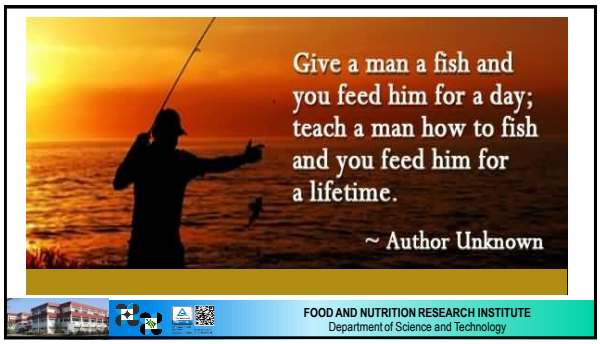

OUTLINE OF PRESENTATION

I. Introduction

II. Benefits and Possible Contaminants in Fish

III. Results of Household Food Consumption of the National Nutrition Surveys (NNSs)

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Lets talk about *Fish*

Fish & Fish products

Fresh fish

Dried fish

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Fish & Fish products

Processed fish

Crustaceans and mollusks

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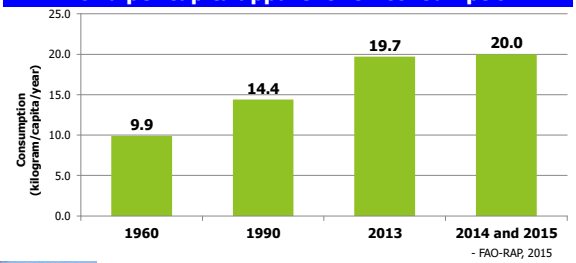
Globally…

…world per capita apparent fish consumption increased from 1960s to 2014 and 2015.

…China remained the major producer of fish and fish products followed by Indonesia, the United States of America and the Russian Federation

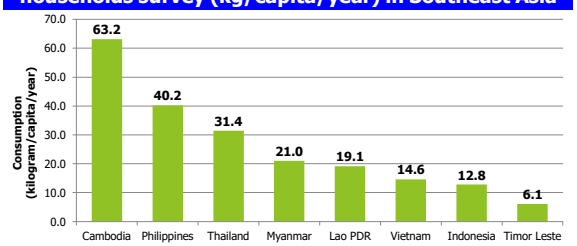
- FAO-SOFIA, 2016

World per capita apparent fish consumption



- FAO-RAP, 2015

Consumption of fish and fish products as determined by households survey (kg/capita/year) in Southeast Asia



- FAO-RAP, 2015

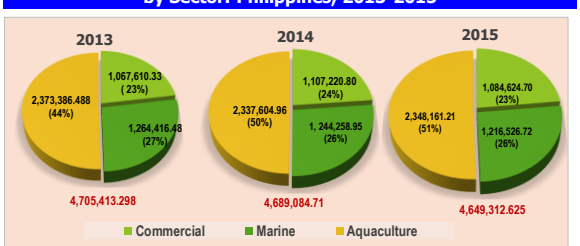
The Philippines….

…..is a major fishing nation and the world's second largest archipelagic state.

…..ranked fifth in the top 25 producers and main groups of farmed species in 2014 (FAO-SOFIA, 2016)

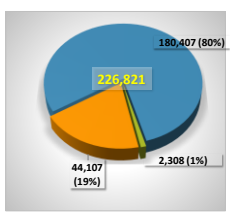
…. In 2015, Filipino households consumed 101 grams per capita per day of fish and fish products.

Fisheries: Volume of Production (in metric tons) by Sector: Philippines, 2013-2015

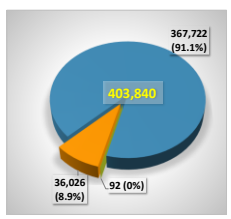


- Fisheries Statistics of the Philippines 2013-2015

Volume (in metric tons) of Export of Fish and Fishery Products: Philippines, 2015



Volume (in metric tons) of Import of Fish and Fishery Products: Philippines, 2015



Fish, Crustaceans and Molluscs | Shellfish and by-products | Miscellaneous Fishery product

- Fisheries Statistics of the Philippines 2013-2015

Recommended Intake of Fish and Fish Products

Nutritional Guidelines for Filipinos

Guideline Nos. 1 and 4

✓ Eat a variety of foods everyday.

✓ Consume **FISH,** lean meat, poultry and dried beans.

Recommended Intake of Fish and Fish Products

Pinggang Pinoy

✓ Eat **FISH**, **SHELLFISH**, lean meat, poultry, eggs and dried beans and nuts needed for the growth, maintenance and repair of body tissues.

✓ Include **fatty fish** in the diet like tuna, sardines and mackerel **2-3 times a week** to provide essential fatty acids that help protect against heart diseases and for the child's brain development.

Energy and nutrient content* of commonly consumed fishes[1]

Name	Energy (kcal)	Protein (g)	Iron (g)	Calcium (g)	Vit A (mcg RE)	Vit C (g)	Thiamin (mg)	Riboflavin (g)	Niacin (mg)	Fat (g)	Carbohy-drates (g)
Galunggong	100	20.4	1.2	61	61.7	0	0.14	0.18	7.8	2.1	0
Bangus	136	19.8	1.2	44	136.7	0	0.02	0.1	7.8	6.4	0
Tilapia	107	18.1	0.8	74	65.8	0	0.06	0.2	4.6	3.8	0
Tulingan	119	24.0	1.2	41	90.8	0	0.26	0.24	14.7	2.6	0
Tamban	121	19.5	1.6	121	30.8	0	0.01	0.17	8	4.7	0.1

* Based on 1997 Philippine Food Composition Table
[1] 2015 Updating Survey, FNRI-DOST

Sample Fish Dishes and its Energy and Nutrient Content

FISH ESCABECHE

Type of Fish **Galunggong**
Method of Cooking **Boiled**
Weight Per Serving: **17.8 g**
Estimated Cost Per Serving: **35.00 Php**

Energy and Nutrient Content of Galunggong Escabeche**:**

Energy:	**22 kcal**		
Carbohydrates:	**0.0 g**	Vitamin A:	**13.5 mcg RE**
Protein:	**4.5 g**	Vitamin C:	**0.0 mg**
Fats:	**0.5 g**	Thiamin:	**0.03 mg**
Iron:	**0.3 mg**	Riboflavin:	**0.04 mg**
Calcium:	**13.33 g**	Niacin:	**1.7 mg**

SINIGANG NA BANGUS

Type of Fish **Bangus**
Method of Cooking **Boiled**
Weight Per Serving: **40.8 g**
Estimated Cost Per Serving: **50.00 Php**

Energy and Nutrient Content of Sinigang na Bangus**:**

Energy:	**70 kcal**		
Carbohydrates:	**0.0 g**	Vitamin A:	**70.8 mcg RE**
Protein:	**10.3 g**	Vitamin C:	**0.0 mg**
Fats:	**3.3 g**	Thiamin:	**0.01 mg**
Iron:	**0.6 mg**	Riboflavin:	**0.05 mg**
Calcium:	**22.80 g**	Niacin:	**4.0 mg**

What are the Benefits of consuming fish and fish products?

BENEFITS

- ✓ Fish is a low-fat, high quality protein

  Fish is a good source of high quality protein that is not high in saturated fat (USDA 2010; AHA, 2012).



BENEFITS

- ✓ Contains good source of Omega-3 fatty acids
  - may lower risk of heart attacks and strokes
  - reduces risk of some types of cancers
  - reduces risk of type 1 diabetes in children, and form of autoimmune diabetes in adults
  - essential for growth and development.

BENEFITS

- ✓ Linked to reduced decline in brain function in old age
  - People who eat more fish have slower rates of cognitive decline
- ✓ May help prevent and treat depression
  - Studies found that people who eat fish regularly are much less likely to become depressed



BENEFITS

- ✓ Contains a wide variety of vitamins such as D and B2 (riboflavin).
- ✓ Rich in calcium and phosphorus and a great source of minerals, such as iron, zinc, iodine, magnesium, and potassium.

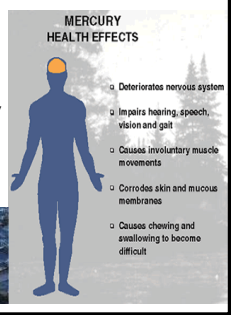




What are the possible Contaminants in Fish and fish products that may lead to Health Risk?

➢ **Environmental Pollutants**

Some fish contain **methylmercury** which is toxic to the nervous system, especially the developing brain.



Think **small**. Eat smaller species such as **sardines, anchovies** and **salmon.** They are considered a little safer to eat.

Avoid **BIG** predatory fish like **swordfish**, **mackerel** and **shark**, which accumulate more mercury.

➢ **Allergic Reaction**

Protein allergens present in fish and shellfish may cause allergic reactions like **hives, swelling, and/or gut reactions (vomiting, diarrhea)**. Most dangerous symptoms are **difficulty in breathing or collapse**.

➢ **Scombroid** food **poisoning**

- foodborne illness that results from eating spoiled (decayed) fish.

FNRI-DOST is mandated to undertake researches that define and update the Philippine food and nutrition situation in the country.

LEGAL BASIS

EO 128 Section 22 (Jan. 1987)

The Food and Nutrition Research Institute (FNRI) undertakes the National Nutrition Survey (NNS) every five years in cognizant to its mandate of defining the country's nutrition condition and status of the population

EO 352 (Jan. 1996)

The NNSs are one of the country's designated statistical activities that generates critical data for policy/decision-making of both government and private sector

HISTORICAL BACKGROUND

SURVEY COMPONENTS	SURVEY PERIOD								
	1978	1982	1987	1993	1998	2003	2008	2013	2015
Anthropometry	✔	✔	✔	✔	✔	✔	✔	✔	✔
Biochemical	✔	✔	✔	✔	✔	✔	✔	✔	-
Clinical & MDG Outcomes	✔	✔	✔	✔	HDL Study	NHHeS	NHHeS	✔	BP & MDG
Dietary: Household Individual	✔ -	✔ -	✔ -	✔ -	✔ -	✔ -	✔ ✔	✔ ✔	✔ -
Socio-Economic	✔	✔	✔	✔	✔	✔	✔	✔	✔
Food Insecurity	-	-	-	-	✔	✔	✔	✔	✔
Government Program Participation	-	-	-	✔	✔	✔	✔	✔	✔
Government Program Participation	-	-	-	-	✔	✔	✔	✔	✔
Infant and Young Child Feeding	-	-	✔	✔	✔	✔	✔	✔	✔
Maternal Health and Nutritional Status	-	-	-	-	-	-	-	✔	✔

METHODOLOGY

2015 Updating Survey SAMPLING DESIGN

National Statistics Office (NSO)
Master Sample (PSA)

Multi-Stage Stratified Sampling Design

17 Regions/ 80 Provinces

4 replicates from the NSO Master Sample which utilized 100% of the Updated/ Refreshed 2015 Listing of Households

Only 1 replicate for the Dietary Survey

1st Stage – Primary Sampling Unit
One barangay or contiguous barangays with at least 500 households

2nd Stage – Enumeration Area
Contiguous area in a barangay with 150-200 households

3rd Stage – Households

Food Consumption Survey: Units of Analysis

Household Level

Philippine Region
Wealth quintile
Household Size
Urban/ Rural Location

Individual Level

Pre-school children
Schoolchildren
Adolescents
Adults

Elderly
Pregnant women
Lactating mothers

HOUSEHOLD FOOD CONSUMPTION SURVEY

HOUSEHOLD LEVEL

Method: Household Food Weighing

- Actual intake of the household is measured for one-day using food weighing method, from breakfast through supper including snacks, before cooking
- Foods eaten outside the home by household members are recalled and recorded
- Plate waste, left-overs and foods given-out are weighed and subtracted from the foods weighed to get the actual intake

INDIVIDUAL FOOD CONSUMPTION SURVEY

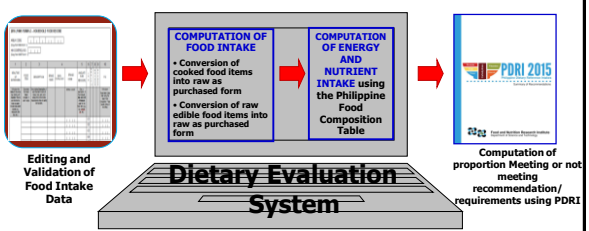
Individual Level

Method: 24-Hour Food Recall



2 Day Non-Consecutive 24-hr Food Recalls for all members of sample households included in the Household Food Consumption Survey

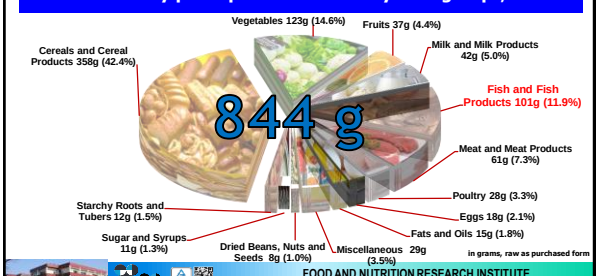
Flowchart of analysis of food intake



RESULTS

Household Food Consumption of the National Nutrition Surveys

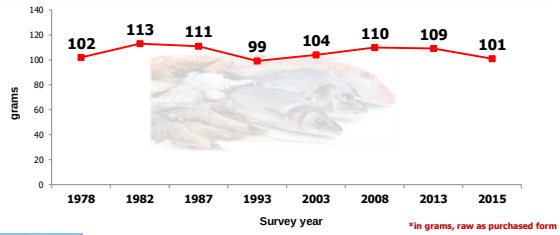
Mean one-day per capita food intake by food groups, 2015



Fish and Fish Products Consumption in the Philippines

Mean one-day per capita intake of Fish and Fish products

Trend in mean one-day intake* of fish and fish products: 1978-2015



*in grams, raw as purchased form

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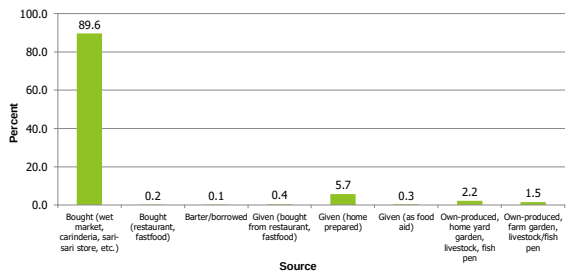
Mean one-day per capita food cost by food groups: Philippines, 2015

Estimates were based on prevailing food prices in 2015.

Sources of fish and fish products among Filipino households



Commonly consumed fish and fish products and percent (%) of households consuming: Philippines, 2015

Fish and Fish products	Frequency	% of Households Consuming
FRESH FISH		
Galunggong	0.1	10.3
Bangus	0.1	9.3
Tilapia	0.1	8.7
Tulingan	0.1	7.8
Tamban	0.1	4.3

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Commonly consumed fish and fish products and percent (%) of households consuming: Philippines, 2015.

Fish and Fish products	Frequency	% of Households Consuming
DRIED FISH		
Tamban, tuyo	0.1	8.7
Galunggong, daing	0.03	3.0
Dilis, tuyo	0.02	2.2
Sapsap, tuyo	0.01	0.9
Tamban, daing	0.01	0.9

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Commonly consumed fish and fish products and percent (%) of households consuming: Philippines, 2015.

Fish and Fish products	Frequency	% of Households Consuming
PROCESSED FISH		
Sardines in tomato sauce, cnd	0.1	11.2
Bagoong isda, ginamos	0.1	6.4
Patis	0.1	5.3
Shrimp paste (Alamang)	0.02	2.2
Galunggong, smoked	0.02	2.1

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Commonly consumed fish and fish products and percent (%) of households consuming: Philippines, 2015

Fish and Fish products	Frequency	% of Households Consuming
CRUSTACEANS and MOLLUSK		
Pusit	0.02	1.8
Shrimp, banana prawn (puti)	0.01	1.4
Shrimp greasy back, suwahe	0.01	1.2
Shrimp small marine dried (hibe)	0.01	0.9
Shrimp sergestid, alamang	0.01	0.7

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Mean one-day per capita intake of Fish and Fish products by region

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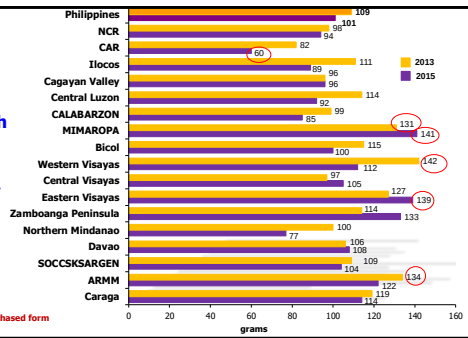
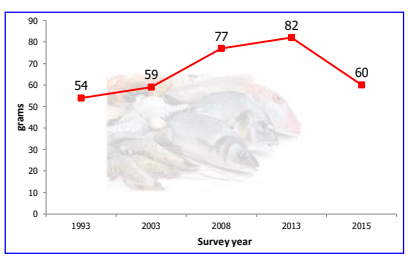
Mean one-day per capita intake* of fish and fish products by region: Philippines, 2013 and 2015



*in grams, raw as purchased form

Trends in Mean One-day Intake of FISH and FISH PRODUCTS in CAR: 1993-2015



*in grams, raw as purchased form

2016 REGIONAL DISSEMINATION FORUM
Updating of the Nutritional Status of Filipino Children and Other Population Groups
Kamusta na ba ang Kalagayang Pang-nutrisyon ni Juan at Juana?

Mean one-day per capita intake of Fish and Fish products by place of residence

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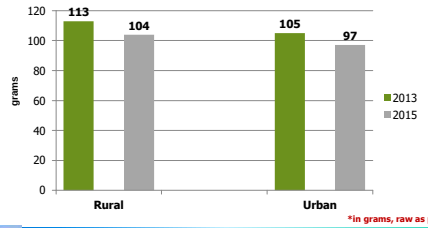
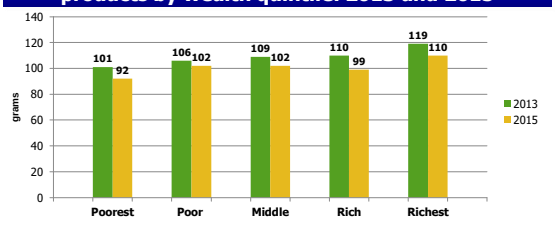
Trend in mean one-day intake* of fish and fish products by place of residence: 2013 and 2015



*in grams, raw as purchased form

Mean one-day per capita intake of Fish and Fish products by wealth quintile

Trend in mean one-day intake* of fish and fish products by wealth quintile: 2013 and 2015



*in grams, raw as purchased form

Evaluation of the Nutritional Status of Households Living in Selected Coastal Areas in the Philippines

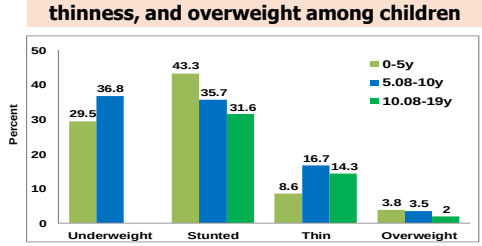
Imelda Angeles-Agdeppa, Ph.D.,
Ma. Adrienne S. Constantino, R.N.D.,
Glen Melvin P. Gironella, and
Mario V. Capanzana, Ph.D.

FNRI-DOST
WorldFish

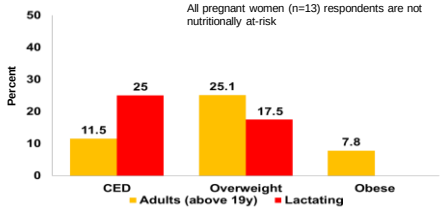
Study Areas

- ✓ Barangays with main occupation is fishing
- ✓ Sogod, Southern Leyte - 2 barangays (Maac and Mahayahay)
- ✓ While Dipolog City in Zamboanga del Norte – 1 barangay (Galas)

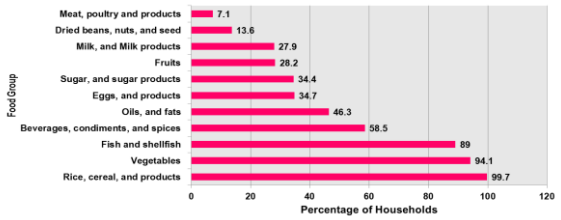
Prevalence of underweight, stunting, thinness, and overweight among children



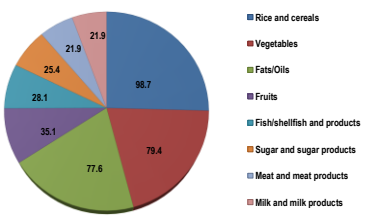
Prevalence of CED, overweight, obese among adults and lactating mothers



Percent distribution of usual composition of meals of households members consumed daily by food groups



Percent distribution of usual meal composition of school children



Dietary Diversity Score (DDS) Distribution of Household

- The mean Dietary Diversity Score (DDS) was 6.4.
- An score of ≤5 maybe an indicator of poor food access.
- 3 out of 10 households may have poor food access (≤5 DDS).

The study concludes that…

- Underweight and stunting among children are the primary problems due to the interplay of multiple factors: poverty, poor food access, and low diet variety.
- Low intake of protein-rich foods may have an implication on stunting among children.

SUMMARY

SUMMARY

- **Fish** is a part of the typical diet of every Filipino.
- The highest fish and fish products consumption were recorded in **MIMAROPA** and **Eastern Visayas** region.

SUMMARY

- Fish is loaded with important **nutrients** and the best source of **omega-3 fatty acids.**
- However, fish may contain **mercury** and **other contaminants** that may have risk for health.

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Department of Science and Technology

Telephone/Telefax Numbers:

Direct lines: 837-2071 to 82 local 2287; 837-2934
Telefax: 837-3164

Website:
http://www.fnri.dost.gov.ph

E-mail Addresses:
mvc@fnri.dost.gov.ph /
mar_capanzana@yahoo.com