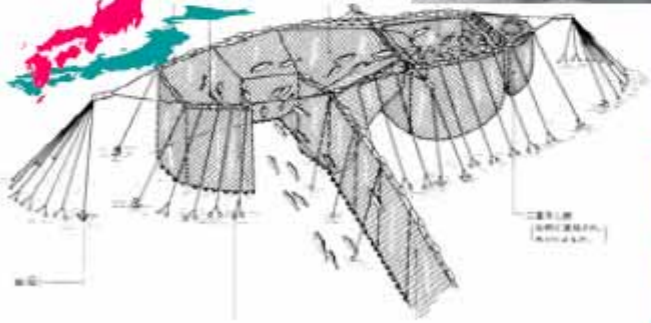


พัฒนาคุณภาพ-แปรรูปโดย  
ร่วมมือกับสถาบันการศึกษา

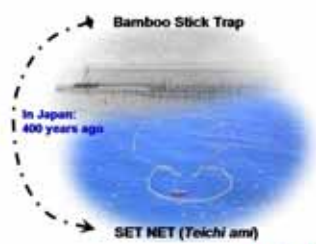
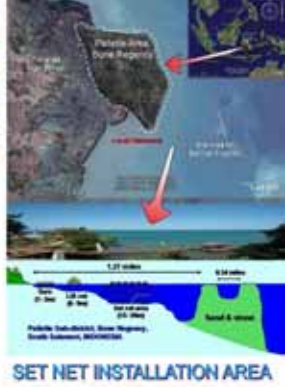
**ประชาสัมพันธ์ ส่งเสริม และ  
เผยแพร่เทคโนโลยี**



**การพัฒนาและจัดการด้วยตนเอง**



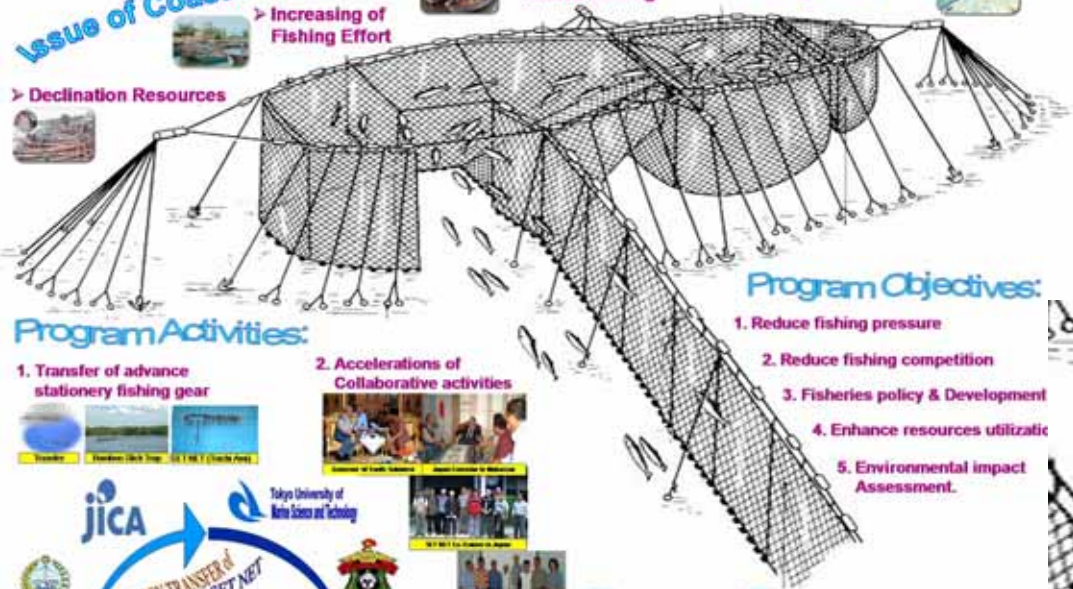
**TECHNOLOGY TRANSFER OF Japanese type - SET NET (Teichi ami)**  
**in the Palletta Sea - Bone Bay, South Sulawesi - INDONESIA**  
**Collaborative: JICA - TUMSAT ↔ UNHAS - SUPM ↔ BONE Government - Local Fishermen**  
 By: M.Abdul Ihsan Hajar<sup>1,2</sup>, Sediman<sup>3</sup>, M.Yusran Nur Indar<sup>3</sup>, Takafumi Arimoto<sup>2</sup>, and Hamaya<sup>2</sup>  
 1) Study Program of Fisheries Resources Utilization, FKIP - Hasanuddin University, INDONESIA  
 2) Tokyo University of Marine Science and Technology, JAPAN  
 3) Expert of SET NET Fishing Gear, Himeji City - JAPAN



**Issue of Coastal Fisheries:**

> Declination Resources  
 > Increasing of Fishing Effort

> Conflicts in Coastal Fishing  
 > Damage on Coastal Fishing Ground



**Program Activities:**

**1. Transfer of advance stationery fishing gear**  
**2. Accelerations of Collaborative activities**  
**3. Facilitates fishermen for responsible utilization**  
**4. Establish Systematical Group Management**

**Program Objectives:**

1. Reduce fishing pressure
2. Reduce fishing competition
3. Fisheries policy & Development
4. Enhance resources utilization
5. Environmental impact Assessment.

**Program Purpose:**



**Program Objectives:**

1. Reduce fishing pressure
2. Reduce fishing competition
3. Fisheries policy & Development
4. Enhance resources utilization
5. Environmental impact Assessment.



**Dibutuhkan konservasi sumberdaya dan Pengelolaan Pantai**

**Pengelolaan Bersama dlm masy. Lokal ol Klp Nelayan Pesisir**

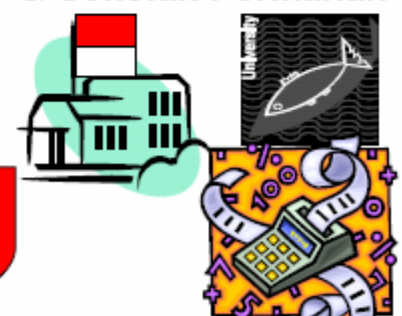
**TRANSFER TEKNOLOGI SET NET - TIPE JEPANG**

**Inisiatif Pengolahan & Pemasaran**



**Peningkatan Teknis melalui kerjasama Universitas & Sekolah Perikanan**

**Model Promosi Proyek sebagai Perluasan teknologi**



**Evaluasi pengelolaan & Pengembangan scr Mandiri**



# Set Net Project - Indonesia Himi - Nango - TOKYO activities JAPAN, 14 - 22 Nov. 2007



インドネシアに定航船を  
by: Ibnu.07

# 2007 April Training Course both for Thailand and Indonesia









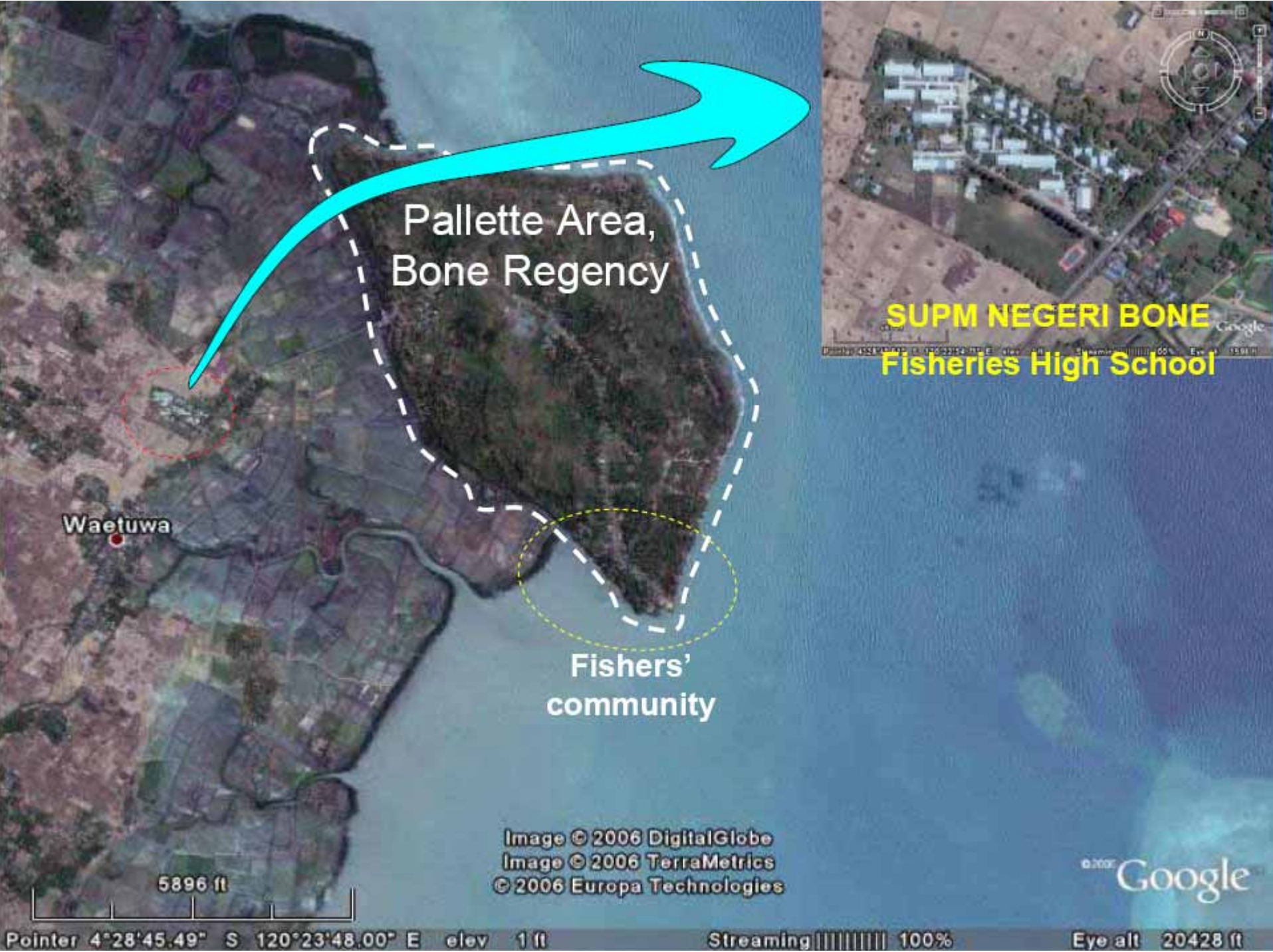
# Technology Transfer of SET NET (Japanese-type) at Palette Waters, Bone Bay-INDONESIA



Pointer 14°19'39.71" N 135°24'43.40" E

Streaming ||||| 100%

Eye alt 2359.87 mi



Palette Area,  
Bone Regency

Waetuwa

Fishers'  
community

**SUPM NEGERI BONE**  
**Fisheries High School**

5896 ft

Image © 2006 DigitalGlobe  
Image © 2006 TerraMetrics  
© 2006 Europa Technologies

© 2006 Google

Pointer 4°28'45.49" S 120°23'48.00" E elev 1 ft

Streaming 100%

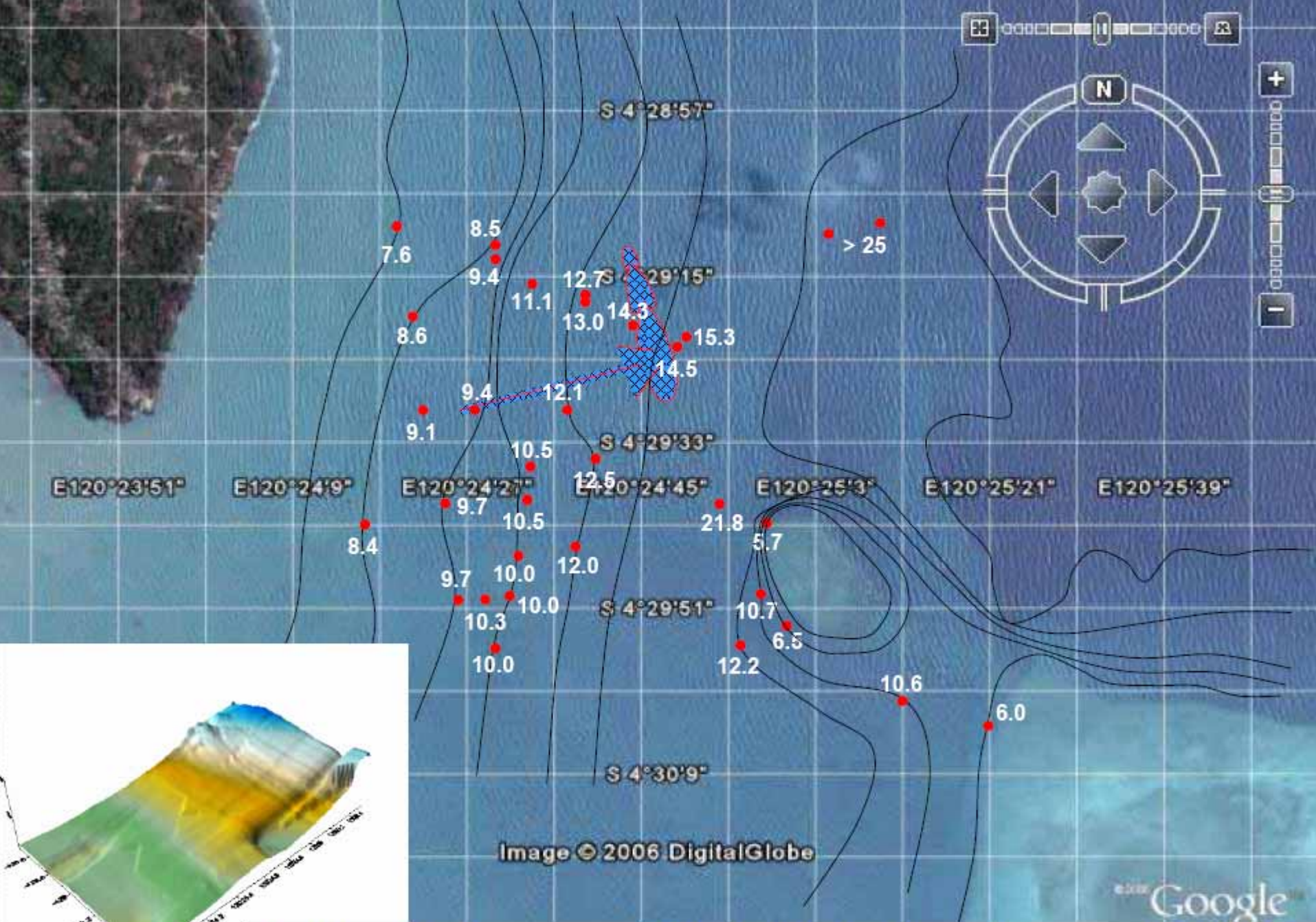
Eye all 20428 ft

# Needs of Pre-Survey

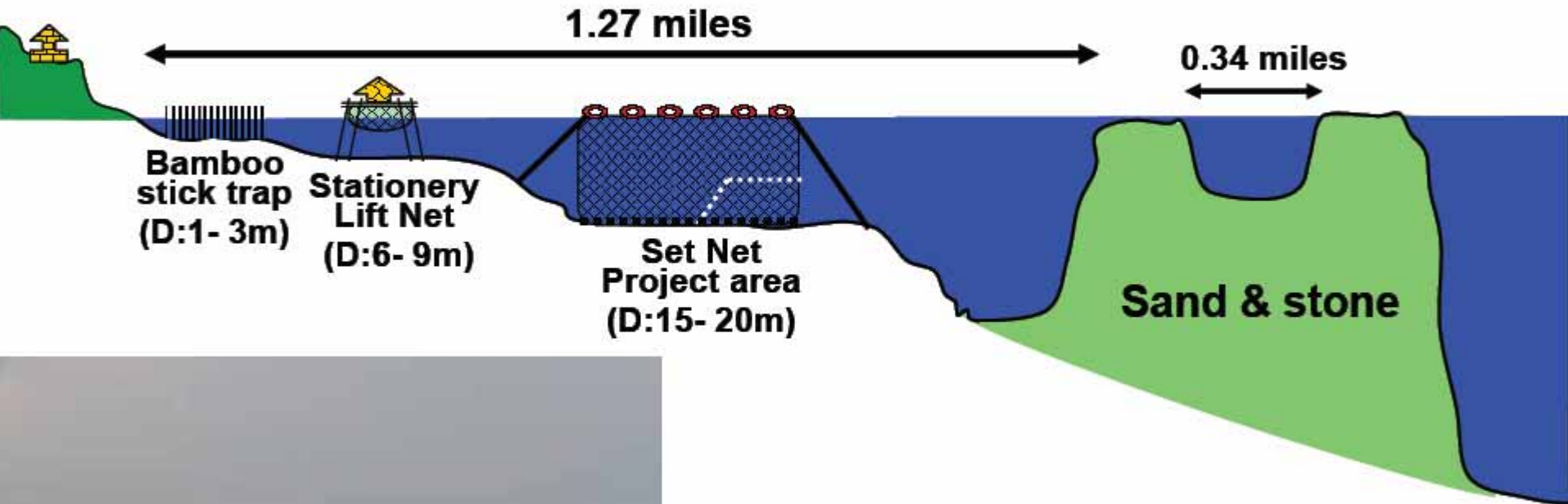
- Fishing Ground
  - Depth Contour, Current Speed / Direction
  - Fish Seasonal Migration
- Fishing Gear / Boat Designing
- Setting Site identification
- Socio-Economics
  - Fishing activities and Income Analysis
  - Marketing/Processing Analysis

# Data collection for Temperature and Current Speed & Direction by: TD & EM measurement





**Setting site of gear according to the depth contour map in Palette**



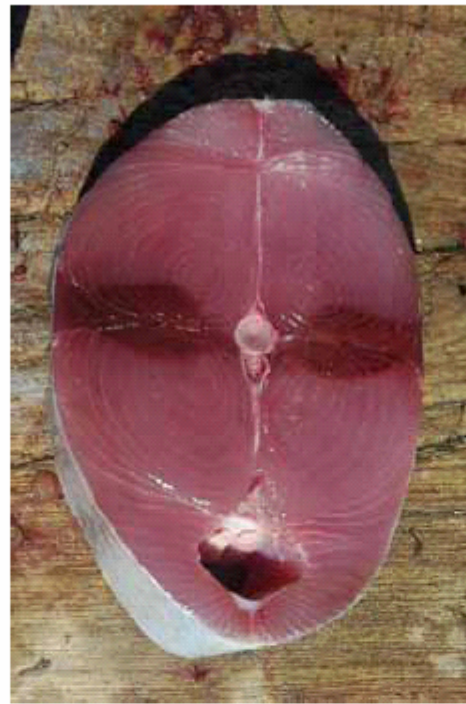
# Fishing Activity in Palette Waters, Bone Bay - INDONESIA





## Landing Species in Bone





**Yellowfin Tuna**  
***Thunnus albacares***



**Catch by Hand Line, season: "August - October"**



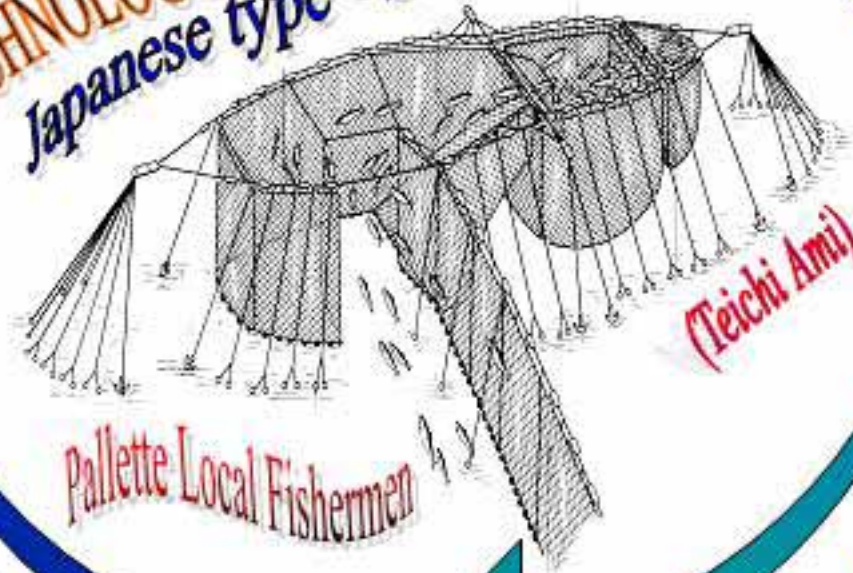
**Sea Weed Cultures in Palette Area**



**Marine Eco-tourism in Palette Area,  
Bone Regency-INDONESIA**



**TECHNOLOGY TRANSFER of  
Japanese type - SET NET**



*Palette Local Fishermen*

*(Teichi Ami)*



**SOUTH SULAWESI**



**BONE REGENCY**



**DEPART. OF MAR. & FISHERIES  
BONE REGENCY**



**UNHAS**



**SUPM NEG. BONE**



Head of Fisheries High School, BONE

Head of fisheries Department BONE

Dean of Fisheries & Marine sci. Faculty - UNHAS

Leader of Local Fishermen Group

Expert of Fishing Technology JAPAN

Expert of Set Net Technology THAILAND

Head of Palette subdistric, BONE

Field assistance for Set Net Project



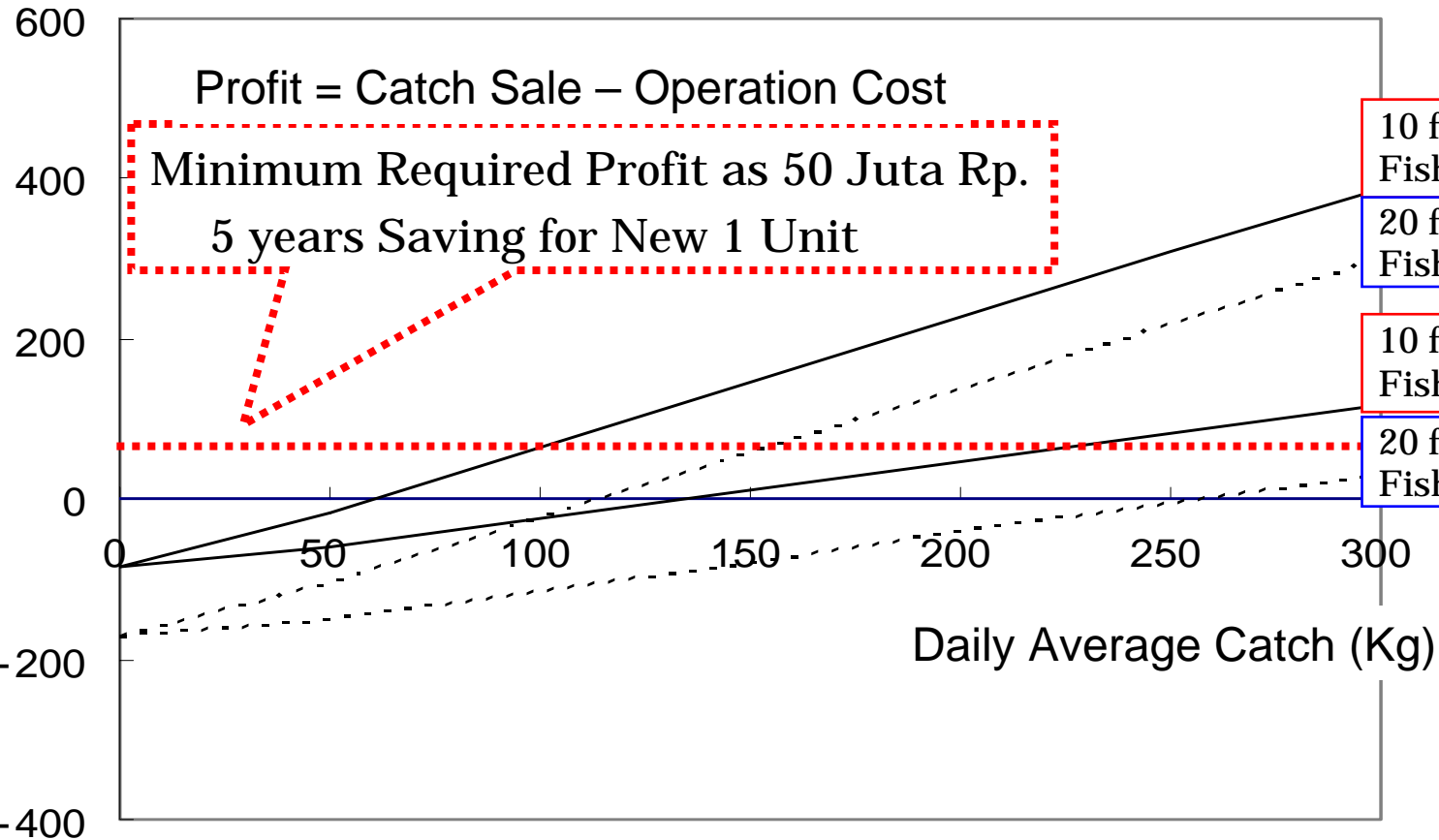
## Counterparts of Technology Transfer of Japanese-type SET NET (*Teichi ami*) in Palette Sea - Bone Bay, INDONESIA

# 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

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

Juta Rp.



10 fishers  
Fish price; 10000Rp/Kg

20 fishers  
Fish price; 10000Rp/Kg

10 fishers  
Fish price; 5000Rp/Kg

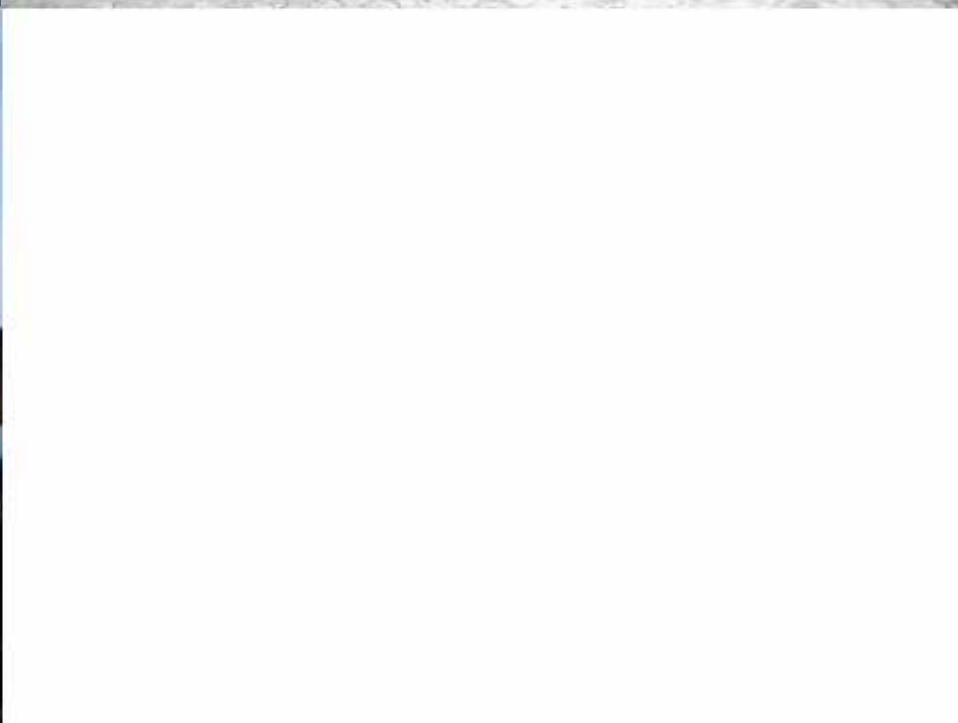
20 fishers  
Fish price; 5000Rp/Kg



# Best Pilot Model Approach for Set-net Technology Transfer

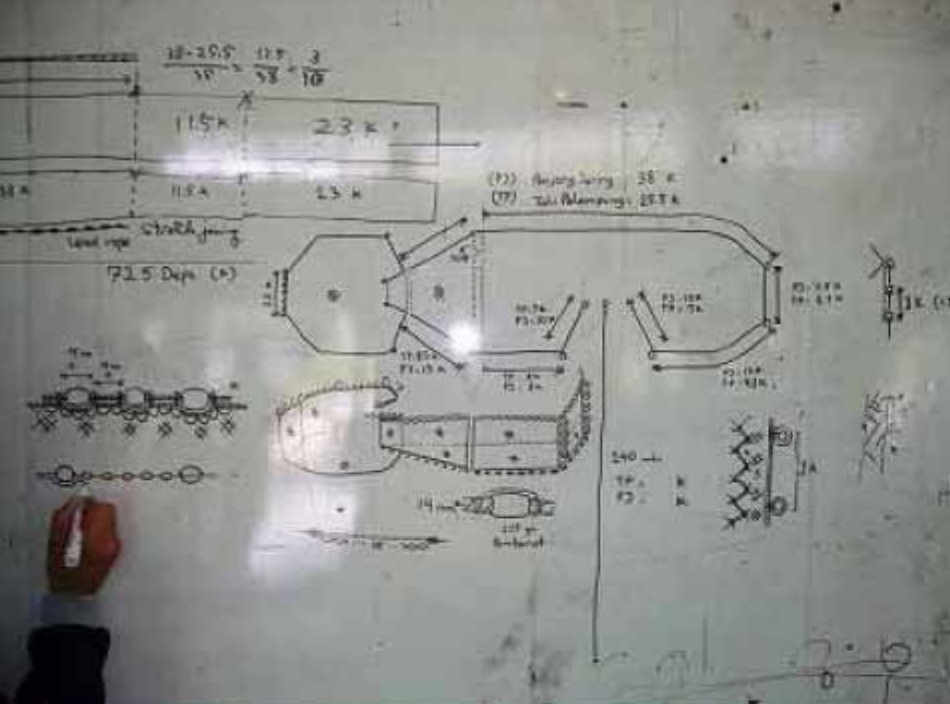
- Concentrated On-site Efforts for Monitoring and Evaluation
- Operational Cost Analysis
- Profit Analysis with Catch/Marketing
- Regulation System
- Extension Activities in the region and to other regions
- Comparative study among regions with Profit analysis and Impact Analysis





# Gear Construction started in October 2007







**Fishing boat is also ready at Palette**

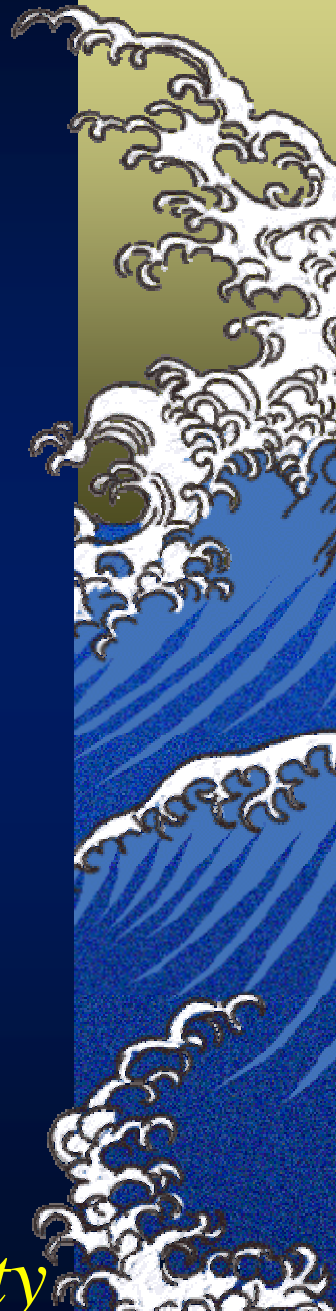




# Importance of Community-based Management for Set-net

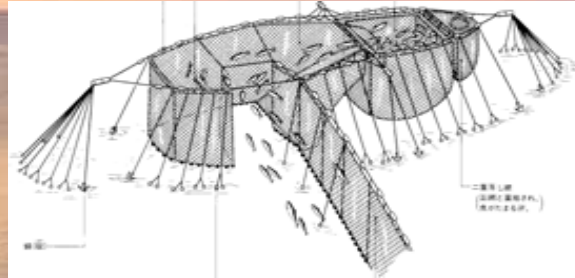
- ▶ *10-20 fishers working together for operation*
- ▶ *Community is the owner of set-net*
- ▶ *Profit sharing among fishers  
and for the community*
- ▶ *Giving the concept of the own garden  
for the fishing ground and fisheries resources*
- ▶ *Leading to the Community-based Coastal  
Management by the Fishermen's Cooperative*

*SET-NET of the community,  
by the community,  
and for the community*





**Jan-March, 2007**  
**For starting the operation**



**Sunrise or Sunset...?**



**Great Thanks  
to all my Colleagues!**



# Exercise Quiz

for Nov.28 class by ARIMOTO

1. Do you have any types of fixed trap net?
  - Please name the gear type in English / your mother language.
2. Do you have any conflicts between coastal small-scale fishers and commercial fishers?
  - Please identify the example.
3. Are you interested in Technology Transfer of the Community-based set-net?
4. Please give the comment how the set-net can be helpful for the empowerment of the coastal community in your country?
5. Please try the meaningful wording for abbreviation of **TEICHI**, such as **T**echnical **E**mpowerment by **I**mproving **C**ommunity for **H**igher **I**ncome, in English or in your mother language.