

National Contingency Planning and IMO Workshops in the Caribbean Region

Authors and Acknowledgements

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Introduction

- IMO-REMPEITC Centre mandate to promote a harmonized approach to combating marine environmental pollution through training, workshops, and technical assistance.
- Workshops for countries developing National Contingency Plans for Oil Spill Response in the region.
- Combined OPRC (IMO) Model Course for oil spill response followed by workshop exercise using a modified ERA approach

Workshop Objectives

- build a local oil spill response strategy based on a probable and significant spill scenario for the country;
- develop and train a local oil spill response committee on contingency planning involving all stakeholders touched directly or indirectly by the oil spill scenario;
- develop support agency cooperation at the local level and improve links between all stakeholders, including industries, NGOs and governmental institutions;
- heighten awareness for authorities regarding the ratification and implementation of regional and international conventions.

Workshop Objectives

- introduce the process for developing national contingency plan development, including the development of guidelines for local and sub-national plans;
- provide stakeholders with the opportunity to evaluate the benefits, limitations, and drawbacks of spill response strategies such as dispersant use, in-situ burning and mechanical response;
- provide guidance to the lead agency and the national oil spill response committee in order to finish the drafting of the National Oil Spill Contingency Plan in a regionally harmonized form to facilitate future cooperation

Objective of Response Contingency Plans

Minimize adverse effects of a spill

Goals in Plan

- Provide emergency procedures
- Provide response organization
- Identify risks and resources at threat
- Identify countermeasures and tools
- Meet regulatory and policy requirements

Course:

- Common understanding
- Background in response
- References to existing/ draft plans
- Local equipment



IMO OPRC Introductory Course for the Response to Marine Oil Spills BELIZE



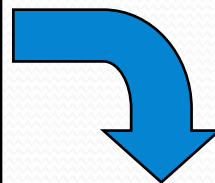
Day 1: January 27, 2009

<u>Module</u>	<u>Subject</u>	<u>Time</u>	<u>Instructor</u>
01	Course Introduction	0800	J. Ramos
02	Background Knowledge	0820	E. Taylor
03	International Contingency Planning Arrangements	0840	CCA
04	Oil Spill Properties, Fates & Effects	0910	E. Taylor
05	Health and Safety	0940	CCA
Break		1010	
06	Command Control & Communications	1040	J. Ramos/J. Hulse
07	Response Strategies:		CCA
	7.1 Monitoring and In-situ Burning	1110	
	7.2 Dispersants	1125	
	7.3 Containment and Recovery	1145	
	Video of Equipment in use	1200	
Lunch		1230	
08	Shoreline Cleanup	1400	E. Taylor
09	Storage and Disposal of Recovered Oil and Waste	1430	CCA
10	Sampling, Evidence Gathering, Liability and Cost recovery	1500	J. Ramos
Break		1530	
11	Media Management and Awareness	1600	E. Taylor
	Video of a Major Spill (ERIKA)	1630	
Q & A session with general discussion		1700	
End		1730	
IMO OPRC Model Training Course			Introductory Level .

ERA Workshop Process

FORMULATE PROBLEM

- Scenario(s)
- Habitat/Resources of Concern & Endpoints
- Stressors (Response) & Interaction with Resources



ANALYSIS

- Characterize Exposure
- Characterize Effects



RISK CHARACTERIZATION

- Estimated potential of effects
- Optimized response strategies

Workshop Activities

For a defined scenario – groups will determine

1. Fate and Behavior of Oil
2. Environmental and Human Resources at Risk (RARs)
3. Response Objectives and Options
4. Tactics Plan

Work Groups

Blend of Stakeholders and Participants:

- Government agencies (National, Provincial)
- Oil industry
- Transportation industry
- Emergency responders
- Communities
- Resource Managers
- Non-governmental organizations
- Local and international expertise

Team Leader- Spokesperson

Grupos de trabajos - Ejercicio

Alvaro Duarte – Aduanas
CF Roberto Chacon – Fuerza Naval
SO Arceno Sirias – Fuerza Naval
Elba Segura – INPESCA
Enrique Torres – DGTA
Norman Gutierrez – MARENA
Moises Barrera – EPN Corinto
Juan Icaza – Complejo Petrolero
Benjamin
Pablo Quitanilla – EPN Sandino

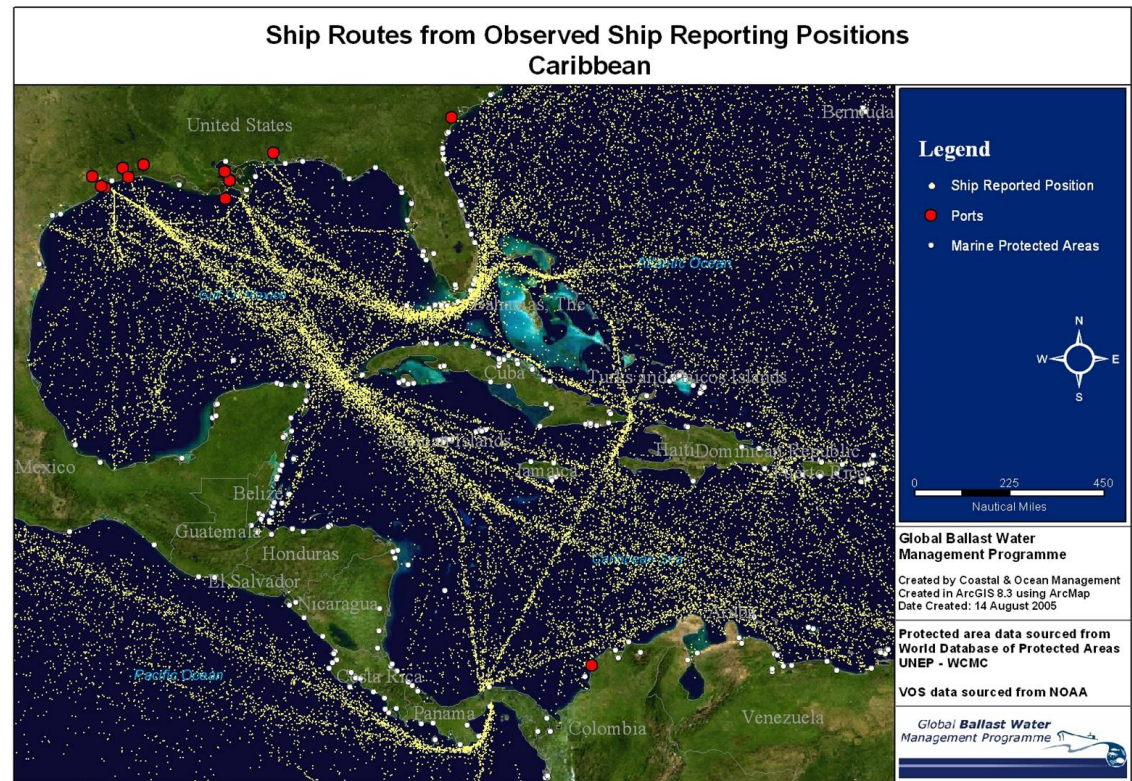
Ivan Agenal – EPC
CF Omar Diaz – Fuerza Naval
TN Horacia Reyes – Fuerza Naval
Onasis Delgado – INE
Freddy Granillo – DGTA Corinto
Yaniree Alvarez – MARENA Leon
Angel Perez – EPN Corinto
Carlos Huete – EPN Sandino
Jose Rodriguez – DGTA

CC Mario Brenes – Fuerza Naval
Aura Reyes – Empresa Energetica de Corinto
Ernesto Leon – Esso
Nelly Harding – INE
Pedro Rodriguez – DGTA Sandino
TC Nestor Solis – Defensa Civil
Francisco Mejia – EPN El Bluff
Ricardo Estrada – EPN Corinto
CeliaXiomara – UdeM

Setting the Stage

Spill Risks – sources and likelihood

- Locations
- Oil Types
- Volumes
- Frequencies
- Shipping
 - Cargo
 - Passengers
 - Fuels
 - Transfers

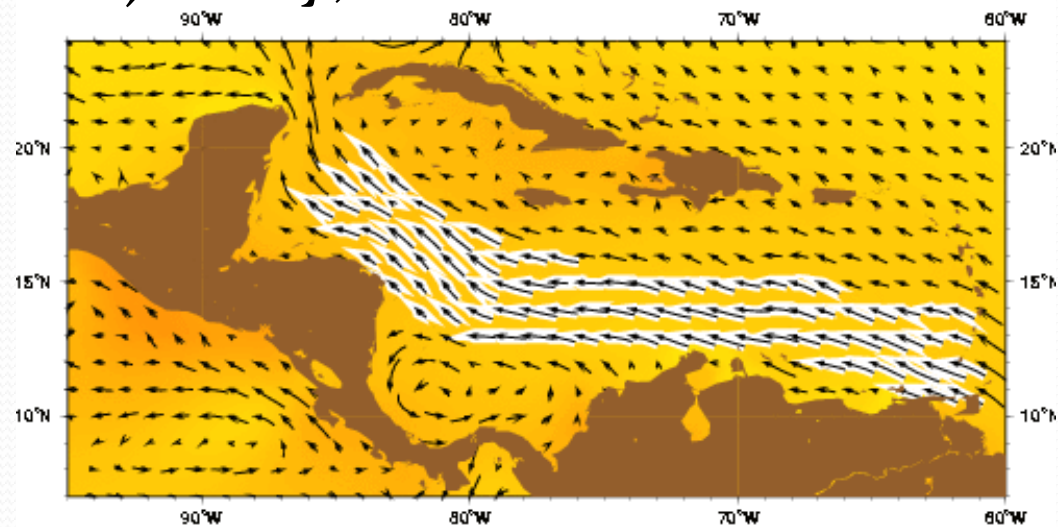


Scenario

Nature of the Spill:	Crude oil tanker en-route from Venezuela to Europe suffers onboard explosion and rupture to two tanks. Vessel holds position for assessment and offloading after stabilizing.
Vessel	T/V <i>Hugo</i> with total capacity of 120,000 barrels
Date or Time of Year:	16 Feb 2012
Time of Discharge (and Tidal Stage):	04:30 hrs
Location:	18° 26.4'N & 62° 46.6' W
Oil Type:	Medium Crude Oil (<i>Venezuela Maracaibo</i>)
Spill Size:	Release: 10,000+ barrels (instantaneous)
Weather:	Temp: 26 C (air); 21 C (water) Winds: from NW at 10 -15 knots Current: to West at 1.5 knots Forecast for next 24 hours: Winds will switch to out of SE overnight at 10 knots by 0700. Extended forecast for Day 3: Winds return from NW at 5 knots.

Activity 1 – Fate & Behavior

- Oil properties and expected fate
- Persistence and toxicity
- Weathering – mass balance
- Trajectories (surface; subsurface if dispersed)
- Forecasting (weather – trajectory)



ACTIVITY 1 ESTIMATE OIL FATE & BEHAVIOR

TEAM _____ TEAM LEADER: _____

DATE AND TIME: _____ ☐ LIST OF PARTICIPANTS IN TEAM ATTACHED

EXPERTISE (List personnel and/or agencies with expertise in fate & behavior modeling, dispersant use and modeling, and trajectory modeling. This will feed into NOSCP.)

TOOLS USED (OR REQUIRED) (eg., ADIOS2, Gnome, etc.) Note any that are already on hand, have been used before, and degree of familiarity.

INPUT DATA (Make sure group has identified information needed and where such information would be obtained at the time of an actual spill, which includes forecasting.)

Oil type and volume
Winds (0 – 72 hours)
Currents (0-72 hours)
Tidal Curves

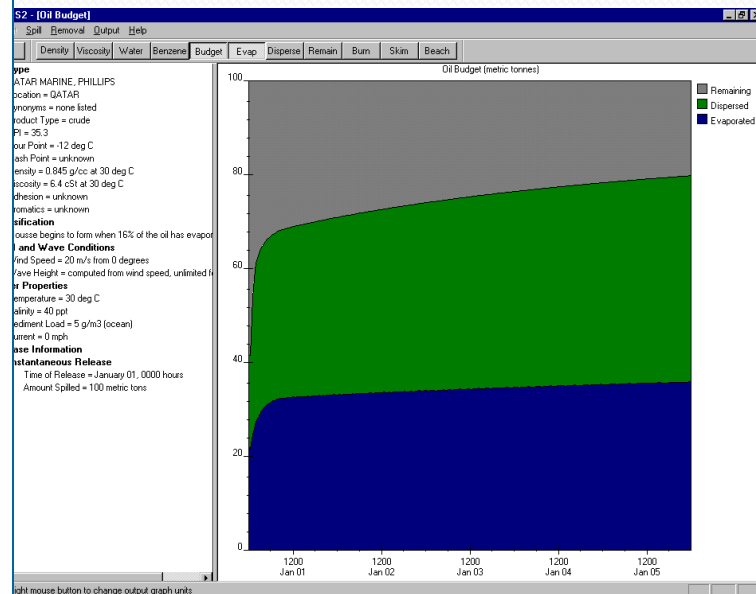
Air and Water Temperature

NOTE- Value of overflights and feedback loop

RESULTS

- ☐ Fate (Evaporation, Natural Dispersion, Emulsification, Viscosity, Benzene)
- ☐ Mass Balance Tables for 0 – 72 hours
- ☐ Record information on ICS 209
- ☐ Trajectory envelopes (6, 12, 24, 48, 72 hours)
- ☐ Estimated shoreline oiling (in absence of response strategies)

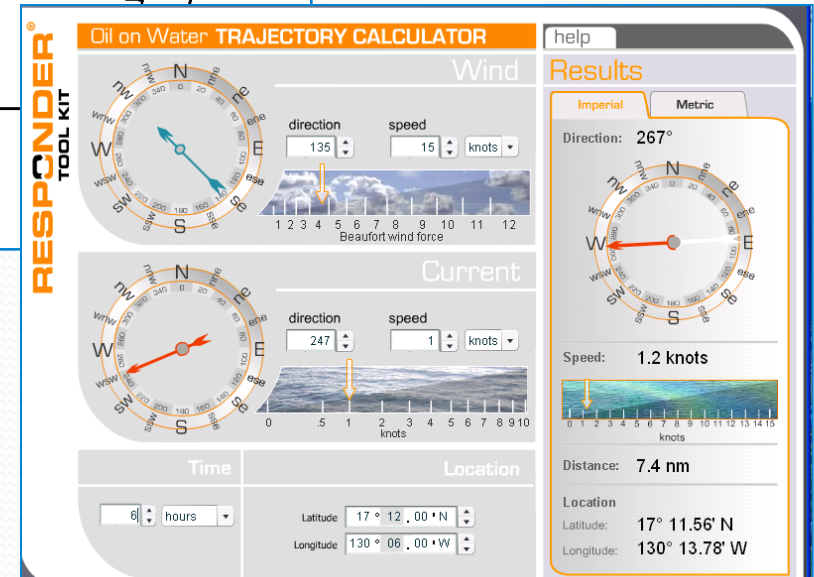
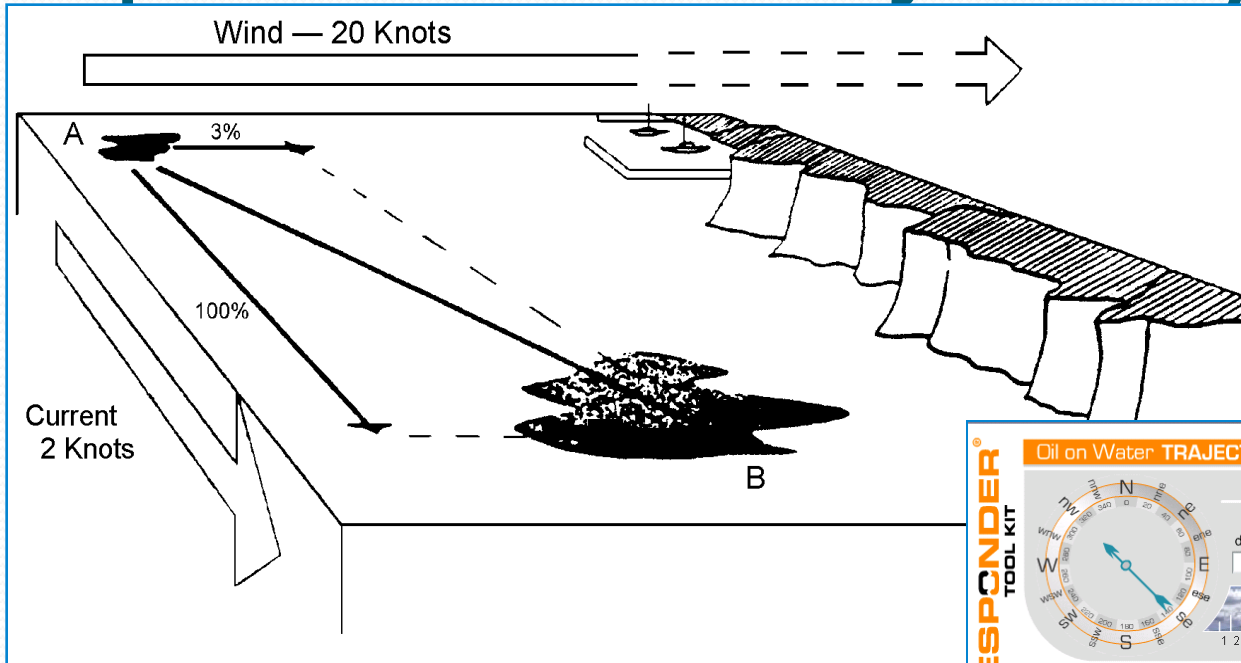
NOTES (continue on reverse if needed)



Oil Name = ECUADOR
API = 27.5 Pour Point = 5 deg C
Wind Speed = variable windsWave Height = 1 meters
Water temperature = 20 deg C
Time of Initial Release = January 13, 0900 hours
Total amount of Oil Released = 200 cu m

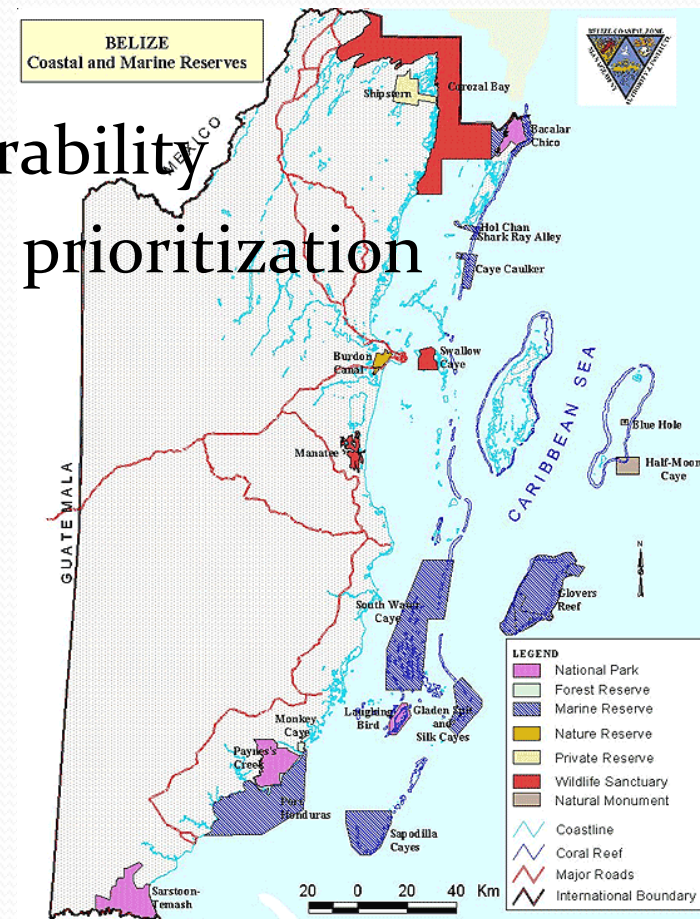
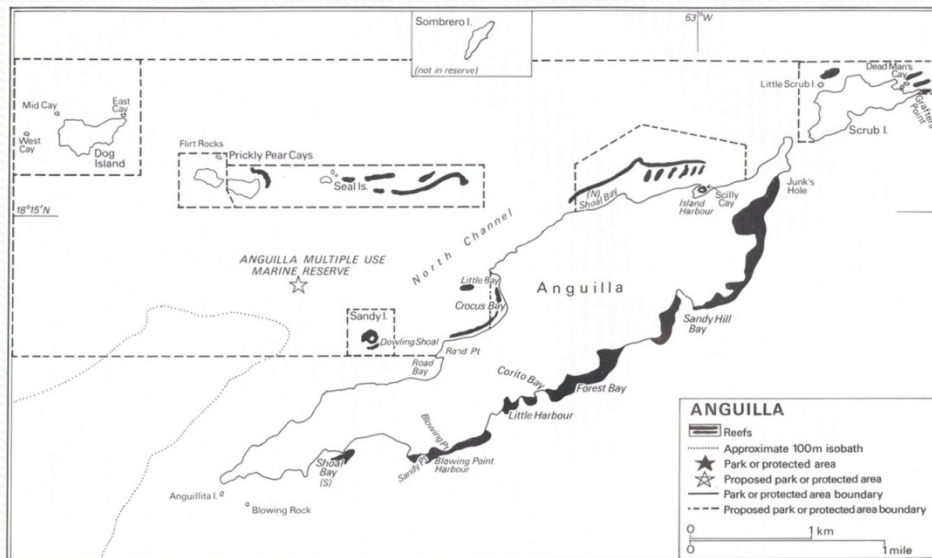
Date &Time	Released		Evaporated		Dispersed		Remaining
	cu m		percent		percent		percent
Jan 13	0900	200	-	11	-	0	89
	1000	200		16		1	83
	1200	200	-	20	-	1	79
	1400	200		22		1	77
	1600	200	-	24	-	1	75
	1800	200		24		1	75
	2000	200	-	25	-	1	74
Jan 14	0200	200		26		1	73
	0800	200	-	26	-	1	73
	1400	200		27		1	72
	2000	200	-	27	-	1	72
Jan 15	0200	200		27		1	71
	0800	200	-	28	-	1	71

Open Water Trajectory



Activity 2 Resources at Risk

- Sensitivity Mapping
- Definition of sensitivity and vulnerability
- Participants: identification, status, prioritization



ACTIVITY 2

RESOURCES AT RISK

TEAM _____ TEAM LEADER: _____

EXPERTISE (List personnel and/or agencies with expertise in resources at risk, sensitive areas, public and human use areas, etc. This will feed into NOSCP.)

TOOLS USED (OR REQUIRED) (eg., Sensitivity or ESI maps, Atlases, databases, etc.)
Note any that are already on hand, have been used before, and degree of familiarity.

INPUT DATA (Make sure group has identified information needed and where such information would be obtained at the time of an actual spill, which includes forecasting.)

- ☐ Use oil distribution to define geographic area for potentially exposed resources: surface water, sub-surface, and shoreline)
- ☐ Review Table WA 2-4 for Caribbean Habitats and consider as basis for team
- ☐ Review Table WA 2-3 for Human Use sensitivities
- ☐ Note exposure routes to RAR
- ☐ Ensure team has considered seasonal or time-critical information

RESULTS

- ☐ Tabulated Resources at Risk Matrix (see ERA Sample Form 2)
- ☐ Identify critical habitats or species
- ☐ RARs and Protection Priorities (complete ICS 232)
- ☐ Provide time requirement to implement protection
- ☐ Note RARs and map

NOTES (continue on reverse if needed)



Ex. Contributing knowledge sources:
Dept. of Environment, TIDE (Celia Mahung), GeoBelize, CZMAI, Tom Rimshaw (EAI consultant –satellite imagery), Fisheries Dept., Southern Environmental Alliance, Land Information Centre (GIS – coastal zone habitat maps), Local communities and fishermen, Port (navigation maps), Belize Audubon Society (Ms. Ana Hoare), Rio Grande Coop, Nichole Auil Gomez (in Florida – expert on manatees), SATTIM (Gregory Chod – Punta Gorda)

Sensitive Areas & Timing

- World Heritage Sites
 - RAMSAR
 - Critical wetlands
 - Marine protected areas/
marine parks (MPAs)
 - Subtidal habitats
 - Shoreline types
 - Socio-economic concerns
 - Intakes
 - Cultural sites
- Dog Island
 - Prickly Pear Cays
 - Little Bay
 - Shoal Bay/Island Harbour
 - Sandy Island

Environmental Sensitivity Index (ESI)

ESI NO.	ESTUARINE	LACUSTRINE	RIVERINE
1A	Exposed rocky shores	Exposed rocky shores	Exposed rocky banks
1B	Exposed, solid man-made structures	Exposed, solid man-made structures	Exposed, solid man-made structures
2A	Exposed wave-cut platforms in bedrock, mud, or clay	Shelving bedrock shores	Rocky shoals; bedrock ledges
2B	Exposed scarps and steep slopes in clay		
3A	Fine- to medium-grained sand beaches	Eroding scarps in unconsolidated sediments	Exposed, eroding banks in unconsolidated sediments
3B	Scarps and steep slopes in sand		
4	Coarse-grained sand beaches	Sand beaches	Sandy bars and gently sloping banks
5	Mixed sand and gravel beaches	Mixed sand and gravel beaches	Mixed sand and gravel bars and gently sloping banks
6A	Gravel beaches	Gravel beaches	Gravel bars and gently sloping banks
6B	Riprap	Riprap	Riprap
7	Exposed tidal flats	Exposed tidal flats	
8A	Sheltered rocky shores and sheltered scarps in bedrock, mud, or clay	Sheltered scarps in bedrock, mud, or clay	
8B	Sheltered, solid man-made structures	Sheltered, solid man-made structures	Sheltered, solid man-made structures
8C	Sheltered riprap	Sheltered riprap	Sheltered riprap
8D	Vegetated, steeply-sloping bluffs		Vegetated, steeply-sloping bluffs
9A	Sheltered tidal flats	Sheltered sand/mud flats	
9B	Vegetated low banks	Sheltered, vegetated low banks	Vegetated low banks
10A	Salt- and brackish-water marshes		
10B	Freshwater marshes	Freshwater marshes	Freshwater marshes
10C	Swamps	Swamps	Swamps
10D	Scrub-shrub wetlands	Scrub-shrub wetlands	Scrub-shrub wetlands

Work Products

- FORM 2

- Habitat- Subhabitats
- Human Use
- Seasonality

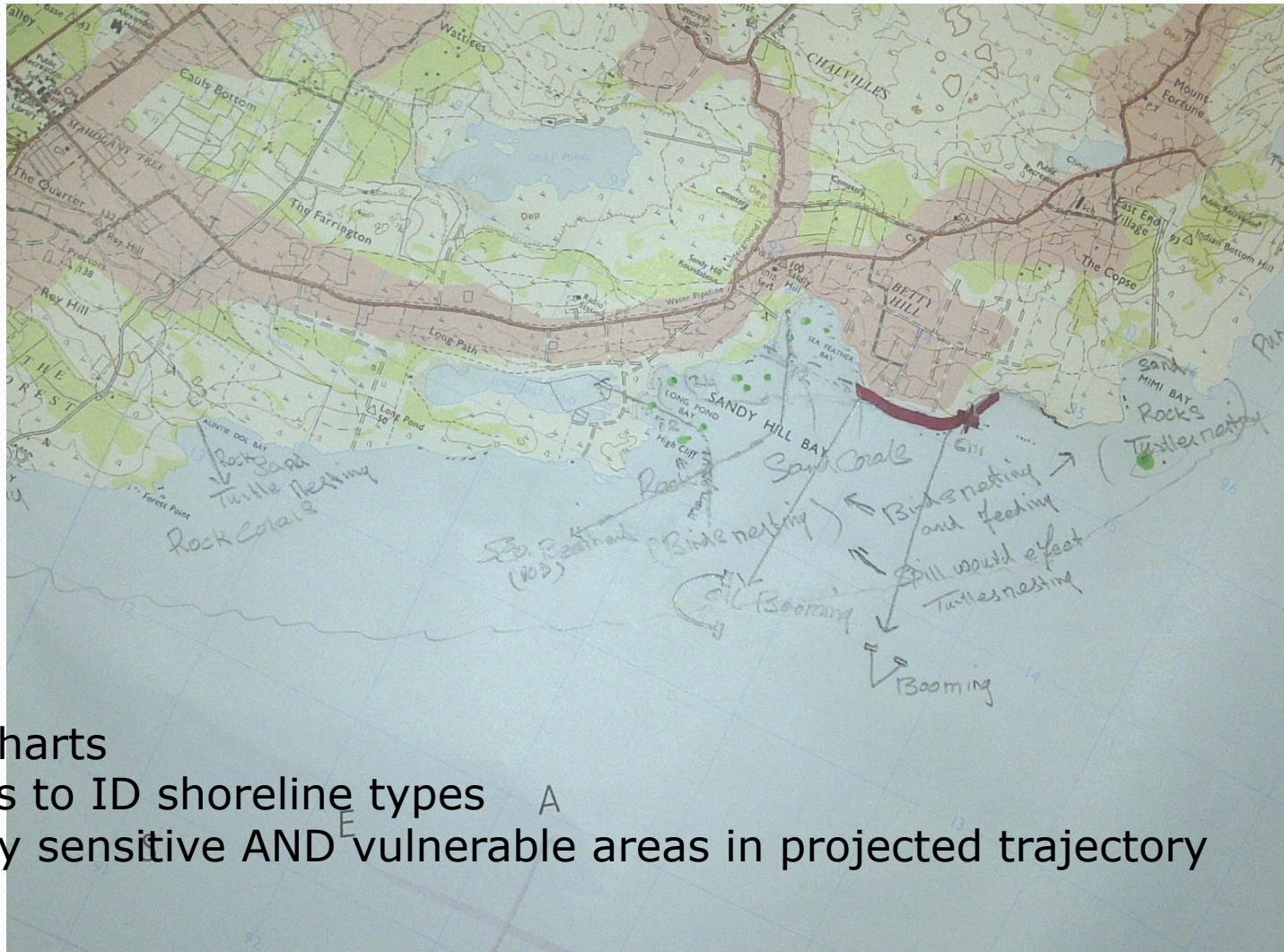
- ICS 232

- Protection Priority
- Administrator /
Trustee / Owner
- ID on map

Zone (if needed)	Habitat	Sub-habitat	Resource Category	Example Organisms

1. Incident Name		2. Operational Period (Date / Time)		ACP Site Index ICS 232a-OS	
		From:		To:	
3. Index to ACP/GRP sites shown on Situation Map					
Site #	Priority	Site Name and/or Physical Location	Action		Status

Sensitive Areas



- Use charts
- Teams to ID shoreline types
- ID key sensitive AND vulnerable areas in projected trajectory

Activity 3 Response Options

- Objectives
- Response Strategies
- Objectives
 - On-Water
 - On-Shore
 - Monitoring
 - Support



ACTIVITY 3 RESPONSE OBJECTIVES AND STRATEGIES

TEAM _____ **TEAM LEADER:** _____

EXPERTISE (List personnel and/or agencies with roles at Command level and those knowledgeable in spill response strategies, pro's and con's, tradeoffs, etc. This will feed into NOSCP.)

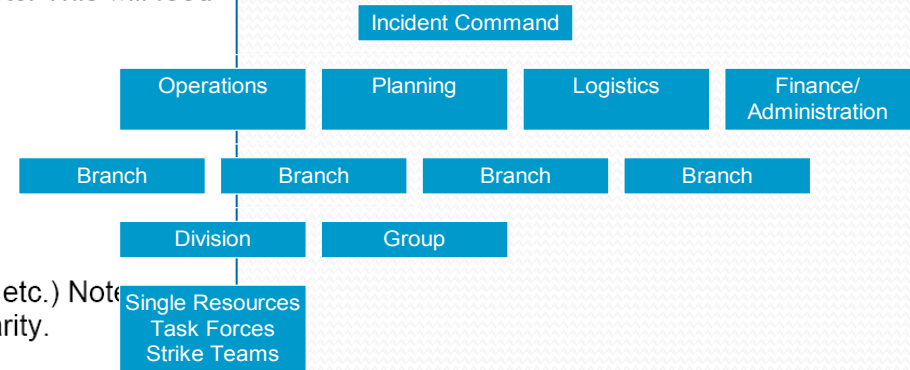
TOOLS USED (OR REQUIRED) (eg., OSR Plans, Manuals or Guides, etc.) Note that are already on hand, have been used before, and degree of familiarity.

INPUT DATA

- ☐ List of typical spill response objectives
- ☐ List of Response Strategies to be considered (Natural Processes- monitoring, Mechanical, Dispersants, In-situ Burning, Shoreline Protection and Cleanup
- ☐ Operational conditions: winds, sea state,

RESULTS

- ☐ Define Objectives for 24 and 48 hours, taking into consideration geographic area, RARs, and timing
- ☐ Define Strategies and Areas of Operation
- ☐ Complete Sample Form 3 (Response Option Summary) for each strategy selected
- ☐ Complete ICS 202 (Response Objectives)



Objectives

- **Ensure the safety of citizens and response personnel**
- **Control the source of the spill**
- **Manage coordinated response effort**
- **Maximize protection of environmentally sensitive areas**
- **Contain & recover spilled material**
- **Recover & rehabilitate injured wildlife**
- **Remove oil from impacted areas**
- **Minimize economic impacts**
- **Keep stakeholders informed of response activities**
- **Keep the public informed of response activities**

Specific Objectives for Operational Period

- **Monitor field operations for safety and conduct briefings as needed**
- **Reduce oil in affected tanks to stop leak. Continue to monitor for additional discharge**
- **Ensure staffing for around the clock operations**
- **Establish decontamination sites for vessel and shore operations crews**
- **Implement dispersant application**
- **Continue containment & recovery at source**

Strategies for Resources at Risk

1. Incident Name T/V Hanford			2. Operational Period (Date / Time) From: 01/01/00-0600 To: 01/02/00-0600		ACP Site Index ICS 232a-OS
3. Index to ACP/GRP sites shown on Situation Map					
Site #	Priority	Site Name and/or Physical Location	Action		Status
S1	A	Offshore	Open water skimming		In Prgrss.
S2	A	Cape Flattery	In-situ burning		SchedId
S3	A	Cape Flattery	Open water skimming		In Prgrss.
S8	A	Sekiu River	Exclusion Prevent oil from entering river mouth		In Prgrss.
S9	A	Hoko River	Exclusion Prevent oil from entering river mouth		In Prgrss.

Work Products

- FORM 3
 - Response Summary for each Selected Strategy (tradeoffs)

- ICS 202
 - Objectives

Sample Form 3 - Response Option Summary (Complete for Each Response Option Considered)	
Response Option	
Use	
Logistics	
Limitations	
Effectiveness	

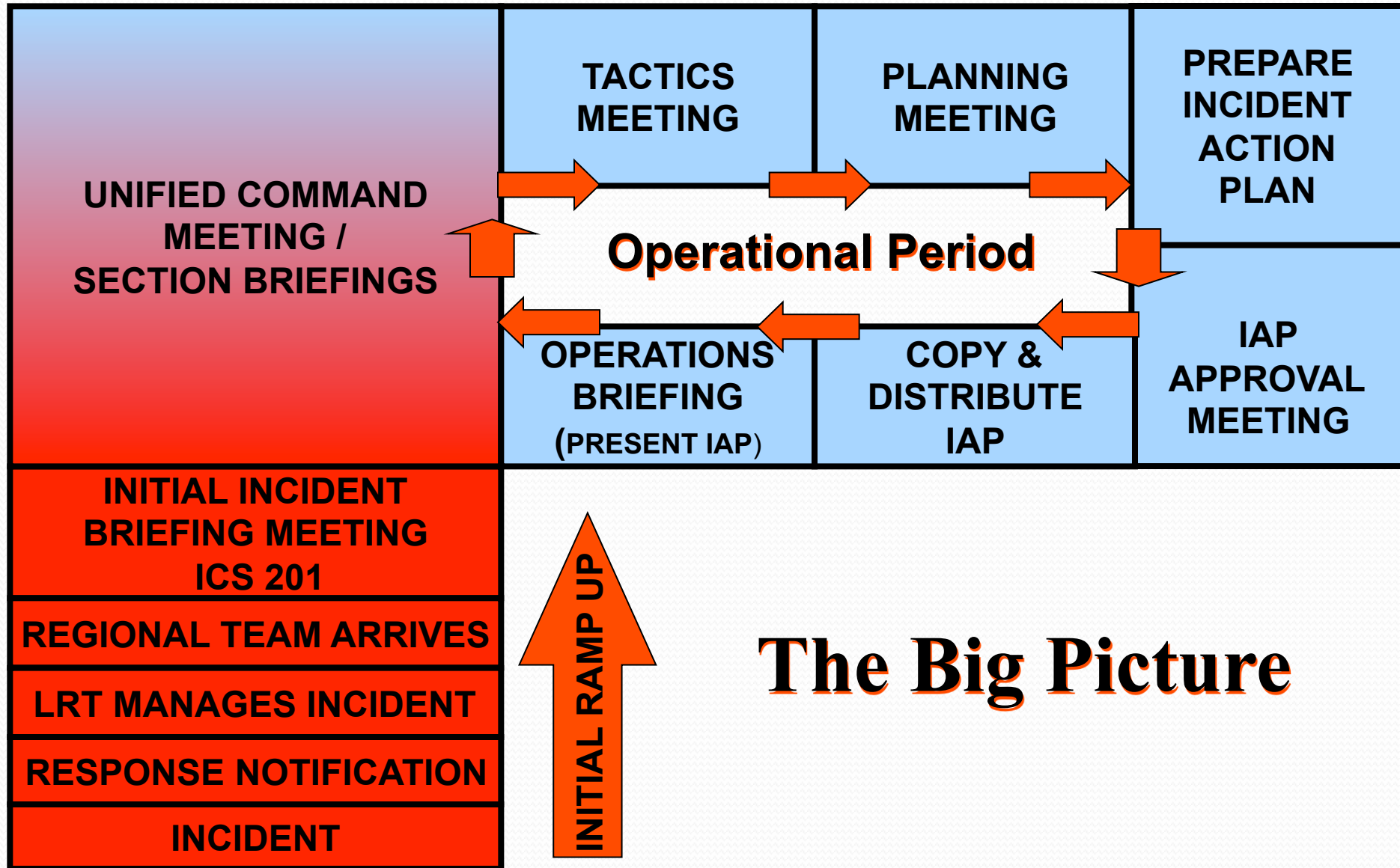
1. Incident Name T/V Hanford	2. Operational Period (Date / Time) From: 01/01/00-0600 To: 01/02/00-0600	INCIDENT OBJECTIVES ICS 202-05
3. Overall Incident Objective(s) Ensure the safety of citizens and response personnel Control the source of the spill Manage coordinated response effort Maximize protection of environmentally sensitive areas Contain & recover spilled material Recover & rehabilitate injured wildlife Remove oil from impacted areas Minimize economic impacts Keep stakeholders informed of response activities Keep the public informed of response activities		
4. Objectives for specified Operational Period Monitor field operations for safety and conduct briefings as needed Reduce oil in affected tanks to stop leak. Continue to monitor for additional discharge Ensure staffing for around the clock operations Deploy resources to protect sensitive areas using ACP/GRP criteria		
5. Safety Message for specified Operational Period		

Activity 4 Tactics Plan

- Planning Process
- Field Organization
- Tactics for Selected Strategies (and for Stated Objectives)



ICS Process



Work Product – Tactics Worksheet

2- Teams/Assignments –to match objectives

1. Incident Name T/V Hanford		2. Operational Period (Date / Time) From: 01/01/00-0600 To: 01/02/00-0600		OPERATIONAL PLANNING WORKSHEET ICS 215-05														
3. Division / Group or Location	4. Work Assignments	5. Resource / Equipment												6. Notes / Remarks	7. Reporting Location	8. Requested Arrival Time	9. "X" here if 204a Needed	
		Resource	Skimmer	Handcrew	Portable toilet	20 cu yd dumpster												
A	On-water recovery	Req.	3															
		Have	3															
		Need	0															X
B	Shoreline cleanup crews	Req.		3	2	1												
		Have		0	0	0												
		Need		3	2	1												
C	Shoreline cleanup crews	Req.		2	2	1												
		Have		0	0	0												
		Need		2	2	1												
		Req.																
		Have																
		Need																
		Req.																
		Have																
		Need																

3- Resources
required

1- Divisions/Groups

Outcomes

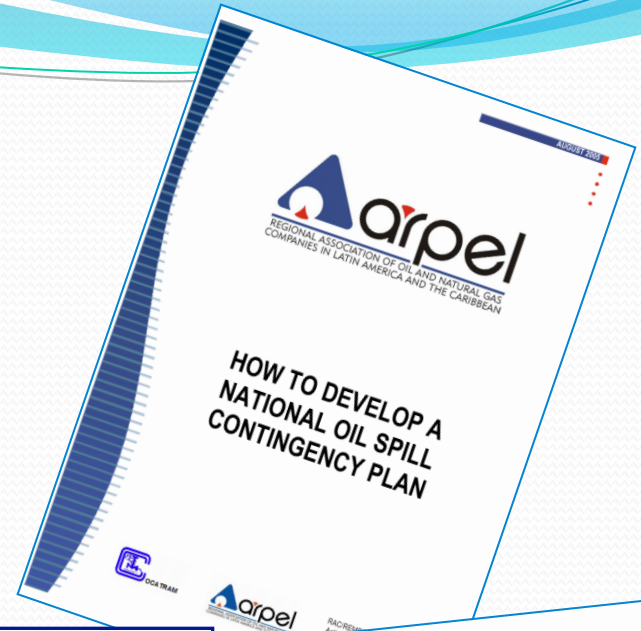
- Definition of the local area objectives, response priorities, and logistics requirements.
- Definition of an oil spill response strategy for a plausible spill in the local area.
- Stakeholder agreement regarding oil spill strategy.
- Development of local oil spill planning committee processes.
- Development of local oil spill response strategies for other areas within the country, promoting integration of these local strategies into the national contingency plan.
- Assessment of the need for a sensitivity mapping workshop.
- Development mobilization exercise based on the same scenario.
- Assessment of training needs including an IMO model Train the Trainer course and additional IMO OPRC Model training courses.

Coordinator & Facilitators

- Appropriate knowledge of setting, spill management and available tools/aids
- Hands-on training and guidance with each activity
- Assist to keep discussion focused but open for all participants
- Coach team leads/spokesperson on key messages for their briefing
- Lead concluding discussion on use of information developed during workshop and next steps

Tools

Manuals, Guidelines,
References, Websites



Status of NCPs

Country	Workshop	NCP Status
Anguilla	Feb 2012	In revision (2008 ver)
Aruba	Dec 2011	In revision (1993 ver)
Belize	Jan 2009	In revision (2008 ver)
Costa Rica	May 2009	Draft due March 2012
Guatemala	June 2009	Approved
Honduras	March 2011	Preliminary draft Nov2011
Nicaragua	Jan 2010	Pending approval
St. Vincent/Grenadines	Feb 2009	In revision (2009 ver)



Conclusions

- Workshop activities entail specific aspects of response awareness and decision-making using a plausible significant spill scenario for the point of discussion and assumptions.
- Results of the activities provide immediate content for oil spill response contingency planning and illustrate how a scenario-based approach can be used to build key information for national and regional spill contingency plans.

Conclusions

- Leadership and focal points for national planning efforts bear the responsibility to continue the efforts for national planning with pertinent stakeholders.
- Need for commitment from leadership to provide time and resources needed to those charged with NCP development.
- Need for regional cooperation for response to significant oil spills given limited resources and geographic proximity.

Thank you!

Mission reports:

<http://cep.unep.org/racrempeitc>
Events-Activities

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