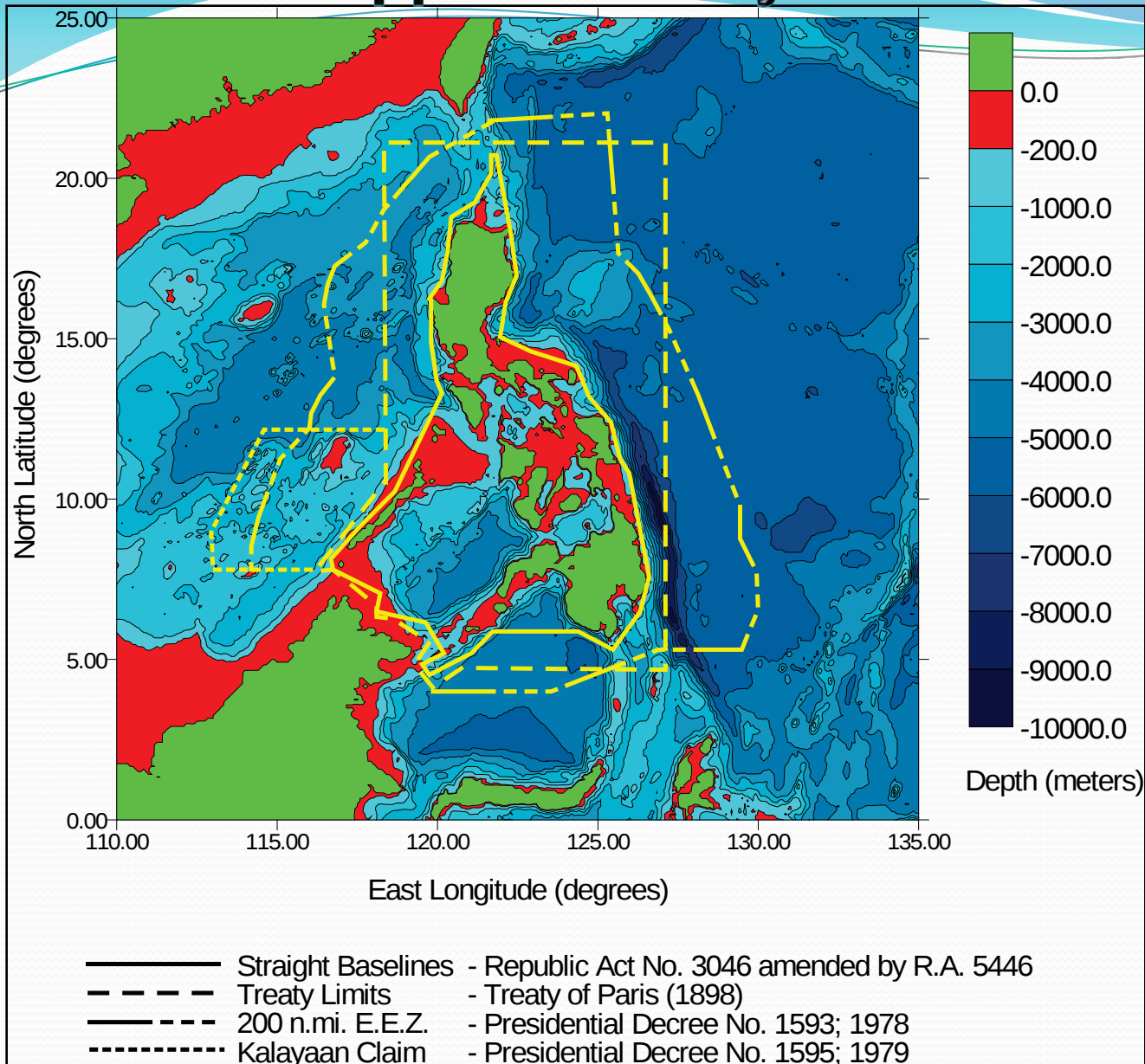


Status of Aquaculture in the Philippines



A. The Philippine Fishery Resources at a Glance



MARINE RESOURCES

Total Territorial Water Area
2,200,000 sq. km.

Shelf area (Depth 200m)
184,600 sq. km.

Coral Reef Area
27,000 sq. km.

Coastline (Length)
36,289 km

INLAND RESOURCES

Swamplands
246,063 ha

Brackishwater Fishpond
253,854 ha

Other Inland Resources
250,000 ha

COMMON WATER BODIES (HAS)		Areas devoted for Aquaculture and other fishery activities (10% of the total area)
Total	27,096,063	2,709,606.3
Inland	496, 063	49, 606 .3
- Swamplands	246, 063	24, 606.3
- Lakes	200, 000	20, 000
- Rivers	31, 000	3, 100
-Reservoir	19, 000	1, 900
Coastal	26, 600 000	2, 660, 000

B. The Philippine Fisheries Sector in the Global Context

- Ranked 5th in fish production. The 5.16 million MT production of fish, crustaceans, mollusks, and aquatic plants (including seaweeds). constitutes 3.06% of the total world production of 168.4 million metric tons (FAO website).
- Ranked 10th in aquaculture production of fish, crustaceans and mollusks contributing 1.24% share to the total global aquaculture production of 59.87 million MT. The country's aquaculture production amounted to over 1.58 billion dollars (FAO website).
- Top 3 largest producer of aquatic plants (including seaweeds) having produced a total of 1.80 million metric tons or nearly 9.48% of the total world production of 19.01 million metric tons (FAO website).



◆ **The annual performance** of the fish ind
industry was attributed to the production of the three (3)
sectors.

- The aquaculture sector posted an
increase with 52.4% (2.608 million MT)
- followed by the municipal sector with 26.8%
(1.33 million MT), and
- the commercial sector with 20.8%(1.03 million
MT).

The growth in aquaculture, however, underscores the
importance of the sector in maintaining the supply of fish.

C. Contribution to the National Economy

Fisheries contribution to the Total GDP

- Constant Prices = 2.1%
- Current Prices = 1.8%

Fisheries contribution to GVA in Agriculture, Fishery and Forestry

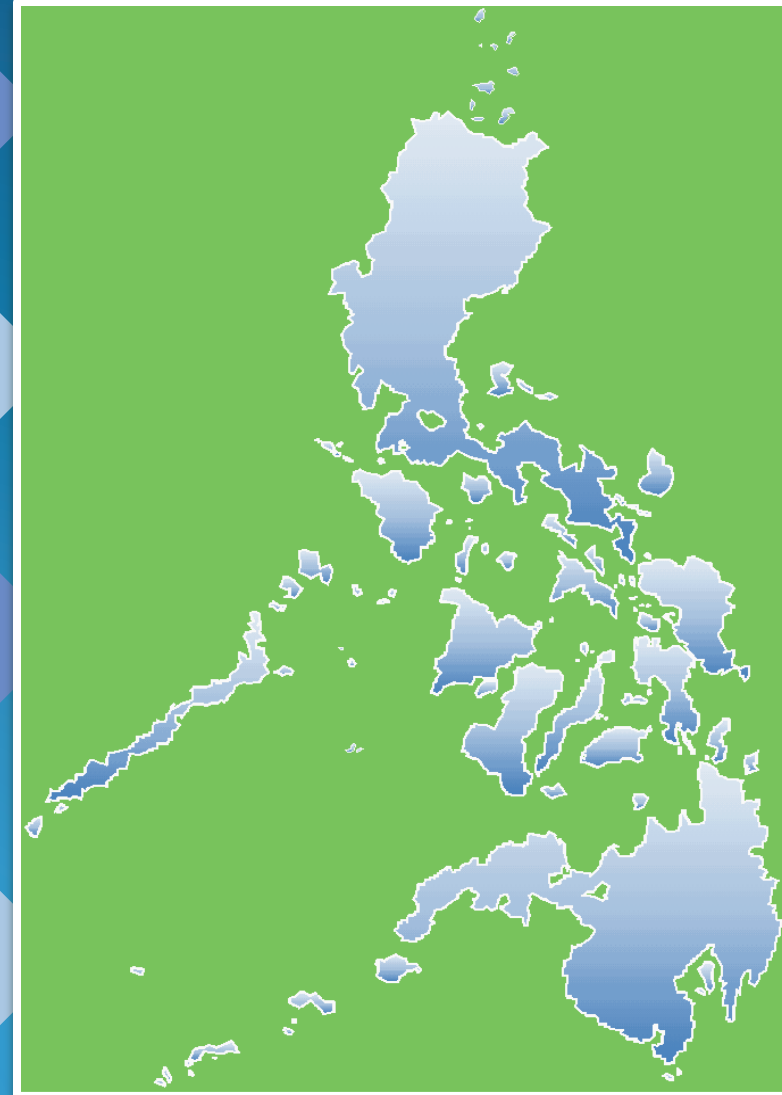
- Constant Prices = 18.6 %
- Current Prices = 15.4 %

Employment

- **Aquaculture** - **226,195 operators**
- Municipal - 1,371,679 operators
- Commercial - 16,497 operators

Balance of Trade

- Fishery Exports = 214,055 MT = PhP37.5B
- Fishery Imports = 214,330 MT = PhP9.4B
- Trade Balance = (275 MT) = PhP28.08B

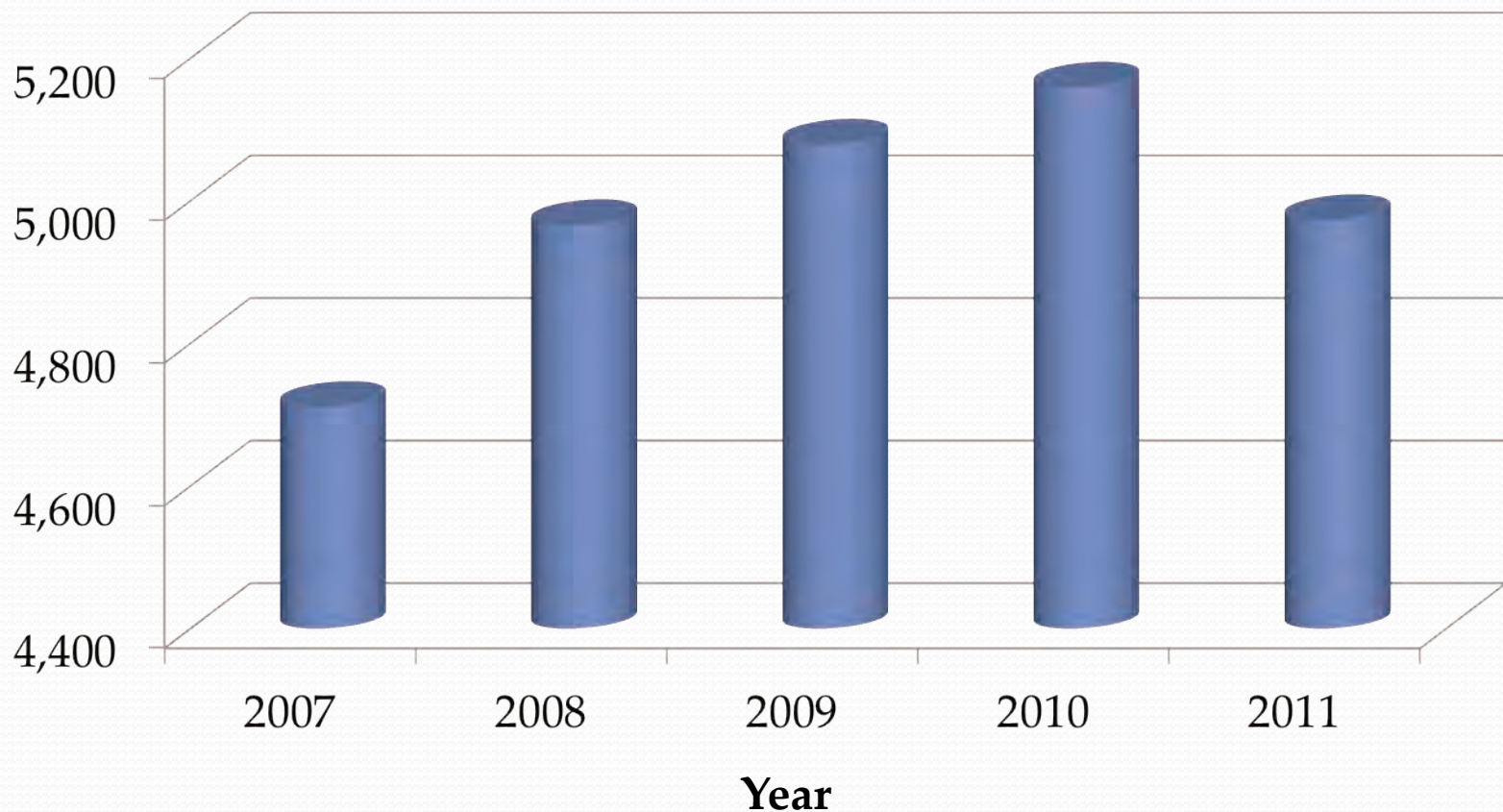


Five Year Fish Production, Trend 2007-2011

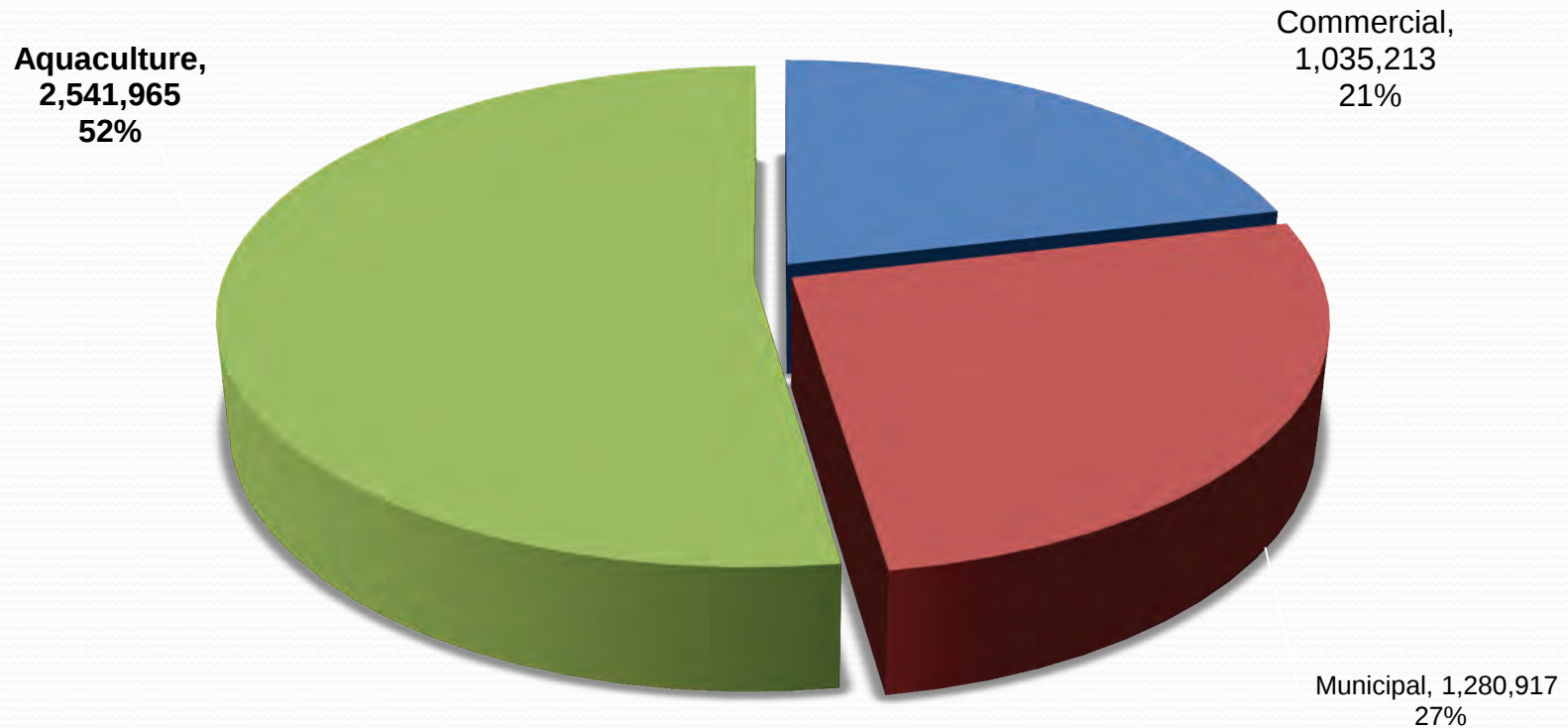
Year	Quantity (MT)	%increase/ (Decrease)	Value ('000 P)	%Increase/ (Decrease)
2011	4,973,588	(3.6)	224,695,079	1.6
2010	5,159,459	1.6	221,050,850	2.5
2009	5,079,977	2.3	215,582,068	(0.1)
2008	4,966,889	5.4	215,813,503	19.5
2007	4,711,252	6.9	180,545,128	10.5

Five Year Fish Production, Trend 2007-2011

Quantity
(in '000 MT)

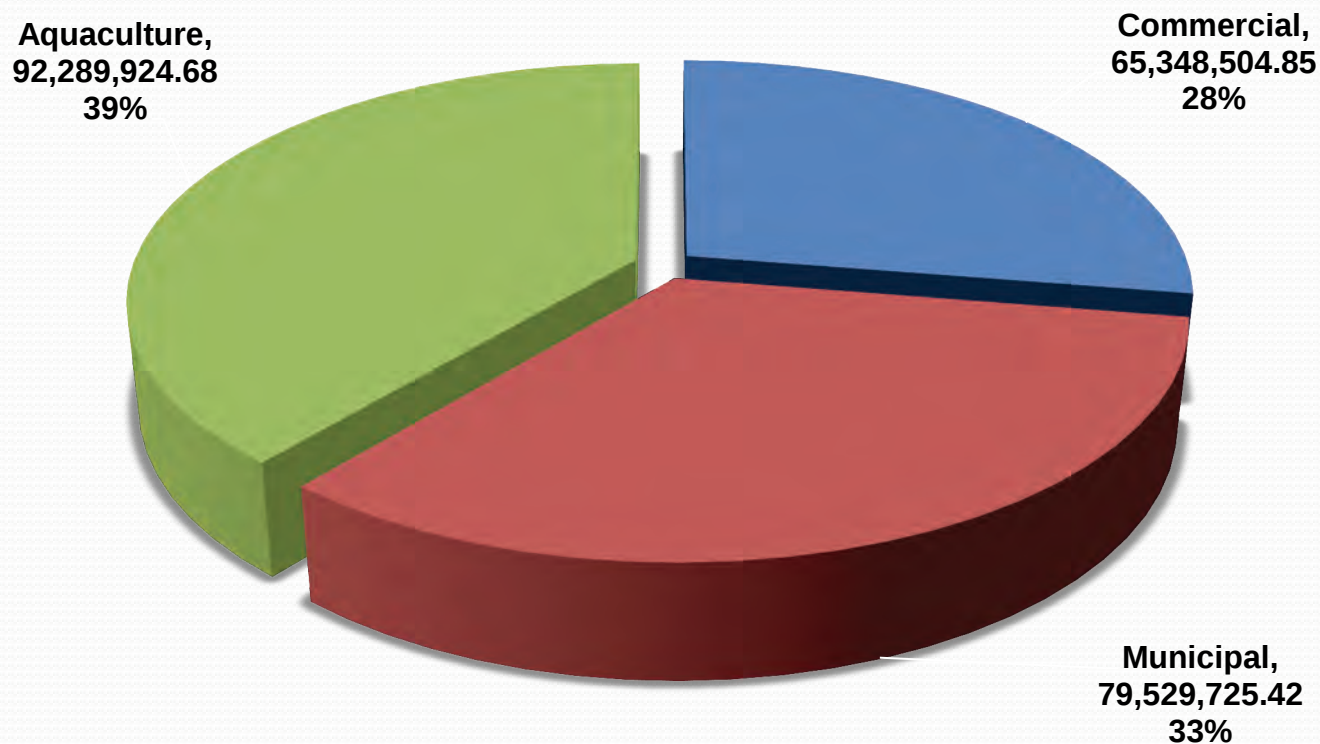


2012 Volume of Production (mt)



Volume = 4,858,097 mt

2012 Value of Production ('000 P)



Value = 237.17 Billion Pesos

Aquaculture

- Is the farming of aquatic organism, including fish, molluscs, crustaceans and aquatic plants.
- Classified in three major environments
 - Freshwater
 - Brackishwater
 - Marine Areas

Species	Culture Environment	Culture Type
Tilapia	Freshwater, Brackish Water, Marine	Cages, Pens, Ponds, Tanks
Common Carp	Freshwater	Ponds, Pens, Cages
Freshwater Ornamental Fish(Koi, Guppy, Goldfish)	Freshwater	Tanks, Water Receptacles
African Catfish	Freshwater	Tanks, Ponds
Bighead Carp	Freshwater	Ponds, Cages
Milkfish	Freshwater, Brackish Water, Marine	Pen, Cages

Seabass	Marine, Brackish Water	Cages, Pens, Ponds
Grouper	Marine, Brackish Water	Cages, Pens, Ponds,
Pompano	Marine	Pens, Cages
Rabbit Fish	Marine	Cages
Aquatic Plants		
Seaweeds	Marine	Floating lines, Stakes,
Mud Crab	Brackish Water	Pond, Cages,Pens

Shells and Crustaceans

Giant Freshwater Prawn	Freshwater	Tanks, Ponds
Oyster	Marine	Stakes, Lines, Rafts
Mussel	Marine	Stakes, Lines, Rafts
Tiger Prawn	Brackish Water	Ponds
White Shrimps	Freshwater, Brackish Water, Marine	Pens, Cages, Ponds

Culture Technology

The Philippine fisheries employed the following culture technologies:

a. Extensive Culture System

receive no nutritional inputs but depend on natural food in the culture facility, including that brought in by water flow e.g. currents and tidal exchange, such as plankton, detritus, benthos and drift.

b. Semi-intensive Culture System

depends largely on the natural food which is increased over baseline levels by fertilization and/or use of supplementary feed to complement natural food.

c. Intensive Culture System

depends on nutritionally complete diets added to the system, either fresh, wild, marine or freshwater fish, formulated diets usually in dry pelleted form.

Aquaculture production 2011

This includes production from the following:

- Brackish water fishpond
- Freshwater fishpond
- Fish pen and fish cage in fresh and marine waters
- Mariculture of oyster, mussel and seaweeds

Major Species Produced in Aquaculture Fisheries, 2011

Species	Quantity(MT)	Percent (%)
Seaweeds	1,840,832.86	70.58
Milkfish	372,580.80	14.29
Tilapia	257,385,.44	9.87
Shrimps/Praw n	50,158.55	1.92
Others	87,162.19	3.34

Total 2,568,119.84

Laws and Policies Related to Aquaculture Common Water Bodies

RA 9275 – Clean Water Act (2008)

Covers the protection and preservation of fresh, marine and brackishwater resources with its main objectives:

- I. Bring the control of pollution waters.
- II. Development of an integrated water quality management framework

III. Great for short and long term impacts of pollution

IV. Environment friendly enterprises

The Laws also defines beneficial use of water to include aquaculture activities.

 RA 9147 - Wildlife Act (2001)

 RA 8435 – Agriculture and Fisheries
Modernization Act (AFWA)1997

 RA 8371 – Indigenous Peoples' Right Act
(1991)

 RA 7586 – National Integrated Protected
Area System(NIPAS)Act 1991



● RA 8550 – Philippine Fisheries Code of 1998

Chapter II. Article III. Aquaculture

Section 45. Disposition of Public Lands for
Fishery Purposes.

Section 47. Code of Practice for Aquaculture.

Section 51. License to Operate Fish Pens, Fish
Cages, Fish Traps, and Other
structure for the Culture

Fish and Other
Fishery Products.



Section 53. Grant of Privileges for ages,
Corrals/Traps and
similar structures.

Section 54. Insurance fpr fishponds, fish-
cages, and fishpens



Section 55. Non-obstruction to
navigation.

Section 56. Non-obstruction to
Defined Migration Paths.



● Chapter III. Article II. The Fisheries and Aquatic Resources Management Councils(FARMCs)

Section 68. Development of Fisheries and Aquatic Resources in Municipal Waters and Bays.

Section 69. Creation of Fisheries and Aquatic Resources Management Councils (FARMCs)

● Chapter IV. Fishery Reserves, Refuge and Sanctuaries

Section 81. Fish Refuge and Sanctuaries.

● Chapter VI. Prohibition and Penalties

Section 86. Unauthorized Fishing or Engaging in Other Unauthorized Fisheries Activities.

Section 102. Aquatic Pollution

Section 103. Other Violations.

b. Failure to Conduct a Yearly Report on all Fishponds, Fish Pens, Fish Cages.

d. Obstruction to Navigation or Flow and Ebb of Tide in any Stream, River, Lake, or Bay.

e. Construction and Operation of Fish Corrals/Traps, Fish Pens and Fish Cages.



● FISHERIES ADMINISTRATIVE ORDERS

● FAO No. 196 – Guidelines on the creation and Implementation of Fisheries and Aquatic Resources Management Councils (FARMCs)

Sec.2. Development of Fisheries and Aquatic Resources in Municipal Waters and Bays.

Sec.3. Creation of Fisheries and Aquatic Resources Management Councils (FARMCs).

Sec.7. The Municipal/City Fisheries and Aquatic Resources Management Councils (M/CFARMCs).

Sec.9. Function of the M/CFARMCs.

- a.** Assist in the preparation of the municipal fisheries development plan and submit such plan to the Municipal Development Council.
- b.** Recommend the enactment of municipal fishery ordinances to the sangguniang bayan/sangguniang panlungsod through its Committee on Fisheries.



- c. Assist in the enforcement of fishery laws, rules and regulations in municipal waters.
- d. Advise the sangguniang bayan/panlungsod on fishery matters through its Committee on Fisheries, if such has been organized.
- e. Perform such other function which may be assigned by the sangguniang bayan/panlungsod.

f. The FARMCs shall be consulted by the LGU in:

1. the management, conservation, development, protection, utilization and disposition of all fish and fishery/aquatic resources within their respective municipal waters;

8. the designation/establishment of zones for the construction of fish pens, fish cages, fish traps and other structures for the culture of fish and other fishery products.

11. recommending to the Department that portion of the municipal waters for declaration as fishery reserves for special or limited use, for educational, research and/or special management purposes; and



12. the establishment and designation of areas for fishery refuges and sanctuaries

● **FAO No. 214** – Code of Practice for Aquaculture

● **FAO No. 215** – Insurance for aquaculture crops/stocks.

● **FAO No. 216** – Obstruction to Navigation Streams, Rivers, Lakes, and Bays

● **FAO No. 217** – obstruction to Defined Migration Paths

● **FAO No. 218** – Yearly Report on Aquaculture Projects

ISSUES AND PROBLEMS

- **Siltation from deforested upland areas**



- **Destructive fishing practices (muro-ami, cyanide fishing, blastfishing, use of fine mesh nets)**



- **Pollution**



ISSUES AND PROBLEMS

- **Uncontrolled shoreline development**
- **Overharvesting of mangroves**



- **Damage from anchors, divers, tourists, collectors**



- **Lime extraction and sand quarrying**





8. Proliferation of illegal fish pens/
cages in rivers and lakes
9. High fish stocking densities in fish
pens/cages that causes
mass mortality



9. High fish stocking densities in fish pens/ cages that causes mass mortality
10. Poor management practices such as overfeeding, etc.

Government and Private Sectors Programs

Government

☐ Resource Protection

- Strengthen patrolling capacity
- Procurement of patrol boats/multi-mission boats
- Provision of training and deputation of Fish Wardens
- Creation/organization of Fisheries Resource Protection and Law Enforcement Unit-Quick Response Team (QRT)
- Monitoring, Control and Surveillance
- Operation/maintenance of Laboratories

❑ Resource Enhancement

- Mangrove habitat rehabilitation
- Operation of existing multi-species hatcheries for fingerling production and for stocking in communal waters



■ Production Enhancement

- Livelihood Programs
 - Implementation of the National Payao Program
 - Fish Cage-for-Livelihood Program
(DA-BFAR will construct fish cages in every mariculture parks established and award the same to qualified fisherfolk groups)



- ❑ Provision of environment-friendly fishing gears such as gill nets, multiple hook and line, fish pots and fish corrals, etc.

o Seaweeds Development Program

- Establishment of seaweed nurseries
 - Establishment/maintenance of Seaweed Tissue Culture laboratory
 - Provision of seaweed farm implements
 - Technical assistance and/or Hand-on training



- ❑ Other Regulatory Services(Issuance of permits/licenses for the construction, establishment and operation of fish pens/fish cages)

- ❑ Research and Development

Private Sector

- ❑ Resource Enhancement

- ❑ Resource Management

Thank you