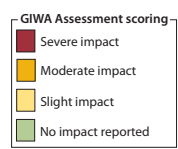


THE GIWA LME MATRIX



LME	FISHERIES				POLLUTION				HABITAT			
	Overexploitation Excessive by-catch and discards Destructive fishing practices	Economic impacts Health impacts Other social and community impacts	Environmental impacts	Economic impacts Health impacts Other social and community impacts	Environmental impacts	Economic impacts Health impacts Other social and community impacts	Environmental impacts	Economic impacts Health impacts Other social and community impacts				
4 Gulf of California LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
5 Gulf of Mexico LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
11 Pacific Central-American Coastal LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
12 Caribbean Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
13 Humboldt Current LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
14 Patagonian Shelf LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
15 South Brazil Shelf LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
16 East Brazil Shelf LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
17 North Brazil Shelf LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
20 Barents Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
23 Baltic Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
27 Canary Current LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
28 Guinea Current LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
29 Benguela Current LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
30 Agulhas Current LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
31 Somali Coastal Current LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
32 Arabian Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
33 Red Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
34 Bay of Bengal LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
35 Gulf of Thailand LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
36 South China Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
37 Sulu-Celebes Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
38 Indonesian Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
47 East China Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
48 Yellow Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
50 Sea of Japan LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
51 Oyashio Current LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
52 Sea of Okhotsk LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
54 Chukchi Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
56 East Siberian Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
57 Laptev Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
58 Kara Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
62 Black Sea LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				
64 Arctic Ocean LME	Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe				

Some of the GIWA regions include one or more LMEs within their boundaries. However, the numbering system used by GIWA is different to that used for LMEs. Where the GIWA considered several sub-systems within an LME, an adjusted score of the sub-systems was applied at the LME scale. Therefore the scores presented in this matrix do not always correspond with the GIWA regional scores.

The GIWA findings for the concerns of Overfishing and other threats to aquatic living resources, Pollution and Habitat and community modification as well as information from other sources, were arranged into the five LME modules.

Annex IV: Matrix of GIWA concerns

THE GIWA SCORING MATRIX BY MEGA REGION

	FRESHWATER SHORTAGE				POLLUTION				OVERFISHING				HABITAT MODIFICATION				GLOBAL CHANGE																	
	ISSUES	IMPACTS	ISSUES	IMPACTS	ISSUES	IMPACTS	ISSUES	IMPACTS	ISSUES	IMPACTS	ISSUES	IMPACTS	ISSUES	IMPACTS	ISSUES	IMPACTS																		
	Modification of stream flow	Pollution of existing supplies	Changes in the water table	Environmental Health	Other social and community	Suspended solids	Eutrophication	Microbiological	Solid wastes	Chemical Spills	Radionuclides	Thermal	Environmental Health	Other social and community	Overexploitation	Excessive by-catch and discards	Destructive fishing practices	Decreased viability of stock	Impact on biological and genetic diversity	Environmental Health	Other social and community	Modification of ecosystems	Loss of ecosystems	Environmental Health	Other social and community	Changes in the hydrological cycle	Sea level change	Increased UV-B radiation	Changes in ocean CO ₂ source/sink function	Environmental Health	Other social and community			
	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL	OVERALL			
Arctic rim	1a Russian Arctic																																	
	1b Arctic Greenland																																	
	11 Barents Sea																																	
	13 Faroe plateau																																	
	15 East Greenland Shelf																																	
	16 West Greenland Shelf																																	
Europe & Central Asia	28a Bering Sea (West Bering Sea)																																	
	28b Bering Sea (East Bering Sea)																																	
	17 Baltic Sea																																	
	22 Black Sea																																	
Central America	23 Caspian Sea																																	
	24 Aral Sea																																	
	2a Gulf of Mexico (Mississippi River)																																	
	2b Gulf of Mexico (Rio Grande/Rio Bravo)																																	
	2c Gulf of Mexico (Usumacinta/Grijalva)																																	
	2d Gulf of Mexico (Rio Hondo/Chetumal Bay)																																	
	3a Caribbean Sea (Small Islands)																																	
	3b Caribbean Sea (Orinoco/Magdalena/Catatumbo)																																	
	3c Caribbean Sea (Central America/Mexico)																																	
	4 Caribbean Islands																																	
South America	27 Gulf of California																																	
	65a Eastern Equatorial Pacific (Southwest Mexico)																																	
	65b Eastern Equatorial Pacific (Central Equatorial Pacific)																																	
	65c Eastern Equatorial Pacific (Pacific Colombian)																																	
	38a Patagonian Shelf (La Plata River Basin)																																	
	38b Patagonian Shelf (South Atlantic Drainage Basin)																																	
	39a Brazil Current (South/Southeast Atlantic Basins)																																	
	39b Brazil Current (East Atlantic Basins)																																	
	39c Brazil Current (São Francisco River Basin)																																	
	40a Northeast Brazil Shelf																																	
Sub-Saharan Africa	40b Amazon																																	
	64 Humboldt Current																																	
	41a Canary Current (North)																																	
	41b Canary Current (South)																																	
	42a Guinea Current (Comoe Basin)																																	
	42b Guinea Current (Volta Basin)																																	
	42c Guinea Current (Niger Basin)																																	
	42d Guinea Current (Congo Basin)																																	
	42e Guinea Current LME																																	
	43 Lake Chad																																	
	44 Benguela Current																																	
	45b Indian Ocean Islands																																	
	46a Somali Coastal Current (Juba/Shebelle)																																	
	46b Somali Coastal Current (Tana/Athi/Sabaki)																																	
	46c Somali Coastal Current (Wami/Ruvu/Pangani)																																	
	46d Somali Coastal Current (Rufiji/Ruvuma)																																	
46e Somali Coastal Current (Lake Jipe/Chala)																																		
47a East African Rift Valley Lakes (Lake Turkana)																																		
47b East African Rift Valley Lakes (Lake Victoria)																																		
47c East African Rift Valley Lakes (Lake Tanganyika)																																		
47d East African Rift Valley Lakes (Lake Malawi)																																		
North Africa & Middle East	51 Jordan																																	
	Northeast Asia	30 Sea of Okhotsk																																
		31 Oyashio Current																																
		33 Sea of Japan																																
		34a Yellow Sea (Yellow Sea)																																
		34b Yellow Sea (Bohai Sea)																																
36 East China Sea																																		
Southeast Asia	53 Bay of Bengal																																	
	54 South China Sea																																	
	55 Mekong River																																	
	56 Sulu-Celebes Sea																																	
	57a Indonesian Seas (Sunda)																																	
	57b Indonesian Seas (Wallacea)																																	
Australia & Pacific Islands	57c Indonesian Seas (Sahul)																																	
	58a North Australian Shelf (Wet Tropics)																																	
	58b North Australian Shelf (Dry Tropics)																																	
	59a Coral Sea Basin (South PNG and Papua)																																	
	59b Coral Sea Basin (Coral Sea)																																	
	60 Great Barrier Reef																																	
	61a Great Australian Bight																																	
61b Great Australian Bight (Murray Darling Basin)																																		
62 Pacific Islands																																		
63 Tasman Sea																																		

GIWA Assessment scoring

- Severe impact
- Moderate impact
- Slight impact
- No impact reported

Likely direction of future changes for Environmental impact

- Increased impact
- No changes
- Decreased impact

FOR INFORMATION ON THE GIWA METHODOLOGY AND CRITERIA SEE ANNEX II.



The Global International Waters Assessment (GIWA) is a holistic, globally comparable assessment of the world's transboundary waters that recognises the inextricable links between the freshwater and the coastal marine environment and integrates environmental and socio-economic information to determine the impacts of a broad range of influences on the world's aquatic environment.

BROAD TRANSBOUNDARY APPROACH

GIWA recognises that many water bodies and resources, and the human impacts on them are not confined to a single country.

REGIONAL ASSESSMENT – GLOBAL PERSPECTIVE

GIWA provides a global perspective of the world's transboundary waters by assessing regions that encompass major drainage basins and adjacent Large Marine Ecosystems.

The GIWA Assessment incorporates information and multidisciplinary expertise from all countries sharing the transboundary water resources of each region.

GLOBAL COMPARABILITY

In each region, the assessment focuses on five major concerns that are comprised of 22 specific water-related issues.

INTEGRATION OF INFORMATION AND ECOSYSTEMS

GIWA recognises the inextricable links between the freshwater and the coastal marine environment and assesses them together as one integrated unit.

GIWA recognises that the integration of socio-economic and environmental information and expertise is essential in order to obtain a holistic understanding of the interactions between the environmental and societal aspects of transboundary waters.

PRIORITIES, ROOT CAUSES AND OPTIONS FOR THE FUTURE

GIWA identifies the priority concerns of each region, determines their societal root causes and discusses options to mitigate the impact of those concerns in the future.

THIS REPORT

The GIWA Final Report provides a comprehensive review of the most important findings from the GIWA regional reports. It summarises the major transboundary concerns and their environmental and socio-economic impacts. To better understand these concerns and develop solutions to address them, the Report identifies the root causes and draws policy relevant conclusions. It also outlines knowledge gaps which impede the sustainable management of international waters.