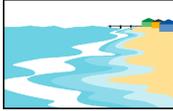


Ocean Water Use Support Assessment



Gulf of Mexico



Ocean Water Use Support Assessment

Offshore coastal waters include those from the Gulf shoreline to the limit of Texas' jurisdiction between Sabine Pass on the north to Brazos Santiago Pass on the south. The long reach of coastal water is designated as Segment 2501 in the TSWQS. Monitoring in the Gulf is limited and generally restricted to dredged boating and shipping channels near the ends of jetties close to major port cities. This monitoring yields data that is reflective of nearshore water, rather than the deeper offshore Gulf waters.

For the 2002 report, the entire 3,879 mi² of the Gulf was surveyed and at least one designated use was assessed (Figure 11-1). The issuance of a no-consumption advisory by the TDH due to elevated mercury concentrations in large king mackerel for the entire Gulf results in total impairment of overall uses (Figure 11-2). Other fish species, crabs, shrimp, oysters and other marine organisms are not included in the advisory.

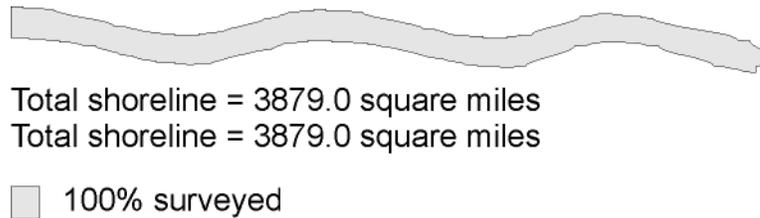


Figure 11-1. Ocean Square Miles Surveyed

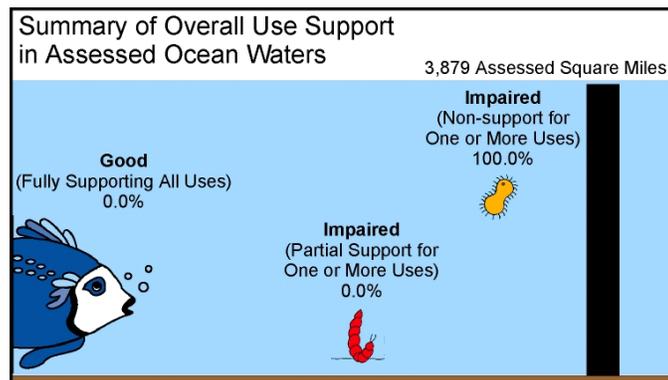
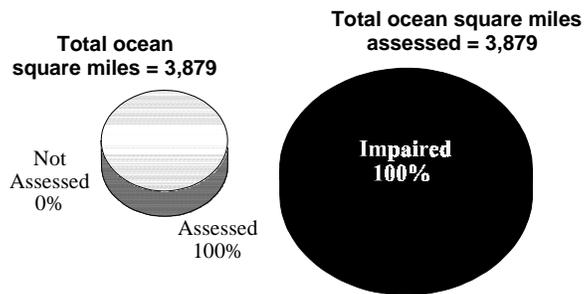
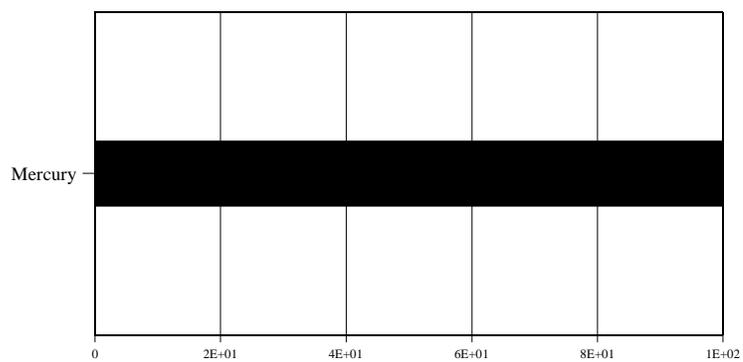


Figure 11-2. Summary of Overall Use Support in Assessed Ocean Waters

Figure 11-3 identifies the causes and sources of pollutants that impair (i.e., prevent from fully supporting designated uses) ocean waters. Elevated mercury concentrations in fish tissue was the major cause for overall



Causes Found in the Gulf of Mexico



Sources Found in the Gulf of Mexico

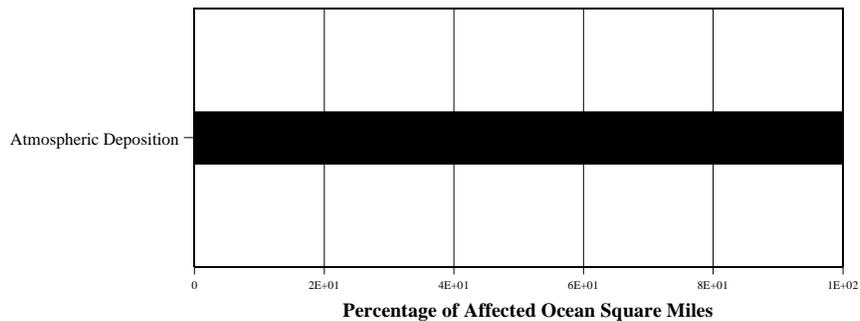


Figure 11-3. Causes and Sources of Impaired Ocean Square Miles

impairment of designated uses in the Gulf. The source of the elevated mercury concentrations originate from atmospheric deposition.

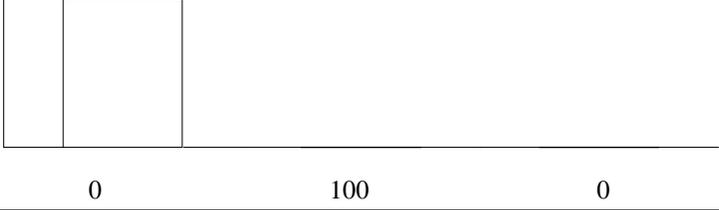
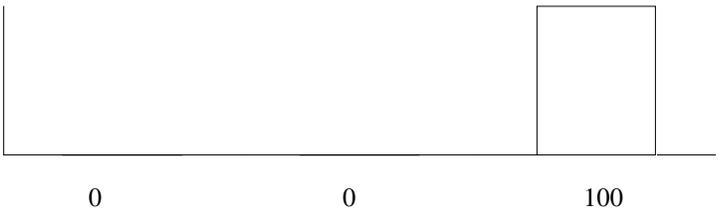
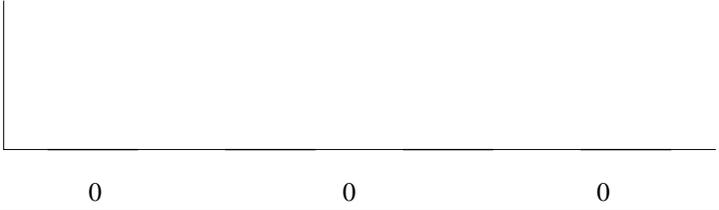
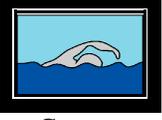
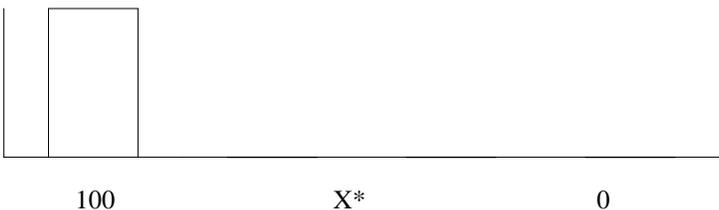
Use Support Summary

Individual use support information provides additional detail about water quality problems in the Gulf. Of the 3,879 mi² surveyed, sufficient data were available to provide full assessment for only the fish consumption use (Table 11-1). The fish consumption use was not supported throughout the Gulf due to issuance in June 1997 by the TDH of a consumption advisory for mercury in King mackerel. The advisory suggests that king mackerel longer than 43 inches in total length should not be consumed by anyone due to elevated mercury concentrations in edible tissue. The aquatic life was assessed in 1,438.6 mi² (37.1% of surveyed mi²); contact recreation in 1,865.6 mi² (48.1%), and general uses in 1,438.6 mi² (37.1%). In these assessed areas all the designated uses were fully supported. The oyster waters use was not assessed due to insufficient data. Instantaneous dissolved oxygen measurements, compared to the absolute minimum criterion, was the only indicator used to assess support of the aquatic life use (Table 11-2).

Secondary Concerns Summary

Of the 3,879 mi² of Gulf water, about 1,180 mi² (about 30% of surveyed mi²) were assessed for elevated nutrient and chlorophyll *a* concentrations (Table 11-3). Of the approximate 1,180 mi² that were assessed, no concerns were identified for ammonia nitrogen, nitrite plus nitrogen, orthophosphorus, total phosphorus, or chlorophyll *a*. Fish tissue and sediment concerns were not identified due to lack of data (Table 11-4). Narrative concerns were not identified in all 3,879 mi² assessed.

Table 11-1. Individual Overall Use Support in Ocean Waters - 2002

Designated Use	Sq. Miles Surveyed	Sq. Miles Assessed	Percent of Sq. Miles Assessed	Percent of Assessed Square Miles			
				Good (Fully supporting)	Fair (Partially Supporting)	Poor (Not Supporting)	
 Aquatic Life Support	3,879.00	1,438.60	37.09		0	100	0
 Fish Consumption	3,879.00	3,879.00	100.00		0	0	100
 Oyster Waters	3,879.00	0.00	0.00		0	0	0
 Contact Recreation	3,879.00	1,865.60	48.10		100	X*	0
 General Uses	3,879.00	1,438.60	37.09		100	0	0

* Category not applicable
 X* - Category not applicable

Table 11-2. Individual Indicators For Assessment of Aquatic Life, Fish Consumption, and General Use Support in Ocean Waters

Designated Use	Sq. Miles Surveyed	Sq. Miles Assessed	Percent of Sq. Miles Assessed	Percent of Assessed Sq. Miles		
				Good (Fully supporting)	Fair (Partially Supporting)	Poor (Not Supporting)
 Aquatic Life Support						
Instantaneous Dissolved Oxygen - min	3,879.00	1,438.60	37.09	100	0	0
24-hour Dissolved Oxygen	3,879.00	0.00	0.00	0	0	0
Metals in Water	3,879.00	0.00	0.00	0	0	0
Organics Substances in Water	3,879.00	0.00	0.00	0	0	0
Water Toxicity	3,879.00	0.00	0.00	0	0	0
Sediment Toxicity	3,879.00	0.00	0.00	0	0	0
Macrobenthos Community	3,879.00	0.00	0.00	0	0	0
Fish Community	3,879.00	0.00	0.00	0	0	0

Table 11-2. Individual Indicators for Assessment of Aquatic Life, Fish Consumption, and General Use Support in Ocean Waters (Continued)

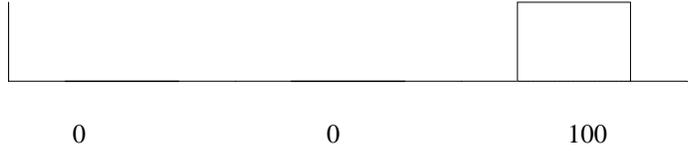
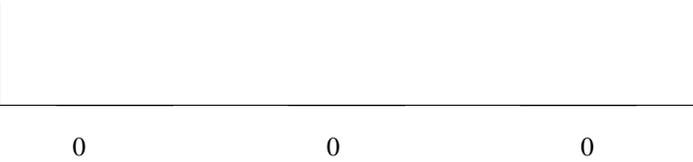
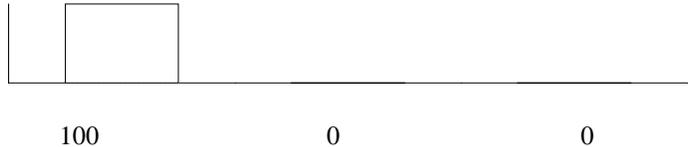
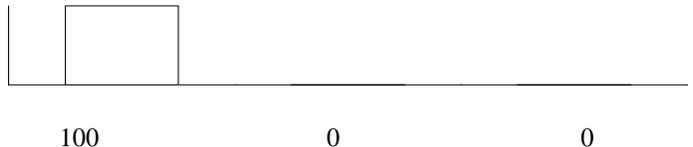
Designated Use	Sq. Miles Surveyed	Sq. Miles Assessed	Percent of Sq. Miles Assessed	Percent of Assessed Sq. Miles		
				Good (Fully supporting)	Fair (Partially Supporting)	Poor (Not Supporting)
 Fish Consumption						
Advisories / Closures	3,879.00	3,879.00	100.00			
Human Health Criteria	3,879.00	0.00	0.00			
 General Uses						
Water Temperature	3,879.00	1,438.60	37.09			
pH	3,879.00	1,438.60	37.09			

Table 11-3. Individual Nutrient and Chlorophyll *a* Concerns in Ocean Waters

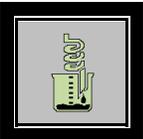
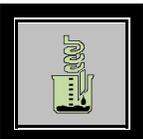
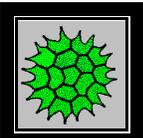
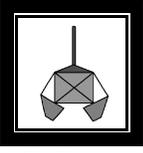
Concern parameter	Sq. Miles Surveyed	Sq. Miles Assessed	Percent of Sq. Miles Assessed	Percent of Assessed Square Miles	
				No Concern	Concern
 Ammonia	3,879.00	1,183.60	30.51	100	0
 Nitrate + Nitrite	3,879.00	1,183.60	30.51	100	0
 Orthophosphorus	3,879.00	756.60	19.51	100	0
 Total Phosphorus	3,879.00	1,183.60	30.51	100	0
 Chlorophyll <i>a</i>	3,879.00	1,183.60	30.51	100	0

Table 11-4. Overall Concerns for Fish Tissue Contaminants, Sediment Contaminants, and Narrative Criteria in Ocean Waters - 2002

Concern parameter	Sq. Miles Surveyed	Sq. Miles Assessed	Percent of Sq. Miles Assessed	Percent of Assessed Square Miles	
				No Concern	Concern
 Fish Tissue Contaminant	3,879	0	0.00	0	0
 Sediment Contaminant	3,879	0	0.00	0	0
 Narrative Criteria	3,879	3,879	100.00	100	0