



Republic of the Philippines
DEPARTMENT OF EDUCATION
Region VII, Central Visayas
SCHOOLS DIVISION OF NEGROS ORIENTAL
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Division Memorandum
7 November 2019

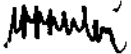
TO : Dr. Elisa L. Bagiuo
PSDS, Bacong District

SUBJECT : Review and testing of the Fish Right Program Supplemental Learning Modules for integration in Sciences 3, 5 & 11 in Bacong District

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You are hereby directed to organize your Science teachers teaching Grades 3, 5 and 11 in the schools of your district to review the list of the Fish Right Program Supplemental Learning Modules hereto attached and submit their findings/report and recommendations to the undersigned through the Science Supervisor, Mr. Arnold R. Jungco if these are appropriate for integration in Science 3, 5 and 11.

Thank you very much.


SENEN P. PAULIN, CESO V
Schools Division Superintendent
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Tel. Nos: (035)225-2836 / 225-0887/422-7644 (Division Supt's Office); (035) 225-1622 (CID); (035) 225-1623 (Legal Section); (035)225-6180 (SGOO); (035) 422-7643 (Cash Section); (035) 422-8511 (Planning Section); (035) 225-6987 (Record's Section); (035) 422-5283 (Admin. Section); (035) 422-0267 (Personnel Section); (035) 225-2378 (Guard/Medical/Dental Sections); (035) 225-7012 (Educ. Facilities Section); (035) 225-1640 & (035) 225-1640 (Acct. Budget Section); (035) 422-3921 (Supply Section)



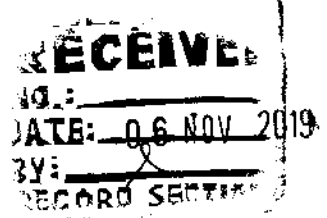
USAID
FROM THE AMERICAN PEOPLE



USAID Fish Right Program

November 4, 2019

Hon. LEONOR MAGTOLIS-BRIONES
Secretary
Department of Education
DepEd Complex, Meralco Ave.
Pasig City, Metro Manila



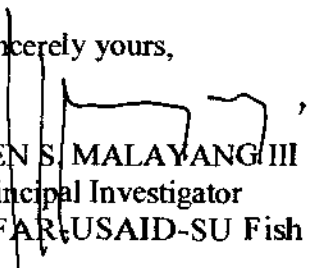
Dear Sec. Briones:

It is my pleasure to inform you that Silliman University is the institutional partner of the University of Rhode Island (URI) in the implementation of the Fish Right Program (FRP) in Southern Negros from Dumaguete City in Negros Oriental to Cauayan in Negros Occidental. This Program is a joint undertaking of the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) and the United States Aid for International Development (USAID). Employing the ecosystem approach to fisheries management (EAFM), the FRP will promote the sustainable use of the critical coastal and marine resources, particularly the capture fisheries, enhance the resilience of these resources, and capacitate key actors along with the communities that depend on fisheries toward sustainable management.

One of the major components of the FRP as designed by Silliman University is the writing of *Early Learning Modules on Sustainable Fisheries* with specific focus on “right fishing” and “fishing technologies”. These materials are intended to become supplemental learning modules for use by public school teachers in the Sciences of Grades 3, 5 and 11 in schools located in coastal communities. The team of module writers had reviewed the K to 12 curriculum map of DepEd and they had identified specific areas for integration (attached are the designs of the supplemental modules). The module writers will coordinate with the Schools Division Superintendents of Negros Oriental (for Bacong), Bayawan City, and Sipalay City where some schools will be piloted to test the modules before these will be submitted to DepEd for adoption.

In this regard, may I request endorsement of the FRP supplemental learning modules from your office for testing and adoption in the abovementioned schools divisions when found to be appropriate for integration in Sciences 3, 5, and 11? Thank you very much for your support.

Sincerely yours,


BEN S. MALAYANG III
Principal Investigator
BFAR-USAID-SU Fish Right Program

- cc.: Hon. Mayor Lenin P. Alviola, Bacong
- Hon. Mayor Henry Pryde Teves, Bayawan City
- Hon. Mayor Ma. Gina Lizares, Sipalay City
- Sch. Div. Supt. Senen P. Paulin, Negros Oriental
- Sch. Div. Supt. Ms. Lelanie T. Cabrera, Bayawan City
- Sch. Div. Supt. Dr. Renato T. Ballesteros, Sipalay City
- Mr. Francisco Martinez, NOCCI President

**DETAILED TOPICS FOR SUPPLEMENTAL MODULES
FOR INTEGRATION IN THE SCIENCE SUBJECTS OF ELEMENTARY AND SENIOR HIGH SCHOOLS**

Module Project Coordinator: Enrique G. Oracion

Themes and Contents	Grade 3 Ronelaine B. Picardal <i>Lead Writer</i>	Grade 5 Myla June T. Patron <i>Lead Writer</i>	Grade 11 Yushabel M. Romagos <i>Lead Writer</i>
<p>Right Fishing</p> <p>Defining Features:</p> <p>1. Not illegal in terms of what gears are used, what is harvested, when harvested, and where harvested.</p> <p>2. The volume of the harvest across space, time, and ecological limits of the fishing grounds within sustainable yields of the species being harvested.</p> <p>3. The harvested fisheries conform to product standards set for their marketing.</p>	<p>Basic Needs of Plants, Animals and Humans</p> <p>I. Marine Ecosystem Services to Plants, Animals and Humans</p> <p>A. Provisioning Services</p> <ol style="list-style-type: none"> 1. Food provision 2. Non-food provision <p>B. Regulating Services</p> <ol style="list-style-type: none"> 1. Air purification 2. Climate regulation 3. Disturbance prevention or moderation 4. Regulation of water flows 5. Waste treatment and assimilation 6. Coastal erosion and prevention 7. Biological control <p>C. Supporting or Habitat Services</p> <ol style="list-style-type: none"> 1. Migratory and nursery habitat 2. Gene pool protection <p>D. Cultural Services</p> <ol style="list-style-type: none"> 1. Leisure, recreation and tourism 2. Aesthetic experience 3. Inspiration for culture, art and design 4. Cultural heritage 5. Cultural diversity 6. Information for cognitive development 	<p>Estuaries and Intertidal Zones</p> <p>I. Marine Fisheries Ecosystems and Their Significance</p> <ol style="list-style-type: none"> A. Coral reef and reef fisheries B. Mangroves and mangrove-associated fisheries C. Algal and seagrass beds in marine fisheries ecosystems <p>II. Destructive/Illegal Fishing Practices</p> <ol style="list-style-type: none"> A. Overfishing B. Blast fishing C. Poison fishing D. Muro-ami E. Bottom trawling F. Using pelagic driftnets G. Ghost fishing <p>III. Effects of Destructive Fishing Practices on Marine Fisheries Ecosystems</p> <ol style="list-style-type: none"> A. Degradation of coral reefs/reef fisheries B. Altered ecological balance in mangrove fish communities due to overfishing C. Increase in harmful algal blooms associated with overfishing and decrease in big fish population 	<p>Marine and Coastal Processes and their Effects</p> <p>I. Effects of Natural Hazards on Humans and Vice-versa</p> <ol style="list-style-type: none"> A. Climate change and global warming <ol style="list-style-type: none"> 1. Coral bleaching 2. Melting of glaciers 3. Ocean acidification B. Waves C. Tides D. Sea-level changes E. Crustal movement F. Storm surges <p>II. Local issues Resulting from Global Phenomena</p> <ol style="list-style-type: none"> A. Loss of aquatic habitat B. Impact on fish population <p>III. Vulnerability and Resiliency of Fishing Communities</p> <ol style="list-style-type: none"> A. Livelihoods B. Health C. Women and children

	<p>II. General Fishing Practices and Management</p> <ul style="list-style-type: none"> A. Appropriate use of fishing gears B. Observance of right size of fish and other aquatic species to be fished/caught C. Consideration of stage and maturity of the fish and other aquatic species D. Observance of sustainable volume of harvest with consideration on space, time and ecological limits <ul style="list-style-type: none"> 1. Who can fish: resident fishers through licensing, fishing permit etc. 2. Where to fish: municipal waters as exclusive zones, outside of protected areas 3. When to fish: temporal restriction with open and close seasons <p>III. Importance of right fishing to marine ecosystem and humans</p> <ul style="list-style-type: none"> A. Protection of marine ecosystem and resources B. Increase of fish supply and production C. Security of food supply to humans D. Sustainability of local livelihood 	<ul style="list-style-type: none"> D. Massive loss of seagrass beds associated with decrease in big fish population E. Damage to seagrass beds due to trawling and ghost fishing F. Loss of marine biodiversity due to <ul style="list-style-type: none"> 1. alteration of trophic chain 2. biomass flow 3. decrease in big fish population resulting from overfishing G. Increase in by-catch which threatens endangered, protected, or non-target species <p>IV. Mitigating/Reversing the Effects of Destructive Fishing through Sustainable Fishing Practices</p> <ul style="list-style-type: none"> A. Reducing or preventing by-catch through hook-and-line fishing, trolling, purse seining, long lining, exclusionary devices, etc. B. Maintaining fish population by fishing for specific species only within a period C. Facilitating quick fish reproduction and replacement by: <ul style="list-style-type: none"> 1. targeting high-population species 2. managing wild fisheries and monitoring populations D. Promoting marine biodiversity by observing national and international enforcement of fishing regulations E. Experiencing the benefits of a healthy and balanced interaction between human and marine ecosystems <ul style="list-style-type: none"> 1. sustainability of fish supply and livelihood 	
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<p>Fishing Technologies</p> <p>Defining Features:</p> <ol style="list-style-type: none"> 1. Fisheries are moving resources across ecosystemic spaces and cycles. 2. Fisheries are best managed and coordinated across ecosystemic spaces and cycles, and not only within the political jurisdictions of LGUs. 			<ol style="list-style-type: none"> I. Status and Trends of Municipal and Commercial Fisheries in the Philippines <ol style="list-style-type: none"> A. Major fishing grounds B. Commonly used fishing gears C. Catch per unit effort (CPUE) D. Significant issues in municipal and commercial fisheries II. Fishing Technologies and Sustainable Fisheries <ol style="list-style-type: none"> A. Efficient fishing technologies <ol style="list-style-type: none"> 1. Traditional fishing gears <ol style="list-style-type: none"> 1.1. Hand instruments, hook and lines, and jigs 1.2. Traps, pots and gillnets 1.3. Impounding gears, dragnets and seines B. Destructive Fishing Technologies <ol style="list-style-type: none"> 1. Muro-ami 2. Fine-meshed nets 3. Miscellaneous fishing gears

			<ul style="list-style-type: none"> III. Environmental Impact of Sustainable Fishing IV. Marine Conservation, Remediation, and Management <ul style="list-style-type: none"> A. Conservation and Remediation <ul style="list-style-type: none"> 1. Hook-and-line fishing 2. No-take marine reserve establishment 3. Observance of closed fishing season policy 4. Naturally exporting biomass (spillover) and larvae 5. Practice of right sizing and quota fishing B. Fisheries Management <ul style="list-style-type: none"> 1. Integrated Management (IM) 2. Ecosystem Approach to Fisheries (EAF) 3. Ecosystem-Based Fisheries Management (EBFM) V. Positive and Negative Impacts of Industrial Fisheries in Marine Ecosystems <ul style="list-style-type: none"> A. Aquaculture B. Aquarium trade C. Commercial fishing
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NOTE: The titles of the supplemental modules per grade level were the exact unit titles found in the curriculum map of the Department of Education reviewed by the Module Project Team to ensure continuity of the topics discussed in Science classes. With this goal in mind, the writing of the supplemental modules use the spiraling and scaffolding methods where the topics being introduced have built up from the preceding topics found in the modules prescribed in the curriculum map and grade levels. In order to be easily appreciated and understood by the learners, the concepts and ideas reflected in this matrix shall be written that are appropriate to their cognitive levels. The learning activities shall be designed also that reflect the realities of the fisheries and fishing industry in Southern Negros.

The Module Project Coordinator will provide the human dimensions in the appropriate sections of the individual modules to highlight the ultimate impact of right fishing to human populations and vice versa. The place of women and children in the state of fisheries will always be highlighted when appropriate and necessary to make them visible.