Figure 15. This section of SR mat was unwound from the drill bit. The mat ranged in thickness from 5 to 12 cm.

Snorkel SCAT Sampling

1. Delineation of Snorkeling SCAT Sites- Snorkel SCAT was used in conjunction with the initial Augering program (LAAASR) as well as part of the BOP effort. The beach profile surveys extended to near mean low water and therefore, they did not provide direct guidance of potential buried oil in the nearshore zone. However, the overall retreat versus progradation of the beach could be discerned from the profile data and these trends were used to broadly define sampling sites for Snorkel SCAT surveys. In some cases, progradation of the beach suggested that the former nearshore was buried by significant overburden. Likewise, if the beach had retreated significantly from 2010 summer positions, then it was deemed unlikely that buried oil existed in the nearshore. Exceptions to this trend occurred where, despite overall beach erosion, remnant mangrove and marsh platforms persisted and became exposed in the nearshore. Under these conditions, Snorkel SCAT was deployed to search for potential isolated SR mats that may have adhered to these remnant platforms (e.g., Fourchon Beach; northern Grand Terre I). In other areas Snorkel SCAT sampling was utilized because of the dynamic nature of the beach. The spit ends of barriers are highly susceptible to erosional-depositional changes causing significant movement of sand that repeatedly buried and uncovered SR mats. For this reason, Snorkel SCAT was a valuable tool in sampling the spit platform and surrounding nearshore regions (e.g., Wild Beach, Grand Isle; westend of West Timbalier Island).

2. Snorkel Technique- Snorkel SCAT is a means of sampling the nearshore for buried sediment. Using specially designed shovels, the team members outfitted in wetsuits are able to take continuous, 15-cm wide sediment samples to a depth of 40 cm (Figure 16). The team made transects perpendicular to the trend of the beach sampling every 5 m to a water depth of 0.9 to 1.2 m. At each position along transects, two samples were collected on either side of the centerline 5 m apart. Under most circumstances, the sample stays intact on the shovel so that if oiled sediment was found, the type of oiling (SR mat, SRBs, stained sand, etc.), thickness, overburden and other information were recorded. Transects were spaced every 20 meters, but more closely spaced sampling was performed when concentrated oiled sediment was encountered.

3. Results and Examples of Snorkel SCAT- Initially, SSCAT Sampling was performed along Fourchon, Elmer's Grand Isle, Grand Terre I, and Grand Terre II along a 25-km length of shoreline covering 58% of the combined barrier shoreline (Table 4). During BOP, additional sites were sampled by Snorkel SCAT, including West Timbalier and Chaland Islands as well as other regions on Elmers, Grand I and Grand Terre II (see Appendix 5). As a consequence of Snorkel SCAT MST mats were identified at Elmer's, Grand Isle, Grand Terre I, and Grand Terre II ranging from 4 to 110 m in length and 2 to 10 m in width. The results of the SSCAT surveys are shown on cumulative maps such as the one given in Figures 17 and 18. The Snorkel SCAT team commonly took samples from the swash zone to a distance 40 to 75 m from the shoreline (Figure 16). If a mat was found (e.g, in Zone #2, Elmer's Island; Figure 19), coordinates were taken to delineate its extent and stakes were driven into beach directly onshore of the deposit so that Operations would have a landmark. The type of information that was provided to Operations for a treatment site is shown in Figure 20. A shovel sample of the mat at this site in northern Grand Terre I is illustrated in Figure 21.

Figure 16. Photographs of Snorkel SCAT team taking shovel samples of the nearshore sediments.

Table 4. Shoreline Sampled by Snorkel SCAT

Fourchon	Length (m)
Total Beach Length	16011
Snorkel Length	14000
Elmer's Island	**Length (m)**
Total Beach Length	5581
Snorkel Length	1600
Grand Isle	**Length (m)**
Total Beach Length	12205
Snorkel Length	5400
Grand Terre I	**Length (m)**
Total Beach Length	4713
Snorkel Length	3000
Grand Terre II	**Length (m)**
Total Beach Length	4290
Snorkel Length	900

Figure 17. Area along central Grand Isle sampled by Snorkel SCAT. The blue color indicates where no oil was found and the light green color indicates where very light buried was recorded.

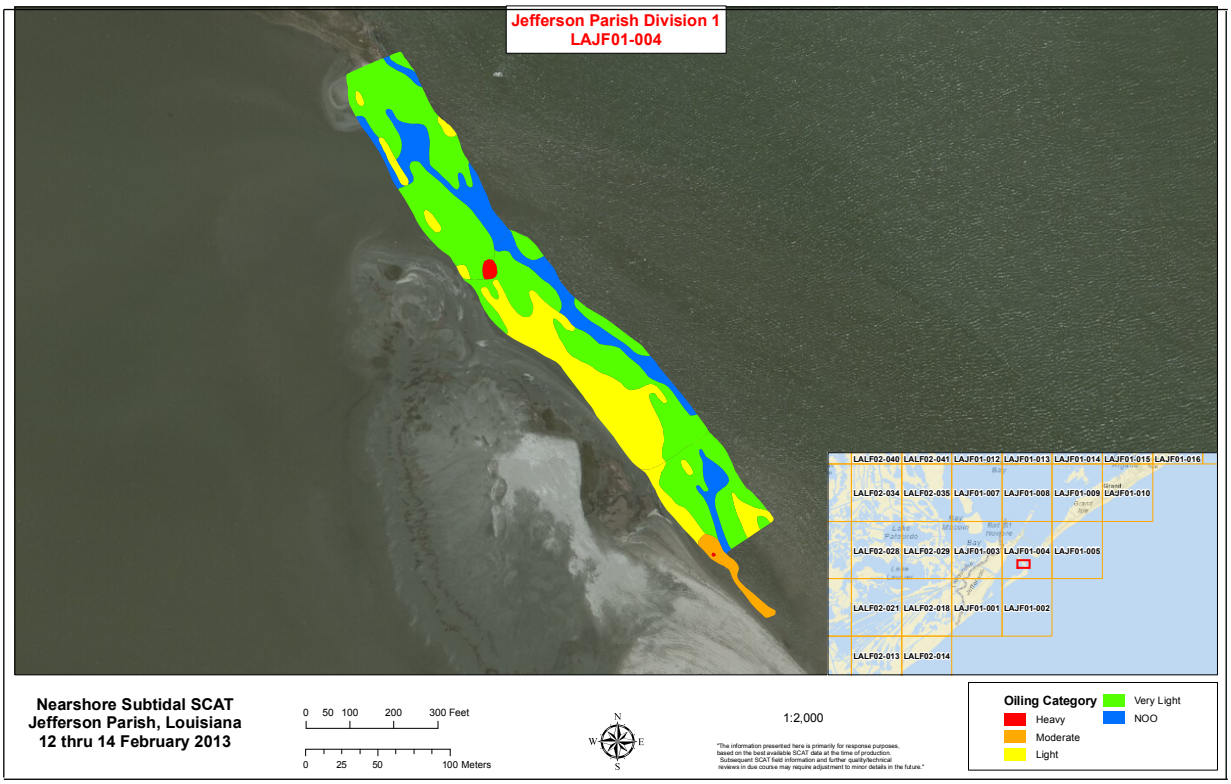

Figure 18. A mat identified by Snorkel SCAT in Zone #2 at Elmer's Island along Caminada Pass. The Auger team found buried SR mats in the same area (red polygon).

Figure 19. View of SR mat found by Snorkel SCAT at Caminada Pass exposed during strong northerly winds and low astronomic tide conditions, producing extreme low tides (see Figure 18 for location).

Figure 20. Map with coordinates and detailed characteristics of an SR mat (black rectangle) discovered during sampling by Snorkel SCAT.

Figure 21. Photograph of a shovel sample collected by Snorkel SCAT containing portions of an SR mat from Operations Zone #11 in northern Grand Terre I (see Figure 20 for location).