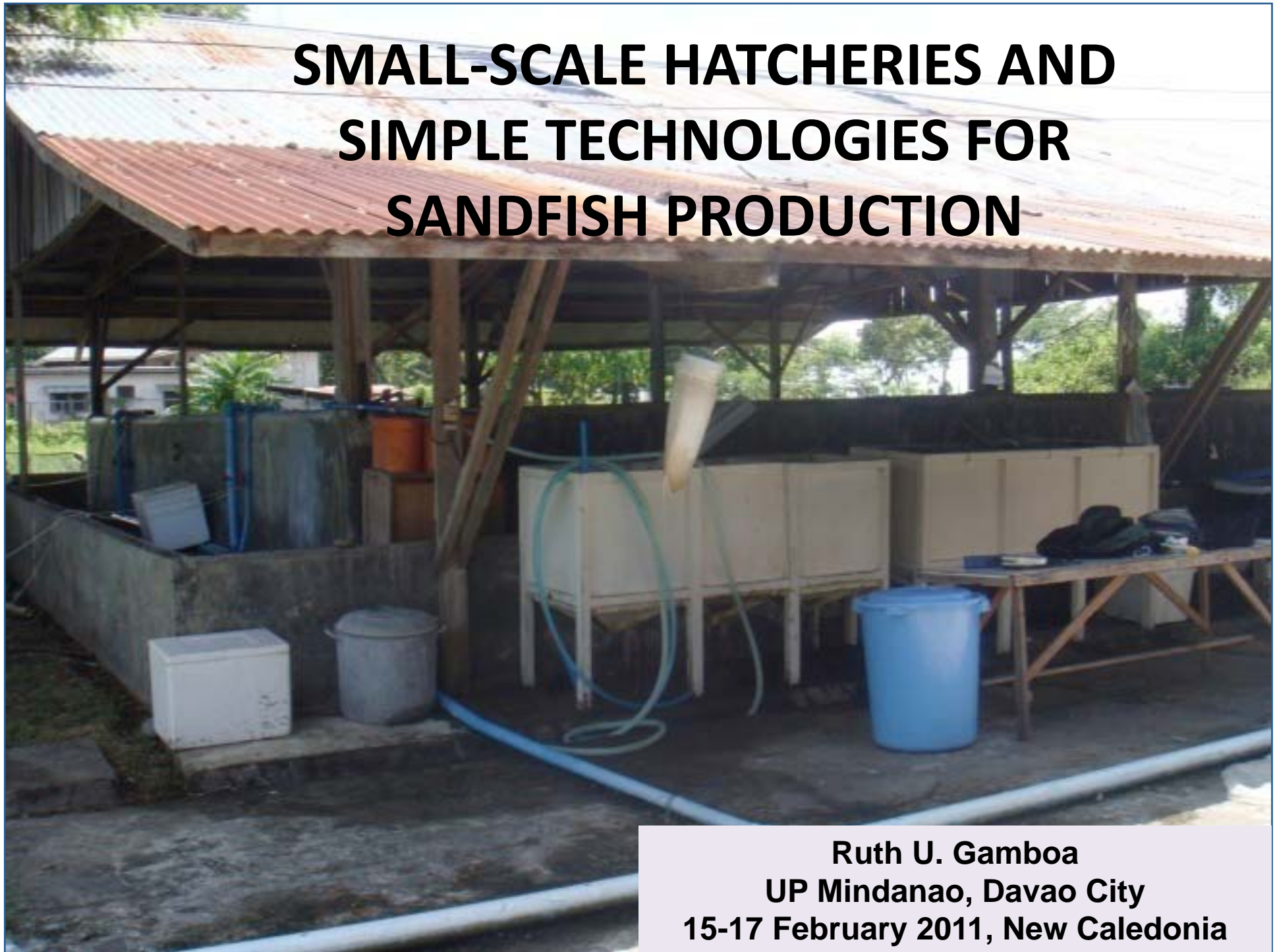


SMALL-SCALE HATCHERIES AND SIMPLE TECHNOLOGIES FOR SANDFISH PRODUCTION



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Davao, Mindanao,

Phil. Projects funded by:

- 1. Phil. Government,
Dept of Science &
Technology, 2 years*
- 2. ACIAR-Worldfish, 4 years*





Biggest **private** partners:

1. Alson's Corporation:

- work space, electricity, water

2. JVAyala Group of Companies

- work space, marine pond

Alsons Corp, Dumoy: *Tilapia-Chanos* ponds



Alsons Corp, Dumoy: *Tilapia-Chanos* ponds



August 08. Hatchery 1 : Dumoy

Work space



Water channel



New work space in Dumoy (2010): 36sqm



Cost = P100,000 = tanks, UV, structure, etc

Feb 09, Hatchery 2: High Ponds, 80sqm



Cost = P500,000 = tanks, UV, structure, culture room, sleeping quarter, kitchen

Production Phases of Sandfish:

1. Broodstock conditioning

2. Broodstock induction

3. Larval rearing

4. Nursery for juveniles

5. Grow-out to >500gm

1. Broodstock conditioning



Conventional

In tanks in the hatchery



- ~~feeding~~
- ~~aeration~~
- ~~flow through~~
- ~~labor~~

2. Broodstock induction

Conventional	Mindanao
Temperature and <i>Spirulina</i>	As is (99% effective)



3. Larval rearing: Feeding regime

Conventional

2-4 species of
algal food



Alson's Phytolab

Scaling up the *Chaetoceros*:

2 jars from Alson's per week



Culture room

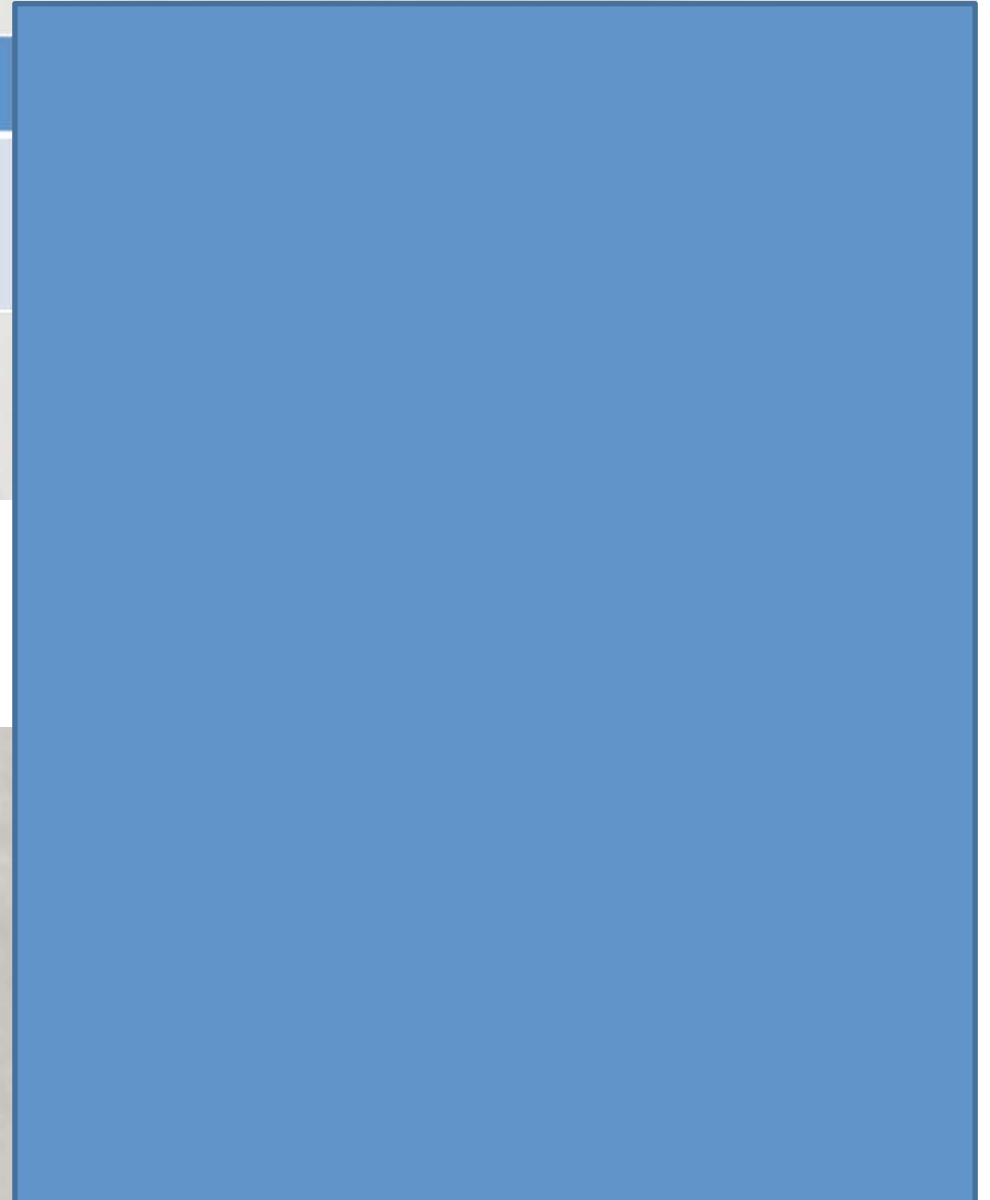


Outdoor

4. Nursery for juveniles

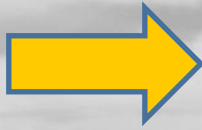
Conventional

In settlement tanks with
benthic diatoms



Hapas in channel

Harvesting 3-5 mm juveniles



Hapas inside sea pen

4a. Nursery: First stage

Conventional	Mindanao
In raceways till 3-5gm	Move to hapas at 3-5mm stage

800L Tank = P10,000



Hapa Cost = P20,000

- 
- ~~• feeding~~
 - ~~• aeration~~
 - ~~• flow-through~~
 - ~~• labor~~

Survival rates of juveniles

Batch	Initial Density	% Survival Estimate	
		From gastrula to 3-5mm	1 month in hapas
08 Aug	375,000	0.64	75-95
Sept	300,000	0.80	55-96
09 May	225,000	1.07	90-99
10 Feb	300,000	1.50	88-95
Jun	360,000	1.67	84-94
Oct	360,000	2.01	85-92

Annual Production = 5000 juvs/qtr x 4x = 20,000 juvs

Scale up?!!!

Juveniles *in hapas* in the seawater channel at Alsons



4b. Nursery: Second stage (sand conditioning)

Conventional

In raceways till 6-10 gm



Initial Capital:

Work Space

Equipment/Materials:

a. Water System

- 1. UV light**
- 2. filters**
- 3. holding tanks**

b. Rearing Tanks

c. Culture Room

- 1. Airconditioner**
- 2. Refrigerator**

d. Aeration system

Nursery

floats

hapa (mosquito net)

Pond

water pump

water pipes

Sea ranch

Monthly Expenses

Staff:

a. hatchery-algal room

b. field

Electricity & Water

a. culture room

b. hatchery

c. Pond

Algal Culture

5. Grow-out to >500gm (?)

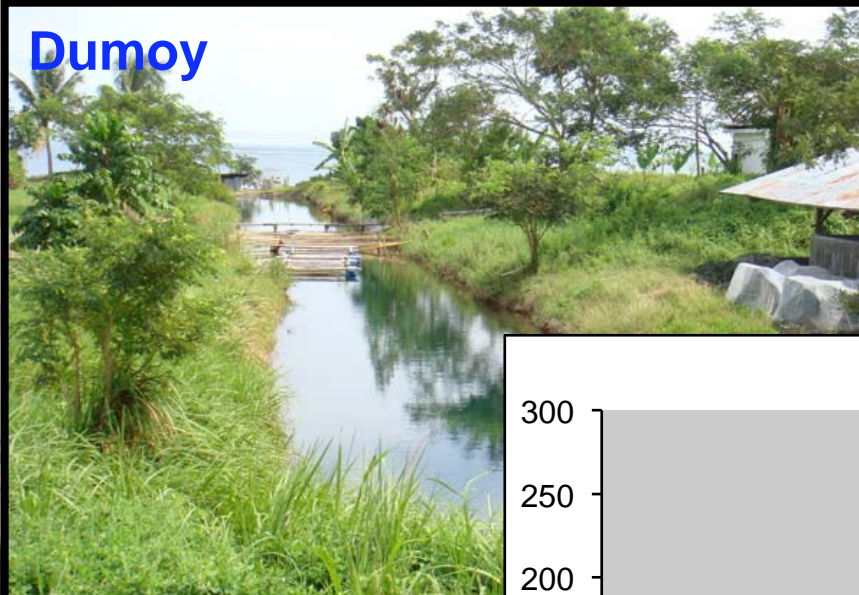
Conventional	Mindanao
<ul style="list-style-type: none">1. In open water2. In ponds	<ul style="list-style-type: none">1. In open water2. In a pond3. In water channel

Water channel at Alsons, Alabel

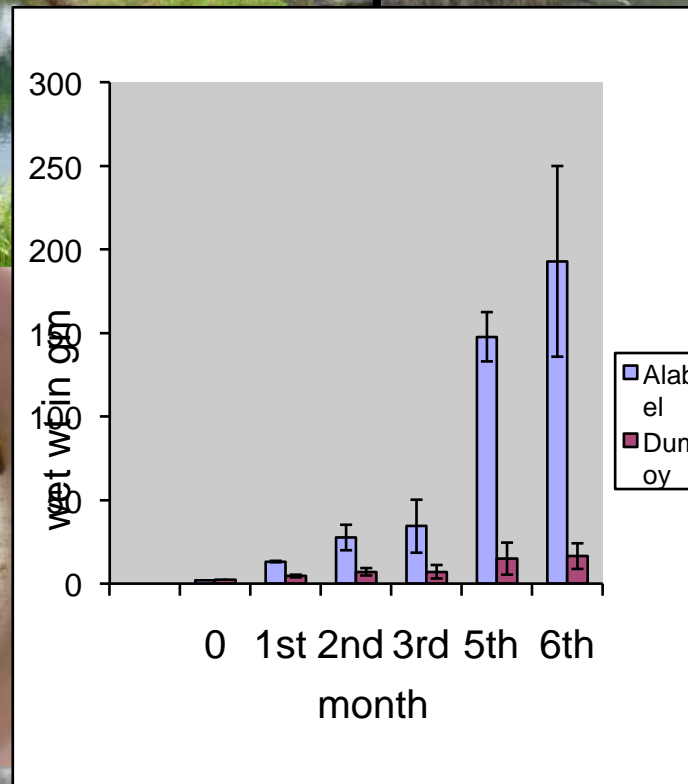
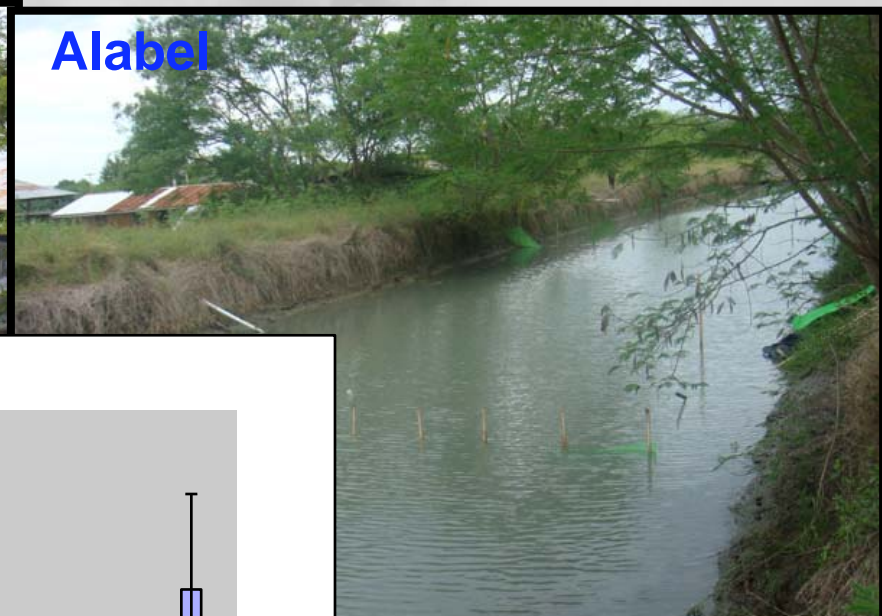


Growth experiment in sea water channel

Dumoy



Alabel



Production Phases:

1. Broodstock conditioning

Sea water channel

2. Broodstock induction

Temp-*Spirulina*

3. Larval rearing

Mono-species food

4. Nursery for juveniles

Hapas in the channel

5. Grow-out to >500gm?

Sea water channel

Greatest hurdle: **bloodworms!!!!**



Series of larval crashes from Jul 09-Jun 10

Grow out in Brgy. Bato, Sta Cruz, del Sur



Sea ranch in Sinapaan Island, Davao del Norte



