ANNEX 1

FORMS USED IN ENVIRONMENTAL RISK AND RESPONSE BENEFIT ASSESSMENT

Form 1: Rapid Assessment Form

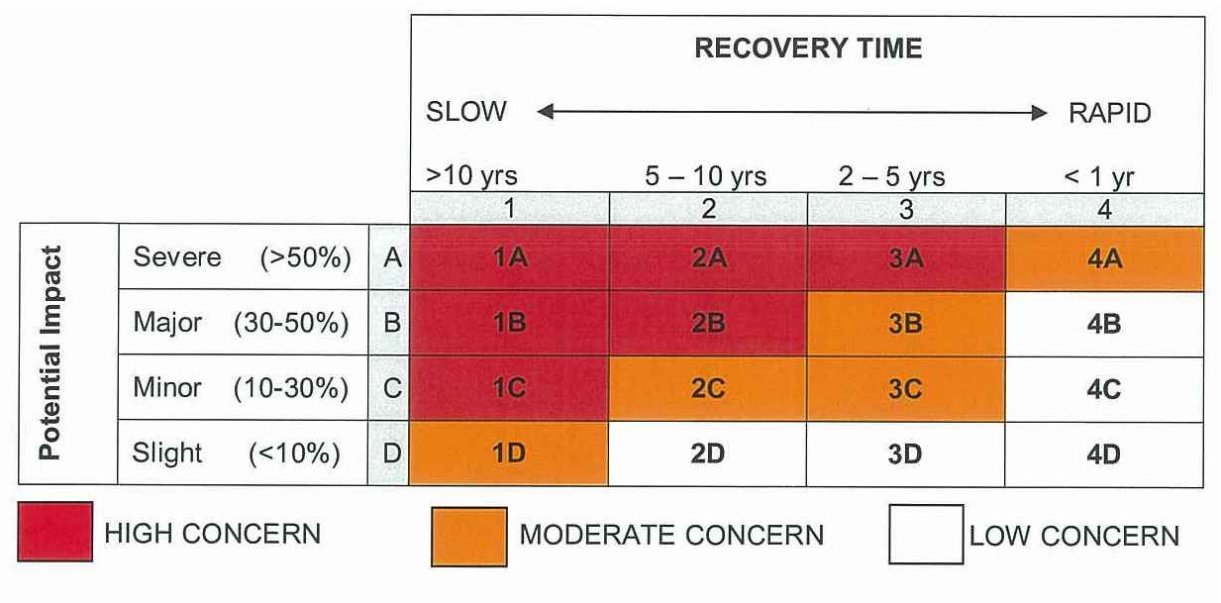
Resources Present	Site /Environmental Compartment							
SITE NAME								
MAIN SHORELINE TYPE								
SURROUNDING USE								
ECOLOGICAL								
Corals								
Mangroves								
Salt-marsh								
Seagrass								
Seaweed								
Shellfish								
Fish spawning								
Spawning - other								
Shore birds								
Birds on Water								
Swimming/diving birds								
Seals/Sea lions								
Whales/dolphins								
Other								
SOCIAL/CULTURAL								
Food gathering								
Cultural significance								
Archaelogical site								
High aesthetic value								
Protected area*								
Recreational value								
Other								
ECONOMIC								
Aquaculture								
Marina								
Fishery - Fish								
Fishery- Other (eg. Lobster								
Infrastructure								
Other								

SHORELINE TYPES:

1. Exposed Rocky Shores
2. Exposed Wave-Cut Platform
3. Fine-to-Medium-Grained Sand Beach
4. Coase-Grained Sand Beach
5. Mixed Sand and Gravel Beach
6. Gravel Beach
7. Riprap
8. Exposed Tidal Flat
9. Sheltered Rocky Shore
10. Sheltered Rocky Rubble Slopes
11. Sheltered Tidal Flat
12. Salt-Marsh

SURROUNDING USE: Nat = Natural, Ag = Agricultural, Com = Commercial, Res = Residential, Rec = Recreation

Form 2: Impact Assessment Matrix



Form 3: Response Benefit Assessment Form

Site:								
RESPONSE OPTIONS	*Natural Recovery*							
ECOLOGICAL								
Corals								
Mangroves								
Salt-marsh								
Seagrass								
Seaweed								
Shellfish								
Fish spawning								
Spawning - other								
Shore birds								
Birds on Water								
Swimming/diving birds								
Seals/Sea lions								
Whales/dolphins								
Other								
SOCIAL/CULTURAL								
Food gathering								
Cultural significance								
Archaelogical site								
High aesthetic value								
Protected area*								
Recreational value								
Other								
ECONOMIC								
Aquaculture								
Marina								
Fishery - Fish								
Fishery- Other (eg. Lobster								
Infrastructure								
Other								

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ANNEX 2

EXAMPLE OF ENVIRONMENTAL RISK AND RESPONSE BENEFIT ASSESSMENT

1 A spill of heavy fuel oil is predicted to impact on an area of coastline (Figure 1) approximately 5 kilometres long (anywhere from Rocky Point to the Fable Town Industrial Zone). The oil is not suitable for chemical dispersion and sea conditions are currently preventing the booming and collection of the oil from the sea surface. Approximately 500 metres of boom are available for deployment, prior to the oil reaching the shoreline. Based on environmental risk, which area should be prioritized for protection?

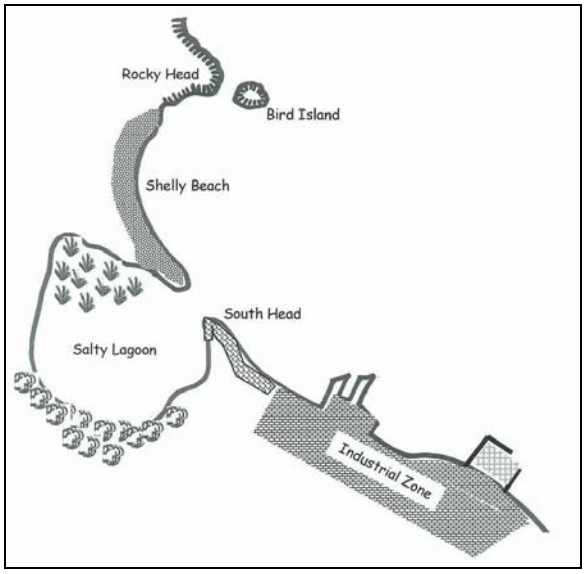

Figure 1: Sketch map of fable town spill impact zone.

Step 1 – Site identification

2 The potential impact area includes a range of shoreline and habitat types, and these have been used as the basis for identifying sites.

Resources Present	Site /Environmental Compartment							
SITE NAME	*Rocky Point*	*Bird Island*	*Shelly Beach*	*Salty Lagoon*	*South Head*	*Fable Town*		
MAIN SHORELINE TYPE	*1*	*1*	*3*	*11/12*	*7*	*7*		
SURROUNDING USE	*Ag*	*Nat*	*Nat*	*Ag*	*Res*	*Com*		
ECOLOGICAL								
Corals								
Mangroves								
Salt-marsh								
Seagrass								
Seaweed								
Shellfish								

Step 2 – Resource identification

3 Using the list on the left hand side of the form as a guide, a tick has been placed against those resources that are significant at each of the sites.

Resources Present	Site /Environmental Compartment							
SITE NAME	*Rocky Point*	*Bird Island*	*Shelly Beach*	*Salty Lagoon*	*South Head*	*industrial zone*		
MAIN SHORELINE TYPE	*1*	*1*	*3*	*11/12*	*7*	*7*		
SURROUNDING USE	*Ag*	*Nat*	*Nat*	*Ag*	*Res*	*Com*		
ECOLOGICAL								
Corals								
Mangroves				✓				
Salt-marsh								
Seagrass				✓				
Seaweed	✓	✓						
Shellfish	✓	✓	✓	✓				
Fish spawning								
Spawning - other								
Shore birds			✓	✓				
Birds on Water				✓	✓	✓		
Swimming/diving birds	✓	✓			✓	✓		
Seals/Sea lions	✓	✓	✓					
Whales/dolphins								
Other - ***Crayfish***	✓	✓						
SOCIAL/CULTURAL								
Food gathering/fishing				✓	✓			
Cultural significance		✓						
Archaelogical site								
High aesthetic value								
Protected area*		✓						
Recreational value			✓					
Other								
ECONOMIC								
Aquaculture					✓			
Marina						✓		
Fishery - Fish								
Fishery- Other (eg. Lobster								
Infrastructure – ***Wharf***						✓		
Other								

Step 3 – Assess level of concern

4 Using the Impact Assessment Matrix, the level of concern has been completed for each of the sites and resources. The site posing the greatest level of environmental concern can now be clearly identified.

Resources Present	Site /Environmental Compartment							
SITE NAME	*Rocky Point*	*Bird Island*	*Shelly Beach*	*Salty Lagoon*	*South Head*	*industrial zone*		
MAIN SHORELINE TYPE	*1*	*1*	*3*	*11/12*	*7*	*7*		
SURROUNDING USE	*Ag*	*Nat*	*Nat*	*Ag*	*Res*	*Com*		
ECOLOGICAL								
Mangroves				*1C*				
Seagrass				*2C*				
Seaweed	*4D*	*4D*						
Shellfish	*4B*	*4B*	*4B*	*3B*				
Shore birds			*2C*	*2B*				
Birds on Water				*2B*	*3C*	*4D*		
Swimming/diving birds	*3C*	*3C*			*4C*	*4C*		
Seals/Sea lions	*3D*	*3D*	*3D*					
Other - ***Crayfish***	*2D*	*2D*						
SOCIAL/CULTURAL								
Food gathering/fishing				*3C*	*3C*			
Cultural significance		*4C*						
Protected area*		*4D*						
Recreational value			*4A*					
ECONOMIC								
Aquaculture					*4B*			
Marina						*4A*		
Infrastructure – ***Wharf***						*4C*		

5 From the outcome of this assessment the environmental risk would suggest putting the booming resources into preventing oil from entering Salty Lagoon.

Step 4 – Response benefit assessment

6 For each site (Salty Lagoon is shown for the purposes of this example, the booming attempt having unfortunately been unsuccessful), assess the potential impact and likely recovery time for each of the response options being considered to allow the relative impacts of each option to be compared. In this case it can be seen that the option offering the greatest environmental benefit for Salty Lagoon is low-pressure flushing, followed by manual removal of the oil by hand.

Form 3: Response Benefit Assessment Form

SALTY LAGOON								
RESPONSE OPTIONS	*Natural Recovery*	*Mechanical Removal (machinery)*	*Maunal Removal (hand cleaning)*	*Low-Pressure Flushing*	*High-Pressure Water Cleaning*	*Chemical Shore Cleaners*		
ECOLOGICAL								
Mangroves	*1C*	*1A*	*2D*	*3D*	*1B*	*1D*		
Seagrass - ***Intertidal***	*2C*	*2A*	*3D*	*3D*	*2B*	*2B*		
Seaweed								
Shellfish - ***Intertidal***	*3B*	*3A*	*4C*	*4C*	*2B*	*3A*		
Shore birds	*2B*	*4D*	*4D*	*4D*	*4D*	*3D*		
Birds on Water	*2B*	*4D*	*4D*	*4D*	*4D*	*4D*		
Swimming/diving birds								
Seals/Sea lions								
Other - ***Crayfish***								
SOCIAL/CULTURAL								
Food gathering/fishing	*3C*	*4B*	*4B*	*4B*	*2B*	*4B*		
Cultural significance								
Protected area*								
Recreational value								
ECONOMIC								
Aquaculture								
Marina								
Infrastructure – ***Wharf***								

Notes:
1. All shoreline flushing techniques assume immediate collection of waste oil from the water.
2. Potential for remobilisation of oil, penetration of oil into sediments, mechanical impacts from the response activities and reduced exposure time have been taken into account when assessing each response option.