

# Assessment of Trap Loss in St. Thomas (USVI) Fisheries

## Introduction

The following report summarizes Phase 1 of a collaborative study between NOAA's Biogeography Branch, the St. Thomas Fishermen's Association and the University of the Virgin Islands. The overall study is intended to assess the magnitude and nature of lost fish and lobster traps upon the resources of the island shelf. It consists of three main phases:

1. Assess the location of trap fishing effort on the St. Thomas/St. John shelf, the number of traps lost and any details surrounding reasons for loss. Record reported traps found by divers.
2. Using in-situ SCUBA techniques, assess the "aging" process for lost traps and possible "ghost fishing" impacts.
3. Assess technologies for location of lost traps. This effort will use Phase 1 information to target field surveys involving AUV and other technologies for location and identification of traps on the sea floor.

The St. Thomas Fishermen's Association (STFA) was formed for the purpose of directly involving its members in all aspects of the fishery management process. Formed in 2004, they have carried out a number of federally-funded studies centered around identifying and reducing by-catch from commercial fishing activities (<http://www.stfavi.org/Study-Report-Newsletter.html>). In the 2006-07 fishing year, STFA members made 83% of the fish trap hauls and 97% of the lobster trap hauls reported to the local government. Participants in the current study made 50% of the reported fish trap hauls and 90% of the reported lobster trap hauls.

## Methods

Once participants were identified, they were provided with a map of the St. Thomas shelf upon which one mile grids had been placed (figure 1). They were asked to indicate where they had their fish and lobster traps on this map as well as several questions about how many traps they had lost in recent years and how many traps they had built in recent years.

Additionally, they were asked to review their fishing logs and record the GPS coordinates where traps had been lost.

Fishermen were paid \$200 for their

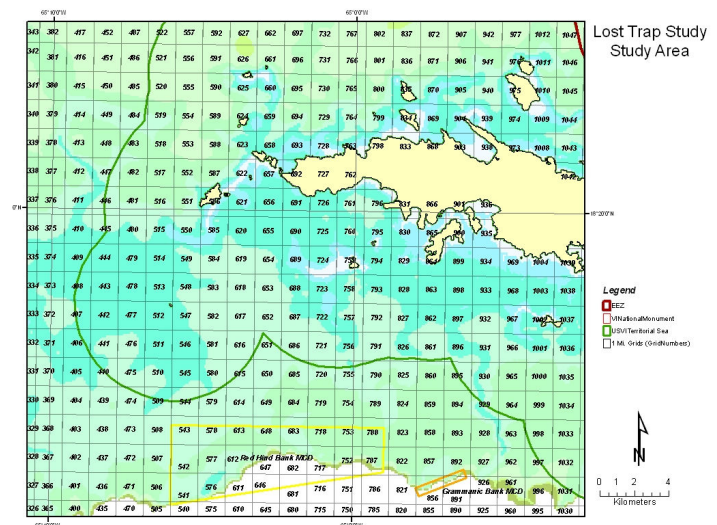


Figure 1. Map of St. Thomas showing study grids.

participation in the study.

These data were all recorded in a MSAccess data base for later analysis and the analyzed results were displayed on maps using ArcMap GIS techniques.

In addition, since the *in-situ* studies required fish traps, twelve traps were constructed by one of the local fishermen who kept receipts for all materials and labor. This effort provided an exact cost/trap for comparison with the values supplied by the study participants.

## Results

The results suggest that they are approximately 5000 fish traps and 3000 lobster traps on the St. Thomas/St. John shelf.

The interview responses (Table 1) show that each fishermen may emphasize either fish traps, lobster traps or both.

One aspect of the interview was the failure by the participants to retain much history of their activities. When queried about how many traps had been lost in prior years, the “recall rate” fell off markedly. The fall off might have been even more dramatic except that in the 2007-08 fishing year there had been a ground swell of historic proportions that destroyed a lot of traps and was well remembered.

The cost per trap was also not very reliable. The traps constructed for the project cost \$199.07/trap which was \$71 less than the interview results. Some variability might be expected since individual fishermen construct traps of slightly different sizes and complexities.

Table 1. Interview responses.

Response	Average	Minimum	Maximum	Respondents
Boat Length	30.1	22	36	14
Fish Traps Fished	150.7	60	300	14
Lobster Traps Fished	213.9	0	605	14
Fish Traps Normally Made	3.2	0	30	14
Lobster Traps Normally Made	1.4	0	20	9
2008-9 Lost Traps	15.8	0	40	14
2007-8 Lost Traps	19.1	0	75	8
2006-7 Lost Traps	4.9	0	20	3
2005-6 Lost Traps	1.2	0	4	2
Fish Trap Cost	\$271.07	\$60.00	\$ 600.00	14
Lobster Trap Cost	\$144.09	\$60.00	\$ 400.00	14
Fish Traps Made Last Yr	46.6	0	114	14
Lobster Traps Made Last Yr	5.7	0	60	14

Of the approximately 1700 one-mile grids shown to the fishermen, the study respondents only reported fishing in 372. The distribution of these areas and reported lost traps is shown in figure 2.

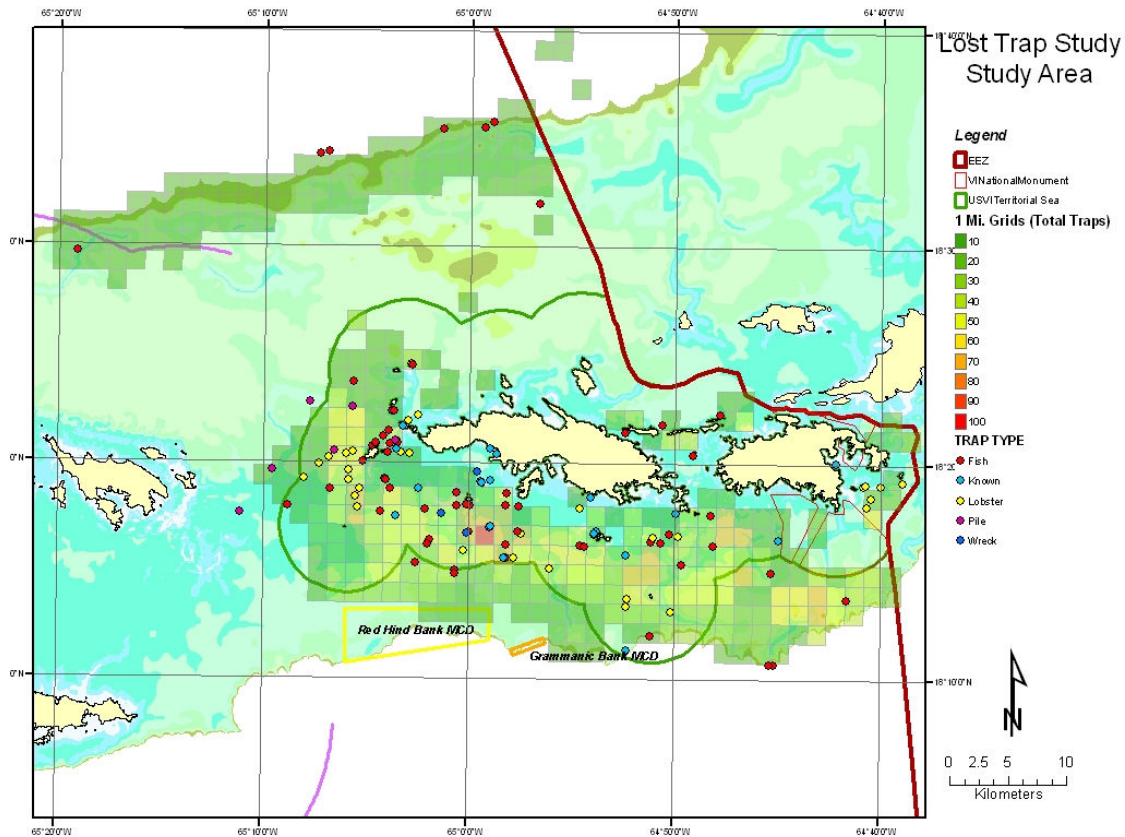


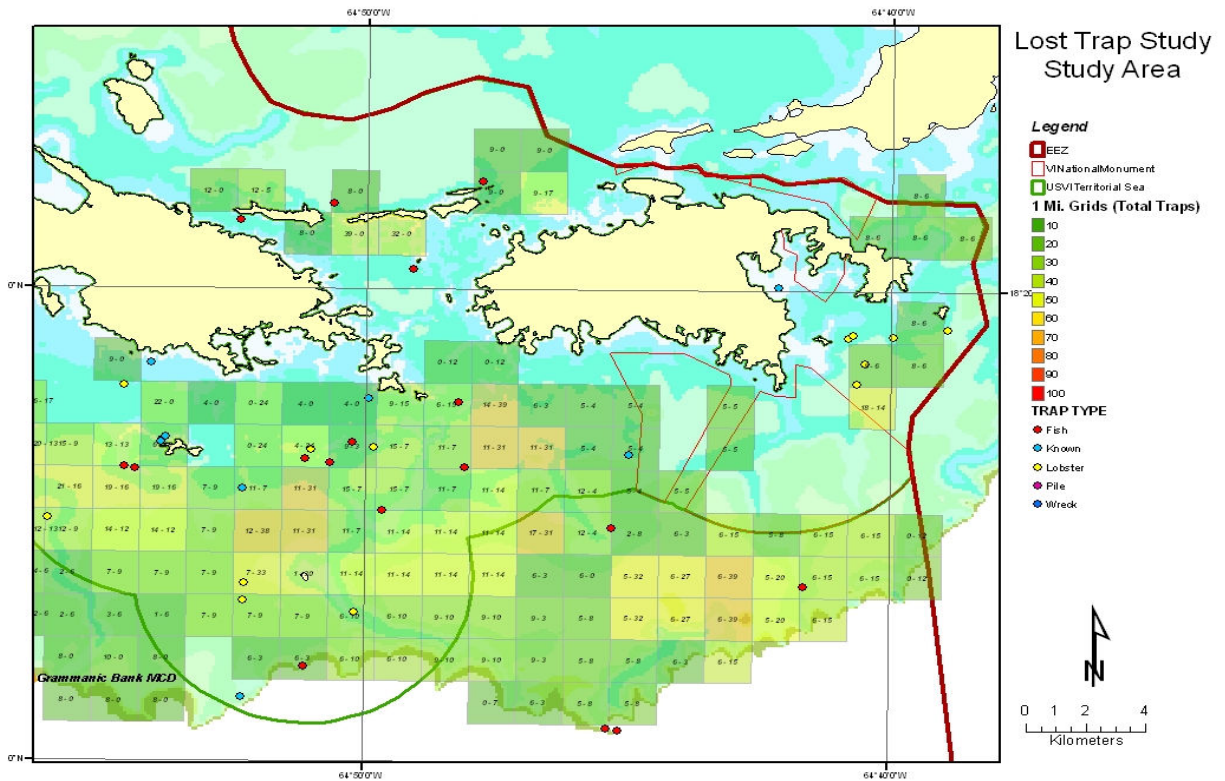
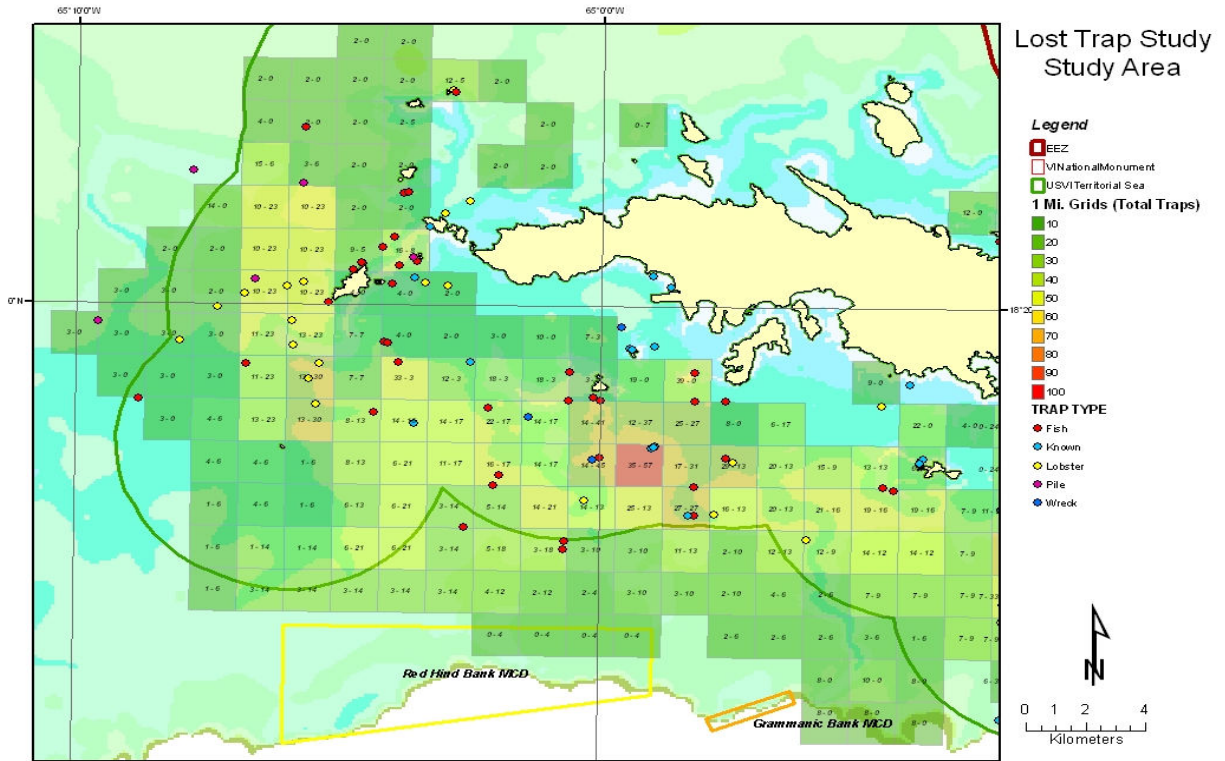
Figure 2. Location of trap fishing area and lost traps on the St. Thomas/St. John shelf.

When the numbers of traps of each type are shown (figures 3 and 4), it is apparent that St. Thomas fishermen concentrate their fishing effort and that likelihood of gear conflicts may be high. One aspect of this conflict is the regular accusation of theft by all of the study participants. A number of the missing traps were nearly new strings which disappeared soon after being set. A number of these were located near the border with the British Virgin Islands.

In all, there were 478 traps reported as lost. Of these 187 were entire strings of lobster traps, leaving 291 single and small strings.

One aspect of the study is that the participants all reported that there area areas (all in the west of St. Thomas) where storms and currents tend to “pile” lost traps in an irretrievable tangle of wire an ropes. It will be an interesting aspect of Phase 3 activities to investigate these locations.

Figures 3 and 4. Location of fishing effort, lost traps, located lost traps, wrecks where traps tend to be found and reported "piles" of lost traps. Numbers in the grids are numbers of fish traps and lobster traps.



## ***Conclusions***

One interesting aspect of the current effort is that fishermen were willing to provide much more precise information to this study than they are to fishery managers. One fishermen even provided the exact GPS locations of all of his current trap strings.

Another interesting aspect of the study is the apparent agreement of information from different sources. Several of the reported trap “piles” were reported in nearly exactly the same locations by different fishermen. Also two of the “found” traps were very close the locations where fishermen reported losing traps. Hopefully, the study may serve to reunite some fishermen with their lost traps.

The primary purpose of the study was to assist in targeting the field survey activities to be undertaken in Phase 3. There are clear areas, primarily south west of St. Thomas where gear conflicts are heaviest and where high trap losses are reported. This should serve to allow for increased precision in targeting the survey portions of the study.