



## **Report on SCAT Findings August 2015**

*Prepared for:*

Bodo Mediation Committee

*For distribution, sent via email to:*

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## 1 PURPOSE

This report provides an overview related to SCAT activities undertaken during August 2015 in accordance with “Short-Term Contract for Provision of Consultancy Services for Shoreline Cleanup Assessment of Bodo Creek, Rivers State, Nigeria”.

It follows on previous Pre-SCAT activities undertaken in May 2015 and described in “Pre-SCAT\_rpt\_EGundlach\_4jun15\_rev02final.pdf”.

The focus of these surveys undertaken in August 2015 were to (1) define areas that can be cleaned during the first phases of cleanup, (2) provide an overview of different habitats and levels of oiling and (3) continue SCAT field training of participants.

As noted herein, site SCAT and chemistry reports are being prepared by SPDC’s selected contractor Geoterrain. Therefore, the reader is referred to the Geoterrain reports for specific site details.

## 2 FIELD PARTICIPANTS AND LEADERSHIP

SPDC has kept signed records of all field participants. In all, over 50 people in addition to security forces were involved in each survey.

Key participants included members of the Bodo community, SPDC (including videographers and photographer), environmental regulators and cleanup contractors (Lamor and Inkas).

I provided the leadership and training on site selection and field activities.

After working in the field with varying personnel, Dr. Ogonnaya Iroakasi (SPDC Ogoni Restoration Project) and Jonathan Obasohan (SPDC Geomatics) are recommended to provide future leadership on selecting field sites, delineating oiled zones and pits, and completing site data-collection forms. Geoterrain personnel can then focus on chemical sample collection and completion of the chemical sampling data form.

## 3 CHANGE IN MAP BASE

The SPDC Geomatics mapping department changed the gridding system described in the Pre-SCAT report. SPDC Geomatics produced an overview map and one field map. SPDC Geomatics was unable to share the files of the new grid system to enable replication by others.

In order not to impede the SCAT surveys and cleanup planning activities, I produced a working map set of all oiled areas by extending the coordinates from the single map provided by Geomatics. The images of each map in jpg and pdf format were shared with the Project Director, SPDC, Inkas, Geoterrain, and Lamor. The shp (GIS transfer) files were shared with those that requested them, in this case SPDC and Shell.

The change in grid system nomenclature affects the code given to the sites surveyed during the Pre-SCAT survey of May 2015. The revised code name of each site is shown below.

Table 1: Pre-SCAT and New SCAT code names for sites surveyed during the Pre-SCAT survey.

Pre-SCAT Site Code	Revised SCAT Code	New Grid Cell	Latitude / Longitude	Survey Date
J05-04_09	N23_J05-04	N23	4.60161, 7.25841	1 May
J05-10_08	O23_J05-10	O23	4.60028, 7.26013	1 May
K02-23_09	R12_K02-23	R12	4.62138, 7.26567	4 May
K02-22_07	Q12_K02-22	Q12	4.62135, 7.26419	4 May
J01-20_07	N10_J01-20	N10	4.62419, 7.25969	4 May
J01-15_07	N09_J01-15	N09	4.62540, 7.25957	4 May
J04-06_01	J18_J04-06a	J18	4.60920, 7.25231	5 May
J04-06_07	J18_J04-06b	J18	4.60905, 7.25260	5 May
J04-15_08	O20_J04-15	O20	4.60586, 7.26005	5 May
K04-10_07	O20_K04-10	O20	4.60692, 7.26044	5 May
J06-07_07	K29_J06-07	K29	4.59043, 7.25444	7 May
I03_18-07	G16_I03_18	G16	4.61430, 7.24587	7 May
G04-05_01	Not applicable	Outside of Cleanup Contractor Area	4.61009, 7.22994	7 May
H04-11_01	As above	As above	4.60795, 7.23428	7 May
K10-16_07	P50_K10-16	P50	4.55170, 7.26281	8 May
K09-15_07	O45_K09-15	O45	4.56120, 7.26110	8 May
K04-20_07	S21_K04-20	S21	4.6047, 7.26755	8 May

## 4 CHANGE IN SCAT DATA COLLECTION FORM

A simpler SCAT form was developed and successfully utilized during the survey. The new form, shown in Figure 1, has a focus on collecting information about surface and subsurface oiling and cleanup recommendations.

Bodo Shoreline Oiling Summary Form				Page ____ of ____			
DATE: (mo /dd/ yy)		Start: TIME		End:		GRID ID:	
SURVEY TEAM		Name		Name			
GENERAL DESCRIPTION / LOCATION							
<b>SURFACE: Oil</b> PO=Thick oil, CV=Cover (>0.1-<1cm), CT=Coat (<0.1cm), ST=Stain (not scraped by fingernail), FL=Film/Sheen, FR=Fresh, MS=Mousse, TB=Tarballs, AP=Asphalt, NO=No Oil. <b>Sediments:</b> Mud, Chikoko, Sand, Clay, Manmade // Hard, Soft, Very Soft							
Zone	1		2		3		
Sediment							
Hardness							
Oil Type							
% Cover							
Length							
Width							
Stumps							
Alive Mangr %							
<b>SUBSURFACE OIL</b> Zone = (1,2), Pit=(A,B) AP=Asphalt, BO=Black Oil, BR0+Brown Oil, TR=Trace, NO=No Oil, SS=Silver or Rainbow sheen, (Add % cover of oil in water in pit)							
Lat / Long			Lat / Long			Lat / long	
Zone	-5		Zone	-5		Zone	-5
Pit	-15		Pit	-15		Pit	-15
T. Depth	-25		T. Depth	-25		T. Depth	-25
<b>CLEANUP RECOMMENDATIONS:</b> Physical Removal (PR- cm?), Low-Pressure Flush (LF), High-Pressure Spray (HF), Raking (R), Tilling (T), Boardwalk (B). Chop Stumps (CS), Vegetate (V), Machinery (type?).							
Zone	1		2		3		
Method(s)							
Comments							
Restrictions							
Sketch Yes / No		Photo Image Map Yes / No		Video Yes / No			

Figure 1: The redesigned SCAT data collection form used in the August 2015 survey.

## 5 SCHEDULE AND SECURITY ISSUES

A training / orientation session was held on 3 August 2015, the first day of this program. Attendees included all members of the SCAT field party.

A close-out session including the exchange of data files and photographs and discussion of future activities was held the last day on 26 August.

Field sessions were planned for every weekday except Wednesday which was allocated to enable data organization and allow participants to fulfil their normal job requirements.

Security and logistical issues prevented field operations for several days at the beginning of the survey period and again for a single day at the end.

During each field survey, the SCAT team arrived on site between approximately 10:30 and 11:00 and departed between 14:00 and 14:30. Only one day was delayed by rain, and this was only a 1 hour delay.

The first field day occurred on 13 August. Survey sites and dates are shown in Table 2.

**Table 2: SCAT survey sites by date during the August survey period. The site ID includes the Grid code plus the oiling zone (e.g. 1, 2 etc.) and pit letter code (e.g. A, B, C).**

Site ID	Grid	Latitude	Longitude	Date	Time	Day
M22-1A	M22	4.60346	7.25874	8/13/2015	11:40	Thursday
M22-2B	M22	4.60339	7.2587	8/13/2015	12:00	Thursday
M22-3C	M22	4.60286	7.25871	8/13/2015	12:10	Thursday
M22-3D	M22	4.60294	7.25853	8/13/2015	12:15	Thursday
R12-1A	R12	4.621277	7.265972	8/14/2015	11:15	Friday
R12-2B	R12	4.62097	7.26585	8/14/2015	11:45	Friday
R12-3C	R12	4.62141	7.26602	8/14/2015	12:15	Friday
Q12-1A	Q12	4.62156	7.26366	8/14/2015	12:20	Friday
P19-1A	P19	4.60842	7.26296	8/17/2015	11:45	Monday
P19-2B	P19	4.60842	7.26278	8/17/2015	12:15	Monday
P18-1A	P18	4.6088	7.26269	8/17/2015	12:30	Monday
P18-2B	P18	4.60899	7.2621	8/17/2015	12:50	Monday
G24-1A	G24	4.599263	7.247191	8/18/2015	11:40	Tuesday
M26-1A	M26	4.59611	7.25648	8/18/2015	12:15	Tuesday
M26-2B	M26	4.5962	7.25669	8/18/2015	12:40	Tuesday
M26-3C	M26	4.59628	7.25722	8/18/2015	13:00	Tuesday
M26-4D	M26	4.5962	7.2575	8/18/2015	13:15	Tuesday
N24-1A	N24	4.5991	7.25891	8/20/2015	11:40	Thursday
N24-2B	N24	4.59927	7.25874	8/20/2015	12:00	Thursday
N24-3C	N24	4.59934	7.2587	8/20/2015	12:15	Thursday
N24-4D	N24	4.59938	7.25856	8/20/2015	12:30	Thursday
N23-1A	N23	4.60135	7.25872	8/20/2015	12:50	Thursday
N23-2B	N23	4.60147	7.25823	8/20/2015	13:05	Thursday
N21-1A	N21	4.6046	7.25954	8/20/2015	13:38	Thursday
N09-1A	N09	4.62623	7.25948	8/21/2015	12:48	Friday

Site ID	Grid	Latitude	Longitude	Date	Time	Day
K10-1A	K10	4.62382	7.25317	8/21/2015	13:25	Friday
M11-1A	M11	4.229	7.25709	8/21/2015	13:45	Friday
M11-2B	M11	4.62298	7.25718	8/21/2015	14:00	Friday
Q23-1A	Q23	4.60034	7.2643	8/25/2015	13:30	Tuesday
Q23-2B	Q23	4.60031	7.26439	8/25/2015	13:40	Tuesday
Q23-3C	Q23	4.60018	7.26456	8/25/2015	13:50	Tuesday
P28-1A	P28	4.59108	7.26341	8/25/2015	12:45	Tuesday
P28-2B	P28	4.59094	7.26358	8/25/2015	13:00	Tuesday
U19-1A	U19	4.60786	7.27151	8/25/2015	12:07	Tuesday
U19-2B	U19	4.60767	7.27188	8/25/2015	12:15	Tuesday

## 6 SITE LOCATIONS

The locations of SCAT sites completed in August 2015 are shown in Figure 2.

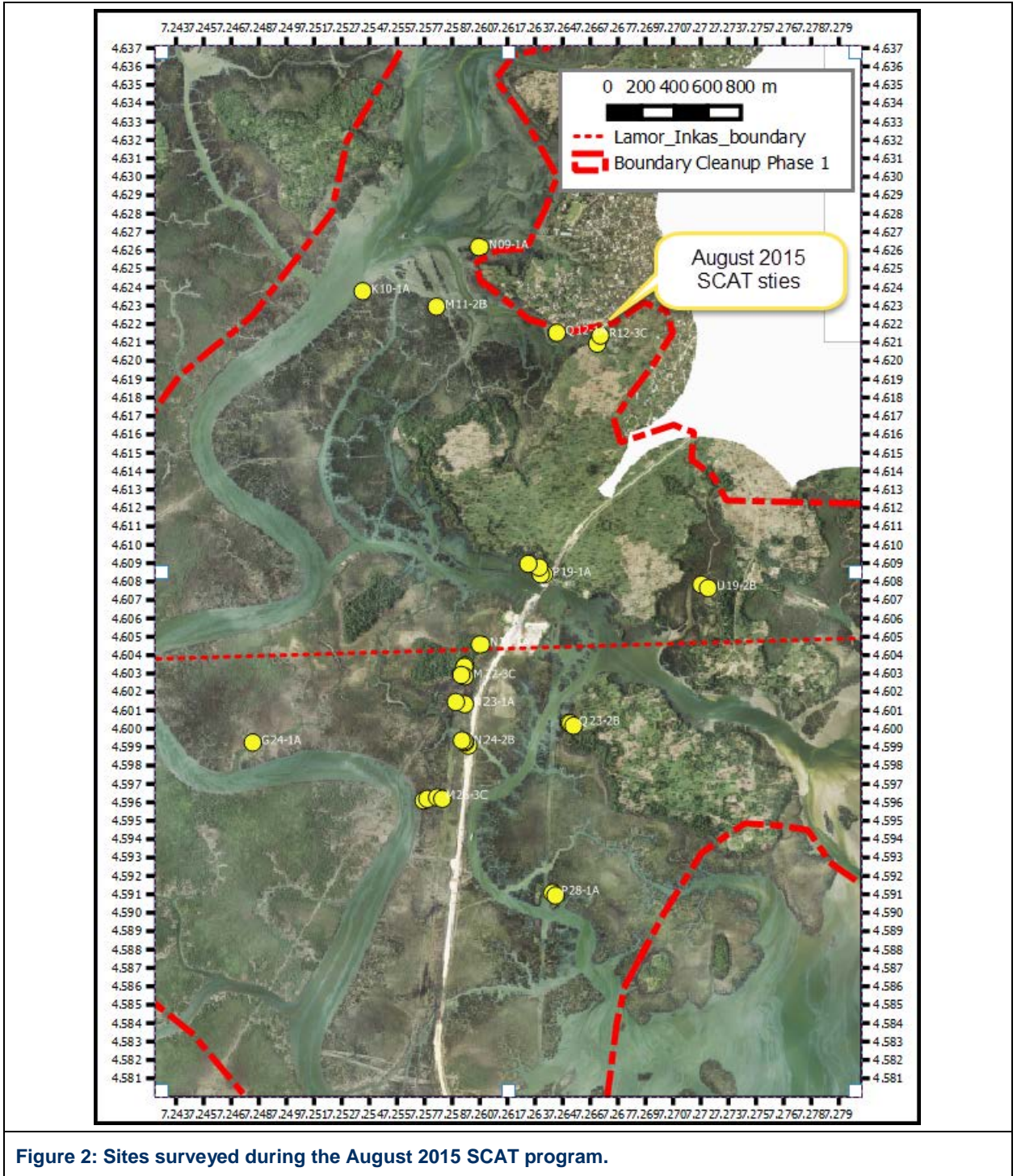


Figure 2: Sites surveyed during the August 2015 SCAT program.



## 7 SCAT REPORTS

A report on each site, including description of oil level on the surface and subsurface and cleanup recommendations, was prepared by SPDC's subcontractor Geoterrain.

## 8 CHEMICAL SAMPLING

Surface and subsurface samples of sediment / oiling were taken by SPDC-contractor Geoterrain at each Site was prepared by Geoterrain.

## 9 TIDAL LEVEL

Tidal level is important to be able to access oiled areas. A low-to-mid tide level is required to view oiling where it extends onto flats fronting oiled strandlines along the mainland as occurs along the Bodo community area.

In contrast, a high-tidal level is required to reach the oiled mangrove areas by boat without having to cross through very soft mud that fringes these areas.

The tidal curve for Ford Point between Bonny and Port Harcourt on the Bonny River provided by the website <http://www.tides4fishing.com/af/nigeria/ford-point> offers an accurate forecast of the tides.

## 10 FUTURE SCAT SURVEY SITES

The close-out meeting agreed that SCAT surveys should proceed along two lines in the future: (1) to enable cleanup operations to proceed, and (2) to gain an overview of the extent of oiled areas requiring cleanup.

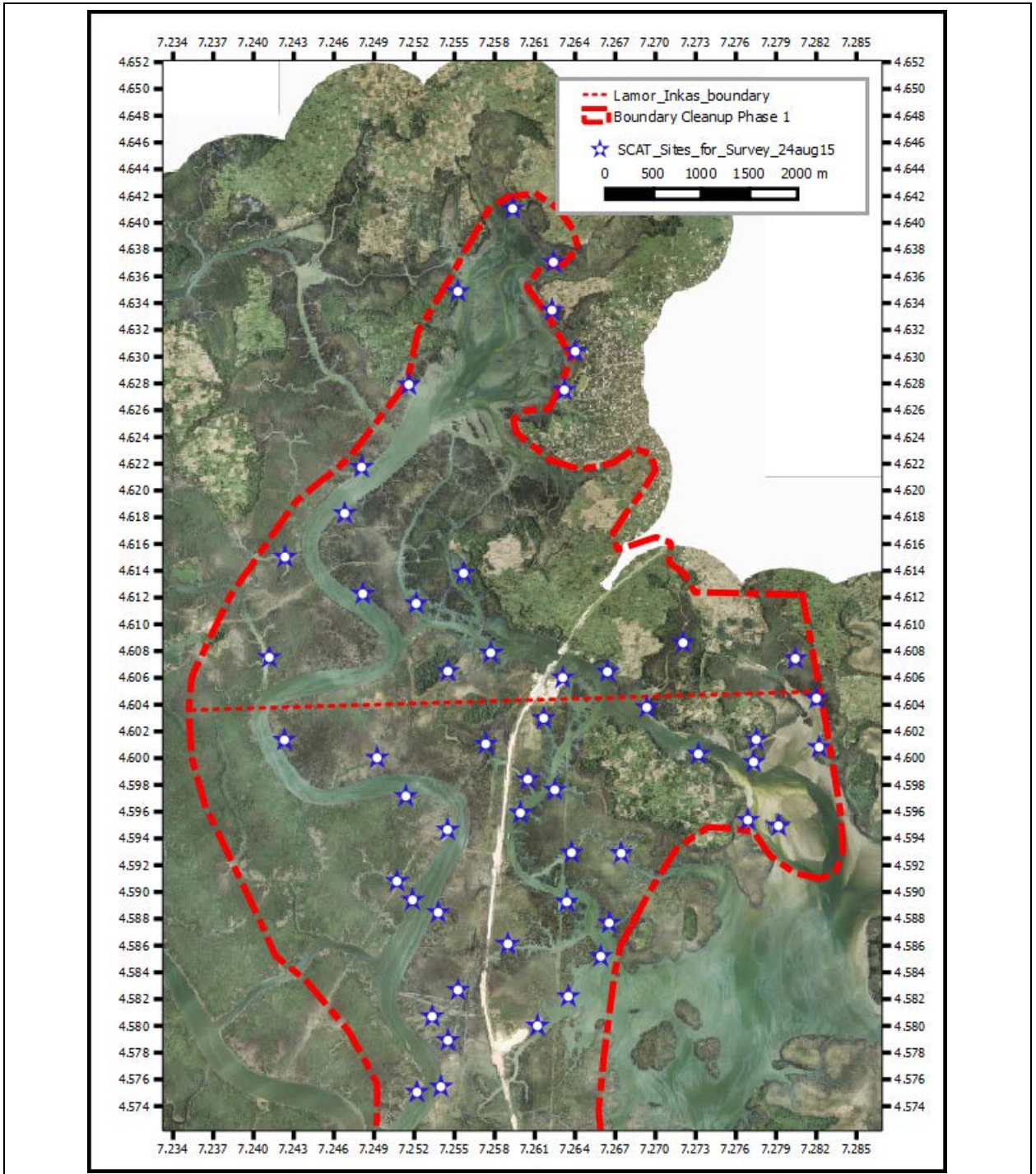
Item (1) from above requires the input of cleanup contractors Inkas and Lamor to designate their cleanup area and SCAT field requirements. SCAT can then respond to their request accordingly.

To serve Item (2), I prepared a map and list of potential SCAT sites to be surveyed that provides and overview of oiled habitats. These are shown in Figure 3 and Table 3.

An additional report on these sites was provided to the Project: "Proposed\_SCAT-Chemistry\_Sites\_24aug15.pdf".

Shp files for GIS input were provided to SPDC, Shell and others, and are available upon request.

To enable participants to complete their normal tasks and to provide sufficient time for data management and organization, a Tuesday-Thursday, or Monday-Wednesday-Friday field program is suggested.



**Figure 3: Proposed SCAT sites for future survey to provide an overview of the extent of oiling and mangrove loss. See Table 3 for site locations.**

**Table 3: Suggested future SCAT sites to provide an overview of oiling level and mangrove loss.**

Grid	Longitude / Latitude	Description	Prior Condition
AA21	7.28200,4.60451	Mangrove stumps, hard substrate	Dense mangrove
AA23	7.282188,4.600856	Mangrove stumps, sand	Mangrove
D19	7.24121,4.60756	Dead fringe, channel>10 m	Dense mangrove
E15	7.242378,4.615069	Dead fringe, channel<10 m	Dense mangrove
E23	7.24234,4.60138	Mangrove stumps, soft mud	Dense mangrove
G13	7.24684,4.618336	Stumps with oiling	Mangroves
H11	7.248115,4.621802	Mangrove stumps, soft mud	Mangroves
H17	7.248193,4.612322	Mangrove stumps, soft mud	Mangroves
I23	7.24926,4.60006	Mangrove stumps, soft mud	Dense mangrove
I28	7.25075,4.59082	Dead fringe, channel<10 m	Dense mangrove
I29	7.25191,4.58942	Dead fringe, channel>10 m	Dense mangrove
I43	7.25054,4.56397	Dead fringe, channel<10 m	Dense mangrove
J17	7.252186,4.611596	Mangrove stumps, soft mud	Mangroves
J25	7.25141,4.59719	Dead fringe, channel>10 m	Dense mangrove
J37	7.252242,4.575042	Mangrove stumps, soft mud	Mangrove
J42	7.25250,4.56561	Mostly oiled mud	Dense mangrove
J46	7.25228,4.55927	Some stumps, soft mud	Dense mangrove
J47	7.250679,4.557680	Mangrove stumps, soft mud	Mangrove
J8	7.251631,4.627968	Mangrove stumps, soft mud	Mangroves
K26	7.25454,4.59467	Some stumps, mud	Dense mangrove
K30	7.253824,4.588486	Mangrove stumps, soft mud	Mangroves
K34	7.2533774,4.580704	Oiled hard substrate	Mangrove
K35	7.25456,4.57892	Mangrove stumps, soft mud	Dense mangrove
K37	7.254029,4.575451	Oiled hard substrate	
K44	7.25328,4.56334	Some stumps, soft mud	Dense mangrove
L04	7.25305,4.634937	Mangrove Stumps, soft mud	Dense mangrove
L16	7.255726,4.613857	Oiled fish pond	Un-oiled
L33	7.25531,4.58268	Stunted mangrove, mud	Basin mangrove
L42	7.255704,4.565933	Mangrove stumps, soft mud	Mangrove
M19	7.257752,4.607906	Mangrove stumps, soft mud	Mangroves
M20	7.25723,4.605762	Stunted dead mangrove	Basin mangrove
M23	7.25739,4.60109	Some stumps, soft mud	Dense mangrove
M40	7.25727,4.57071	Stunted mangrove, mud	Basin mangrove
N01	7.25929,4.64104	Some stumps, soft mud	Dense mangrove (yr 2000)
N26	7.259874,4.595930	Mangrove stumps, soft mud	Mangrove
N31	7.25894,4.58614	Dead basin mangrove, mud	Dense basin mangrove
N40	7.25963,4.57062	Mangrove stumps, soft mud	Dense mangrove
O22	7.26161,4.60301	Stunted stumps, hard substrate	Dense mangrove
O24	7.260419,4.598440	Mangrove stumps, soft mud	Mangrove
O34	7.2611459,4.580004	Oiled hard substrate	Sand
O49	7.26040,4.55330	Mangrove stumps, soft mud	Dense mangrove
P03	7.26233,4.63714	Mangrove stumps, soft mud	Dense mangrove (yr 2000)

Grid	Longitude / Latitude	Description	Prior Condition
P05	7.26223,4.63354	Oiled hard substrate	Dense mangrove (yr 2000)
P08	7.26316,4.62757	Hard substrate, some stumps	Dense mangrove (yr 2000)
P20	7.2630336,4.6060451	Mangrove stumps, sand	Mangrove
P25	7.262442,4.597654	Mangrove stumps, soft mud	Mangrove
P29	7.26334,4.58929	Refinery	Mostly vegetated dredge spoil
P33	7.263449,4.582201	Mangrove stumps, soft mud	Mangrove
P40	7.263397,4.569949	Mangrove stumps, soft mud	Mangrove
P49	7.26233,4.55377	Mangrove stumps/ mud	Dense mangrove
Q07	7.26394,4.63042	Oiled hard substrate	Without oil
Q27	7.26369,4.59296	Mangrove stumps, soft mud	Dense mangrove
Q50	7.263872,4.552099	Mangrove stumps, soft mud	Mangrove
R20	7.266379,4.606492	Mangrove stumps, soft mud	Mangrove
R30	7.266504,4.587700	Mangrove stumps, soft mud	Mangrove
R32	7.265881,4.585219	Mangrove stumps, soft mud	Mangrove
R40	7.265781,4.569853	Mangrove stumps, soft mud	Mangrove
S22	7.26307,4.603816	Mangrove stumps, soft mud	Mangrove
S27	7.26740,4.59291	Dead basin mangrove, mud	Basin mangrove
U19	7.27203,4.60866	Mangrove stumps, soft mud	Dense mangrove
V23	7.273167,4.600335	Mangrove stumps, soft mud	Mangrove
X23	7.27749,4.60142	Oiled fish pond	Unoiled
X24	7.277295,4.599701	Mangrove stumps, soft mud	Mangrove
X26	7.276866,4.595394	Mangrove stumps, sand	Mangrove
Y26	7.279150,4.594957	Mangrove stumps, sand	Mangrove
Z19	7.28042,4.60748	Stunted stumps, hard substrate	Dense mangrove

## 11 CONCLUSIONS

1. The very large extent of oiling and required cleanup was again noted by survey participants. All sites surveyed during August 2015 need some level of cleanup, particularly related to reducing the level of oiling in soft muddy sediment.
2. In working with the cleanup contractors in the field, the following requirements were stressed:
  - a. The need for having an approved site-specific work plan before undertaking activities,
  - b. The ability to stop, review and revise activities that are causing more harm than good.
  - c. The need to work with SCAT and request specific areas to be surveyed in preparation for site-specific cleanup work
3. The cleanup contractors, in turn, must receive all SCAT reports as they serve as guidance to the activities required at each site.

4. Security issues are of concern and can potentially cause substantial delays to SCAT and cleanup activities.
5. Undertaking field survey four days a week is not sustainable over a longer (several months) time period. There was insufficient time for participants to complete their normal work activities and to organize SCAT records and data files. A program having two-to-three days a week in the field is recommended.
6. With regards to data management, at the closeout meeting it was decided that SPDC and the Project Director should share and keep duplicates of all collected information, e.g. site photos, field data collection forms, chemistry records, etc.