

## A. Biological Aspects

<b>Concern</b>	<b>Ecosystem/Researchable Topics</b>	<b>Time frame</b>	<b>Budget (Philippine Peso)</b>
<b>BIODIVERSITY</b> Monitoring changes, organism audit, trophic structure and energy flow	a) species composition and abundance b) population genetics c) gut content and isotope analysis d) productivity studies e) database management	long term (40 years)	100 M
<b>IMPACT ASSESMENT</b> 1. Ecosystem vulnerability/susceptibility analysis of habitats, baseline and monitoring studies  habitat modification  mitigating and rehabilitation measures  2. Human biology  3. Industry (fisheries)	a) identification of keystone/sentinel species b) dose-responses, lethal dose, and/or toxicity studies c) manipulative experiments  sand/substrate removal  effects of physical clean-up, detergents, dispersants, absorbent materials vs. “no touch approach”  a) human health b) livelihood aspects  a) effect on fishing gear efficiency b) effect on harvest c) water quality studies	immediate to long term  long term  immediate to long term  1 year  long term long term	10 M  5 M  5M  1M  15 M
<b>ECOSYSTEM</b> habitat interaction spatial and temporal scales	a) recruitment b) nursery function – larval flux studies c) dynamics of energy flow	1 – 5 years	5 M
<b>PHYSIOLOGICAL AND EPIDEMIOLOGICAL STUDIES</b>	a) reproductive capacity, viability of seeds b) morphological and developmental abnormalities c) animal diseases d) mutagenicities, genetic variation e) bioaccumulation	long term (species-specific)  short to long term  long term long term short to long	25 M

B. Physico-Chemical and Microbiological Aspects

<b>Concern</b>	<b>Ecosystem/Researchable Topics</b>	<b>Priority/Time frame/ Budget (Phil. Peso)</b>	<b>Implementing Agency/ Lead Person</b>
<b>BIOREMEDIATION</b>	<p>biostimulation studies in rocks and beaches</p> <p>microbial interaction studies, laboratory, field and on-site product testing and evaluation</p> <p>assessment of microbial flora</p>	1 / 1 year / 1 M	<p>Cebu biostimulation initiative/Dr. D. Largo</p> <p>UPV, UP-NSRI, Coast Guard/ Dr. R. Sadaba, Dr. A. Siringan</p> <p>SEAFDEC-AQD/Dr. G Lio-Po</p>
<b>PHYSICAL/CHEMICAL ANALYSES</b>	<p>hydrocarbon characterization in aquifer, rocky intertidal, sandy beaches, mangroves</p> <p>before and after analyses of water, sediments and soil</p>	1 / 1 year/ 1 M	UPV, SEAFDEC-AQD, Phil. Coast Guard, UP-NSRI/ Prof. I. Pahila, Dr. Santiago (?)
<b>LABORATORY ASSAYS</b>	toxicity testing of oil and dispersants on organisms	2 / 1 year / 3 M	UP-MSI, Phil. Coast Guard, UPV, SEAFDEC - AQD / Dr. N. Montaña
<b>PRESENCE OF OIL</b>	<p>containment, physical removal and recovery of oil on offshore, inshore and on land</p> <p>boom design, testing for sorbent materials</p> <p>chemical removal</p> <p>post removal treatment of oil – composting, fuel bricks</p>	<p>1 / months / 1 M</p> <p>2 / months / 1 M</p> <p>1 / - / -</p>	<p>Phil. Coast Guard, UPV/ Mr. E. Feranculo, Prof. N. Yunque</p> <p>Phil. Coast Guard</p> <p>Petron (?)</p>
<b>AFFECTED AREAS</b>	<p>circulation studies, calibration of spreading rates, etc</p> <p>spatial analysis</p>	<p>2 / 1 year / 0.5 M</p> <p>2 / 1 year / 1 M</p>	<p>UP-MSI/ Dr. C. Villanoy</p> <p>WWF, UPV, UP-MSI / Ms. A. Dumaop, Mr. A. Moscoso</p>
<b>FOOD SAFETY</b>	levels of heavy metals, PAH, BTEX	2 / 1 year / 1 M	SEAFDEC-AQD, UPV, UPD-IC / Dr. E Yap, Dr. L. Co, Dr. I Borlongan
<b>PUBLIC AWARENESS</b>	information and education campaign – pamphlets, webpage, print and broadcast media	2 / UPV / 0.25 M	UPV/ Ms. O Villaruel, Office of the Chancellor
<b>DATA BASE MANAGEMENT</b>		1 / - / 0.5 M	UPV, UP-MSI / Dr. G. Aguilar, Dr. C. Villanoy

