

11-Recreational Fishing Survey

Introduction

In order to assess potential impacts of beach nourishment on nearshore recreational fisheries, a series of angler interviews have been conducted as part of the Biological Monitoring Program (BMP). This report analyses results of interviews conducted in 1997 (construction) and 1998 (first year post-construction) and compares these results to those reported for the pre-construction phase (USACE 1998).

Methods

Recreational fishing interviews were conducted with anglers using nearshore groins, inlet jetties and beach areas. Fishing locations were recorded by groin number, cross street location or specific inlet jetty number (Figures 11-1 to 11-6). Anglers that had been fishing for at least 15 minutes were interviewed. To cover the entire study area and collect as much data as possible during each interviewing period (approximately 2-2.5 hours for each team per event), the study area was divided into two sections, north and south of Shark River, and surveyed by two separate teams. All anglers observed in the study area were surveyed. Each survey team drove along the beach in their sections. Any area which could not be seen from the street was covered on foot to properly view all groins and beach areas. When anglers were located, direct interviews were conducted. Anglers were asked to complete a questionnaire that focused on their present fishing trip.

The questionnaire used during the sampling effort is presented in Appendix A. The survey addressed fishing effort, fishing success, distance traveled, cost, how frequently a person fished (per year) and a comparison of fishing parameters among the 1995, 1996, 1997, and 1998 recreational fishing seasons.

Tidal stage, weather conditions, time, and date were recorded on each questionnaire. Ebbing tides were recorded as high to low, while flooding tides were recorded as low to high. Accordingly, peak tides were recorded as either high or low.

Results and Discussion

Fishing Observations: During the 1995-1996 (pre-construction) phase, 3,737 anglers were interviewed. In 1997 (during-construction), 1,092 anglers were interviewed. During the 1998 (post-construction), 387 anglers were interviewed. Figure 11-7 depicts the preference of recreational anglers during each time period of the BMP. Angler fishing site preferences prior to construction were as follows: 18.4% used beaches, 36.3% used groins and 45.4% used inlet jetties (Manasquan North Inlet Jetty and Shark River North & South Inlet Jetties). Beach use decreased during construction to 3.0% of the anglers interviewed as compared to 18.4% (Figure 11-7) prior to construction. During construction inlet jetties remained the most popular fishing areas at 65.8%; groins were fished by 31.2% of those interviewed. Groins were the most popular post-construction fishing areas (Figure 11-7) at 44.2% and inlet jetties were fished by 43.2% of anglers. Beaches were utilized by 12.7% of the anglers surveyed.

Direct Interviews: The Manasquan North Inlet Jetty and both Shark River Inlet Jetties were consistently the most popular fishing locations during the four years combined with 49.5% of the anglers utilizing these structures (Figure 11-7). Groin use by anglers varied somewhat between phases. Groin use before construction was 36.3% as compared to 31.2% and 44.2% for during- and post-construction surveys, respectively.

1) Beach use by anglers changed throughout the study area for all three phases. Beach use during construction declined, probably due to loss of accessibility during the beach construction phase. Beach use increased after construction to 12.7% in comparison to only 3.0% of anglers using beaches during-construction, also possibly due to increased accessibility.

2) Anglers were asked how long they had been fishing that day within the total study area. When comparing the mean amount of time anglers spent in an area over the three phases (1995-1998), 60.5% had fished between 1-4 hrs, 30.7% had fished for < 1 hr, 8.8% had fished for > 4 hrs (Figure 11-8). The time anglers spent in the study area did not change appreciably between construction phases.

3) Estimates of how much longer anglers would be fishing indicated that 64.1% would be fishing for another 1-4 hrs, 30.0% would fish for < 1 hr and 5.9% would fish for > 4 hrs (Figure 11-9). When comparing differences between phases there was generally little change in duration of total time spent fishing per angler.

4) Anglers specifically targeted striped bass 30.2% of the time for all data combined (Figure 11-10). Flounder (24.0%) and “fishing for anything” (19.0%) were the next most targeted catches. Bluefish and tautog were targeted by 10.0% and 6.6%, respectively, of the anglers interviewed during the first four years of the BMP. The 1997 survey exhibited a change in preference by anglers from prior results. Before construction 40.0% of anglers targeted striped bass, which decreased to 13.0% during and after construction. This decrease could be due to the loss of beach area traditionally used for striped bass fishing, or the time of year (Fall) the surveys were conducted. An overall increase in anglers targeting flounder was exhibited in the 1997 and 1998 surveys. Species landed by interviewed anglers are shown in Figure 11-11. Six species which comprised at least 10% of the total catch during the three phases of the BMP were flounder (20.9%), bluefish (16.7%), sea robins (13.3%), striped bass (11.2%), tautog (9.4%) and kingfish (9.0%). Recreational catches for flounder were highest in 1998 surveys (53.4%) and lowest during 1995-1996 (17.0%), perhaps because more anglers were targeting them in 1998 as compared to 1995-1996 (48.9% and 22%, respectively). Bluefish landings declined after construction (16.1%), when compared to during construction (36.5%).

5) Bluefish represented 11.3% of the total catch during pre-construction surveys. Sea robin catch was highest during 1995-1996 surveys (16.4%) compared to 1997 (4.8%) and 1998 (5.9%) surveys. Striped bass comprised 13.7% of the total catch prior to construction, 1.9% of the during-construction total catch, and 11.3% of the post-

construction total catch. Tautog catch decreased throughout the course of the surveys. Tautog represented 11.1% of the total catch in 1995-1996 and decreased to 6.9% and 0.5% in 1997 and 1998, respectively. Kingfish catch decreased from 11.1% in 1995-1996 to 3.8% in 1997 and to 2.1% in 1998. Other species exhibiting patterns in landings were black seabass and cunner. Black seabass accounted for 7.7% of the total catch during the pre-construction phase. During and after construction black seabass exhibited a decrease to 1.1% and 3.8% of the total catch, respectively. Cunner landings were different than any other species. During 1995-1996, cunner represented 2.3% of the total catch, but in 1997 surveys it represented 11.5%, and during 1998 surveys only 0.5% of the total catch. Tautog, cunner, and black seabass are species with known habitat affinities for hard substrates. Observed changes in their respective catches may reflect loss of groin habitat as a result of coverage by fill materials.

6) A total of 69.1% of anglers surveyed fished for recreation more than five times per year in the study area, 20.8% fished two to five times per year, and 10.1% utilized the study area for recreational fishing once per year (Figure 11-12). The frequency of fishing trips to the study areas by anglers did not change appreciably between phases.

7) An attempt was made to determine how far anglers were traveling to fish. Figure 11-13 shows the percentage of people who traveled <10 miles, 10-50 miles, 51-100 miles, and >100 miles to recreationally fish in the beach nourishment project area. These data indicate that most anglers (over the four-year study period) traveled between 10-50 miles (39.2%) and < 10 miles (38.5%) to fish in the study area. A total of 18.4% traveled 51-100 miles and 4.0% traveled >100 miles.

8) An estimate of the amount of money spent per recreational fishing excursion per angler was determined. The combined responses over the four-year study are given in Figure 11-14. Most anglers (68.7%) spent < \$10 per fishing outing, 29.6% spent between \$10-50, 1.4% spent \$51-100 and 0.2% spent > \$100.

9) The survey was also designed to gauge angler perceptions (better, worse, the same, or declined) regarding fishing success during later project phases relative to pre-construction conditions. Figure 11-15 indicates the combined responses for the three BMP phases. The "No Opinion" response was the highest percentage response (30.9%), followed by "Better" (27.9%), "Same" (21.6%), and "Worse" (19.6%). A small percentage of the anglers (6.4%) during construction felt that fishing success was worse than before construction. Post-construction surveys revealed an 8.9% decrease in the percentage of anglers who thought fishing was "Worse", compared to during construction survey results.

10) Recreational anglers were asked if they had previously been surveyed. During 1996, 385 anglers had been interviewed in the previous 1995 survey or earlier that year. During 1997, 614 anglers had been surveyed either previously (1995-1996) or earlier that year. The 1998 survey revealed 100 anglers had been previously interviewed either during the previous surveys or earlier during 1998.

Summary

Recreational anglers in the study area fished primarily from the Shark River Inlet North Jetty (45.4%), Shark River Inlet South Jetty (65.8%) and the Manasquan Inlet North Jetty (43.2%). It was observed that anglers consistently utilized the inlet jetties because of easy fishing access. Groins provide similar habitats, but because of hazardous and wet conditions limiting access to these fishing areas, many anglers appear to be reluctant to use groins. The 56 groins within the study area were utilized by 36.3%, 31.2% and 44.2% of anglers during pre-, during, and post-construction surveys, respectively. Anglers within the study area fished groin numbers 101, 103, 105, 117, and 119. Beaches were the least utilized fishing area during the three-year study period and represented 18.4%, 3.0%, and 12.7% of anglers during 1995-1996, 1997, and 1998, respectively.

Striped bass, flounder, and bluefish were the predominant species targeted during the entire sampling effort. A large number of anglers were fishing for "anything that bites" (19.0%). Interviews revealed that flounder, bluefish, black seabass, kingfish, and cunner were the dominant fish caught by anglers during the survey effort. Striped bass were primarily caught in the fall. The majority of anglers had been fishing from 1-4 hrs. (60.5%) when they were interviewed, and were anticipating to fish an additional 1-4 hrs (64.1%). Generally, most anglers interviewed fished more than 5 times per year (69.1%) in the study area, traveled less than 50 miles (39.2%) and spent less than \$10 (68.7%) for the day's fishing effort. A slight increase in the percentage of anglers believed that fishing was better during 1998 surveys when compared to 1997.

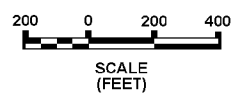
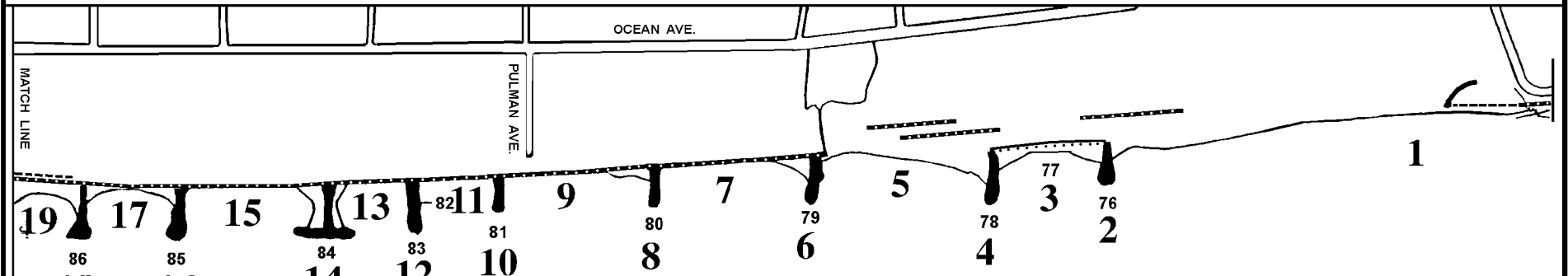
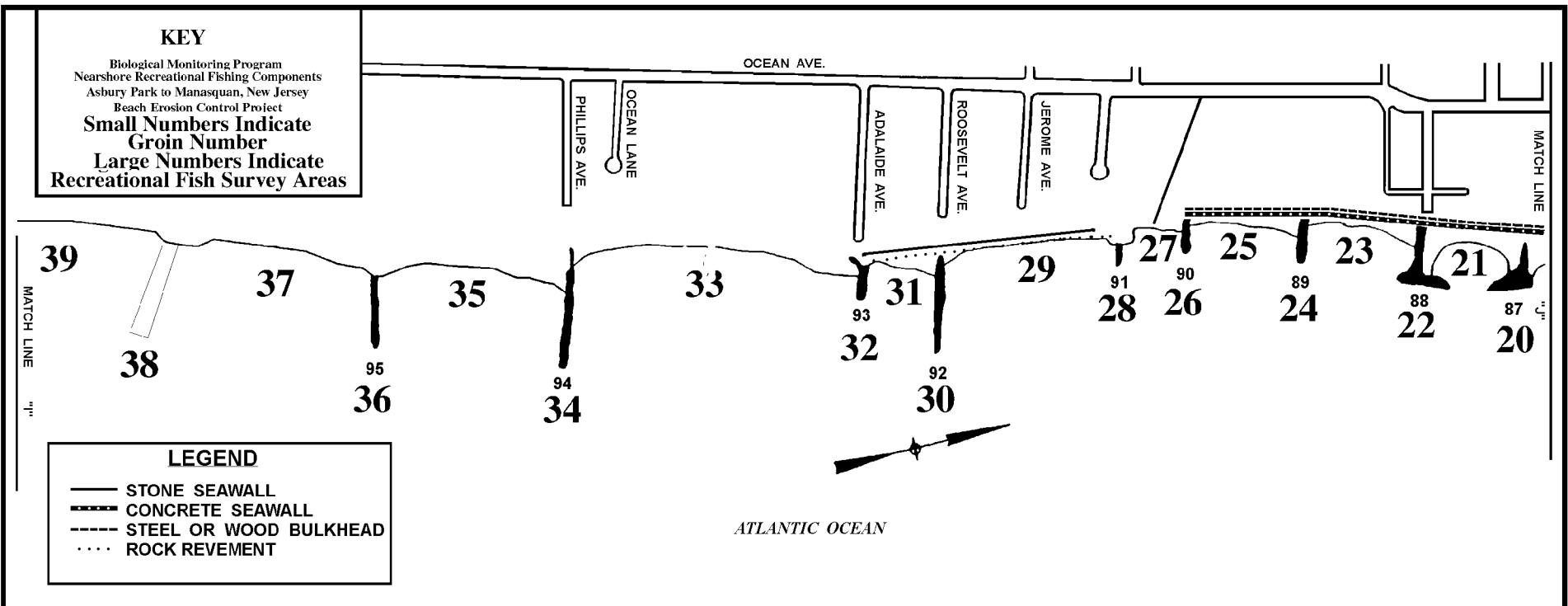
Interim results from the recreational fisherman surveys do not indicate dramatic shifts in on overall angler utilization, recreational species preference or angler fishing success. Beach utilization did show some decline during construction, but this may have been a reflection of the fact that beach access in nourishment areas was restricted. Beach utilization did increase after construction (1998). Striped bass decreased in creel landings in 1997; however, other species such as bluefish and flounder showed an increase in overall landings. Beach nourishment operations did not affect the amount of time anglers spent fishing. One indication that the appeal of fishing in the study area had not diminished was that the percentage of anglers traveling between 51-100 miles and >100 miles increased from the pre-construction surveys.

Literature Cited

U.S. Army Corps of Engineers 1998. The New York District's Biological Monitoring Program for the Atlantic Coast of New Jersey, Asbury to Manasquan Section Beach Erosion Control Project. Phase I. Pre-Construction Baseline Studies. Contract report to the New York District. Waterways Experiment Station Vicksburg, MS.

KEY
 Biological Monitoring Program
 Nearshore Recreational Fishing Components
 Asbury Park to Manasquan, New Jersey
 Beach Erosion Control Project
**Small Numbers Indicate
 Groin Number**
**Large Numbers Indicate
 Recreational Fish Survey Areas**

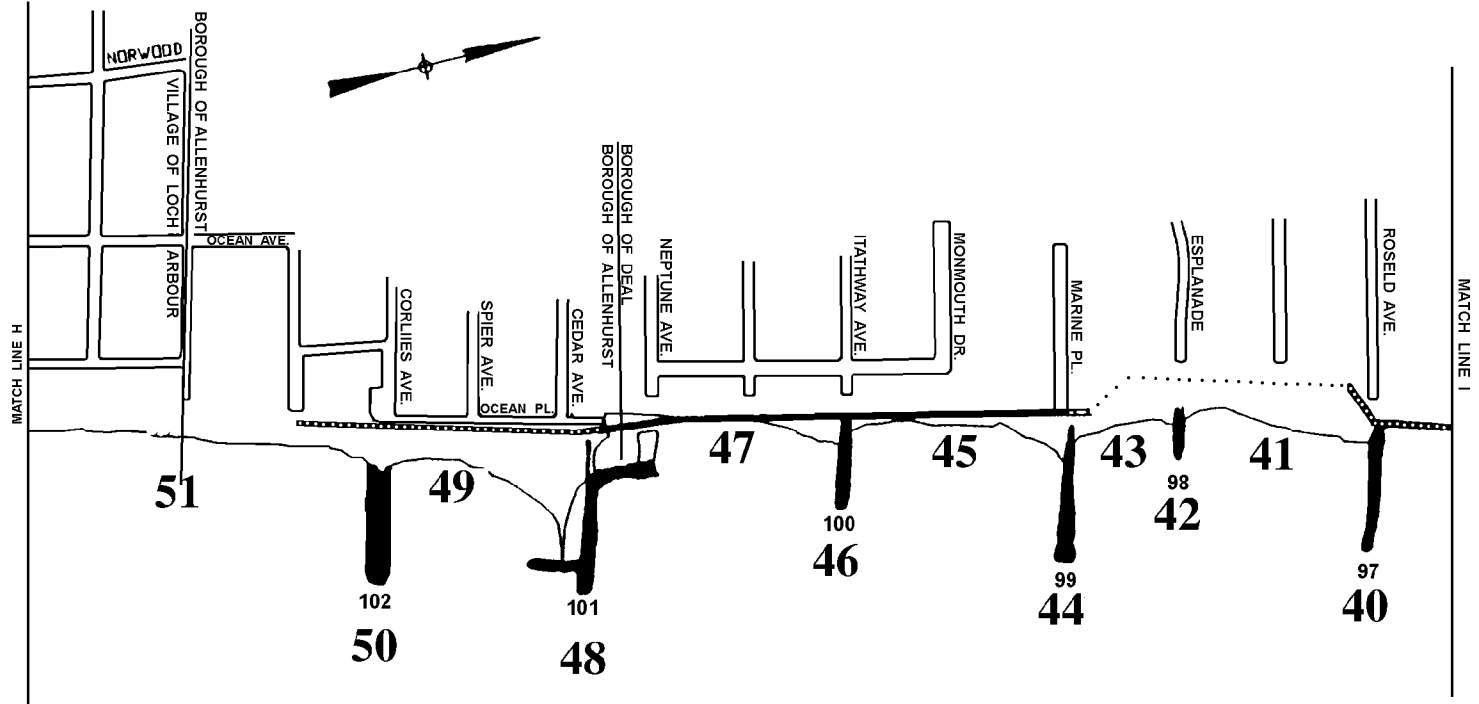
LEGEND
 ——— STONE SEAWALL
 - - - - CONCRETE SEAWALL
 - - - - STEEL OR WOOD BULKHEAD
 ROCK REVEMENT



SOURCE: U.S. ARMY CORPS OF ENGINEERS / NEW YORK DISTRICT-GENERAL DESIGN MEMORANDUM.
 ATLANTIC COAST OF N.J. SANDY HOOK TO BARNEGAT INLET BEACH EROSION CONTROL PROJECT
 SECTION II - ASBURY PARK TO MANASQUAN, N.J.

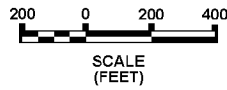
**U.S. ARMY CORPS OF ENGINEERS
 N.Y. DISTRICT**
 Figure 11-1
 Locations of Recreational Fisherman
 Survey Sites
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KEY
 Biological Monitoring Program
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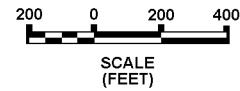
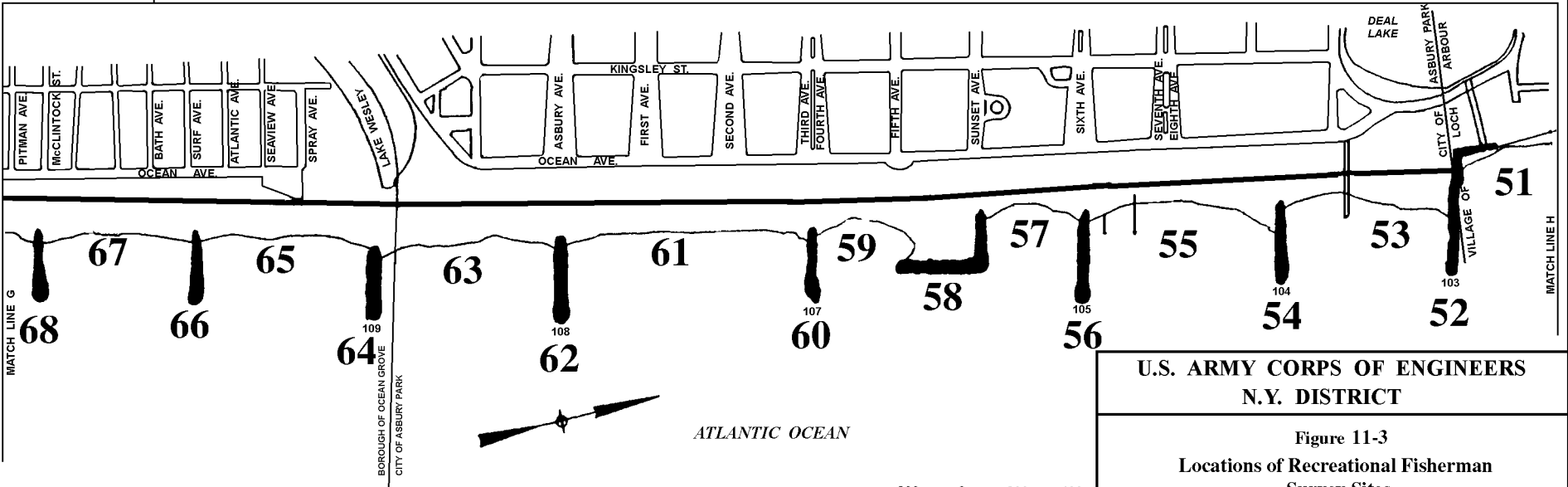
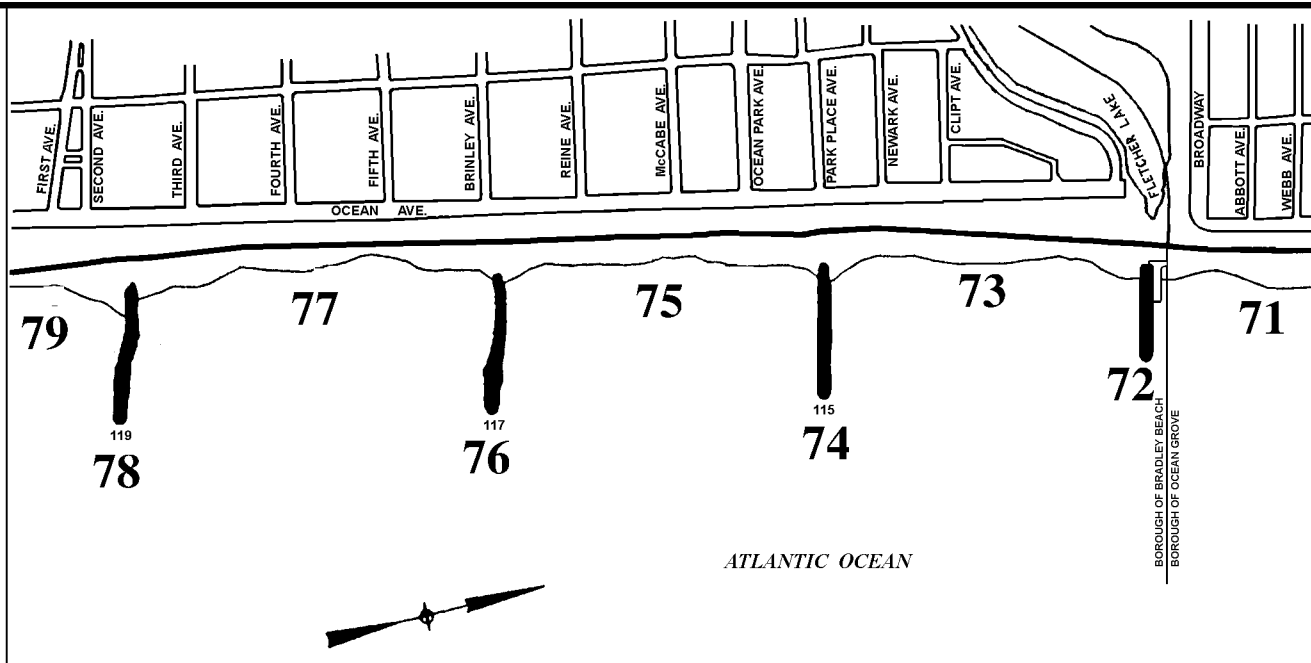
ATLANTIC OCEAN



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 Locations of Recreational Fisherman
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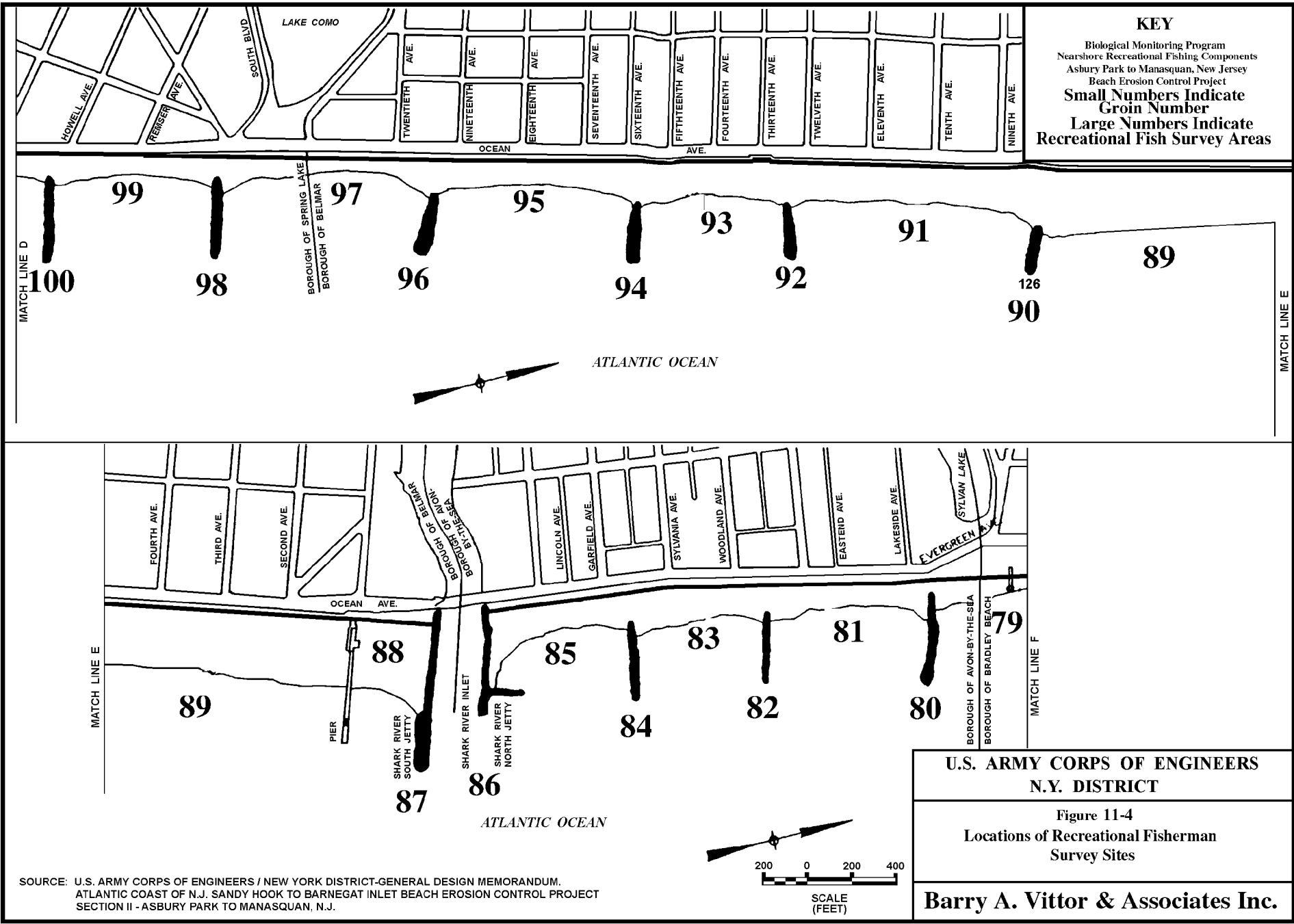
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 Figure 11-3
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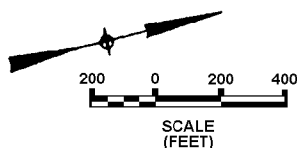
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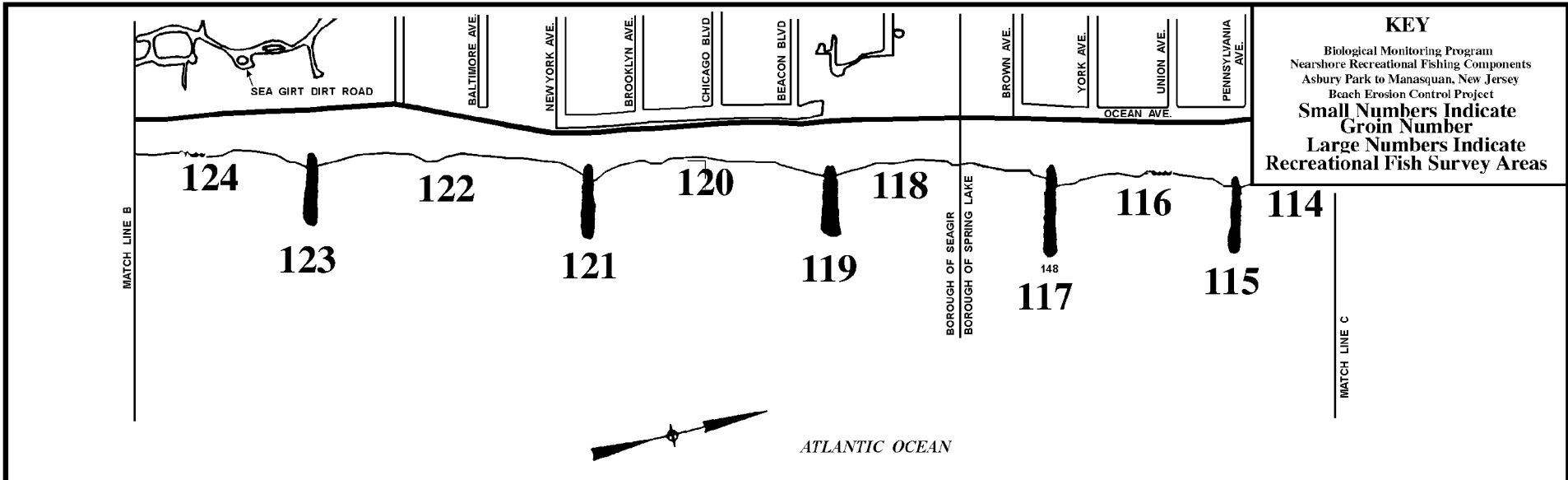
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Figure 11-4
 Locations of Recreational Fisherman
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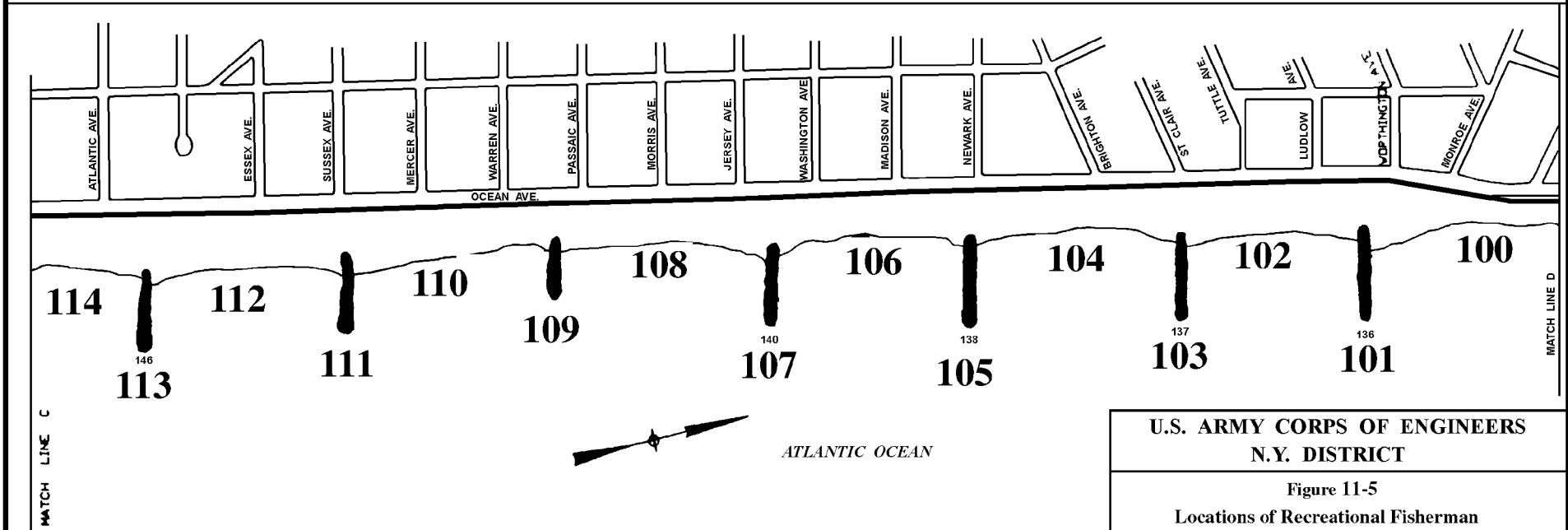
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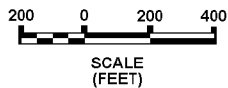


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**Figure 11-5
 Locations of Recreational Fisherman
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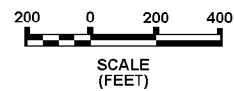
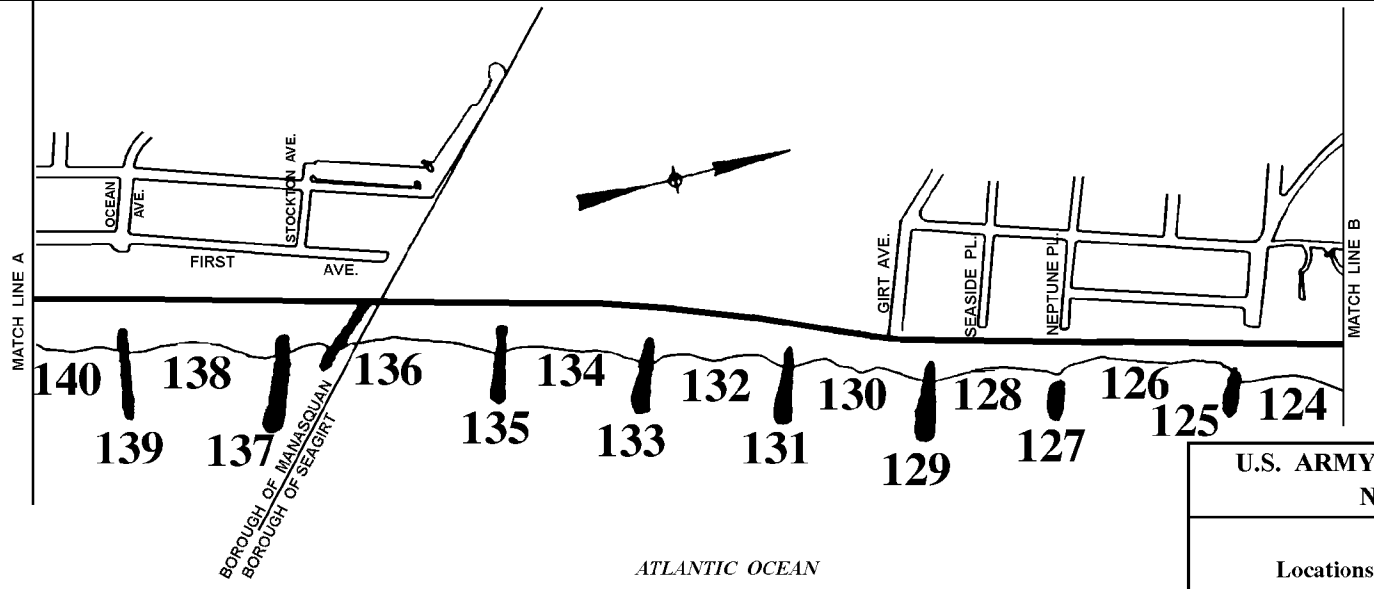
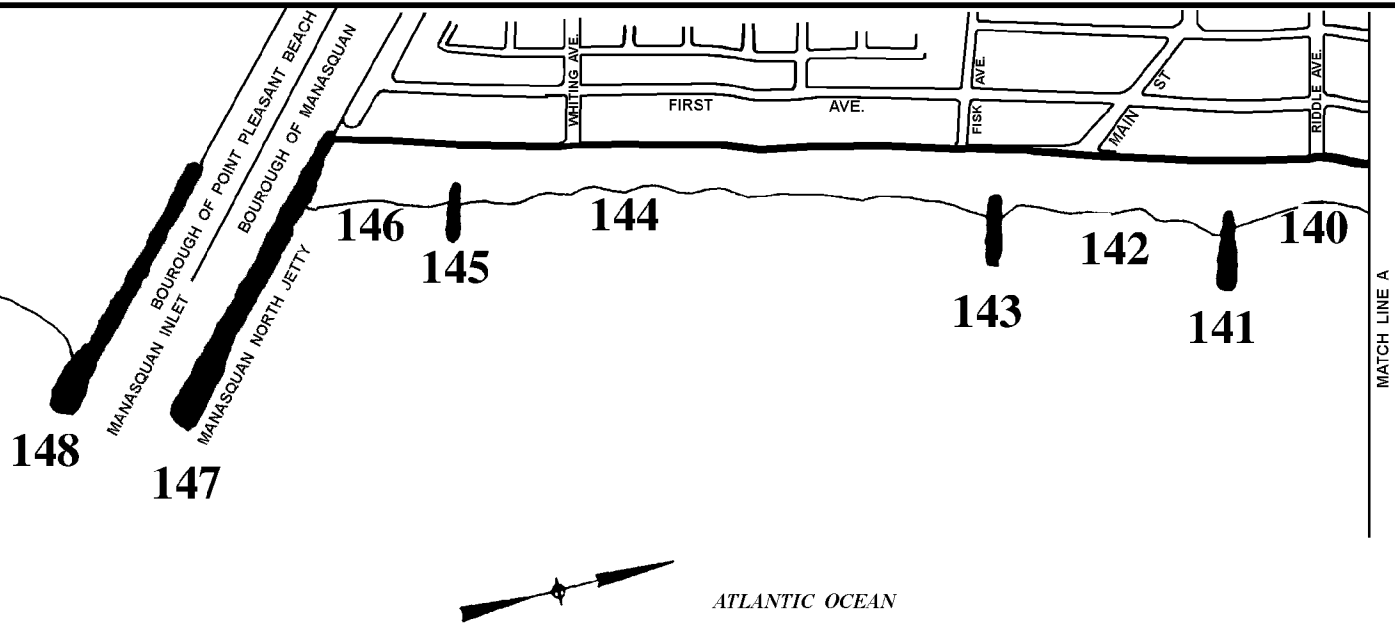


SOURCE: U.S. ARMY CORPS OF ENGINEERS / NEW YORK DISTRICT - GENERAL DESIGN MEMORANDUM.
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**Figure 11-6
 Locations of Recreational Fisherman
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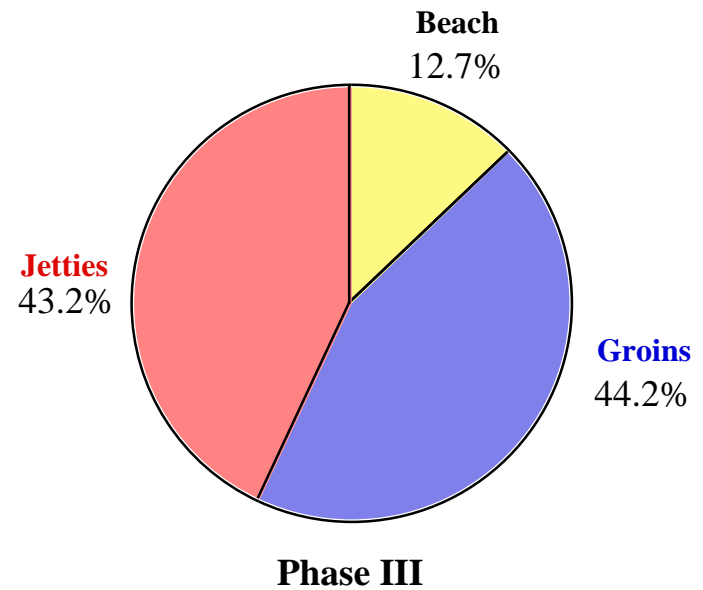
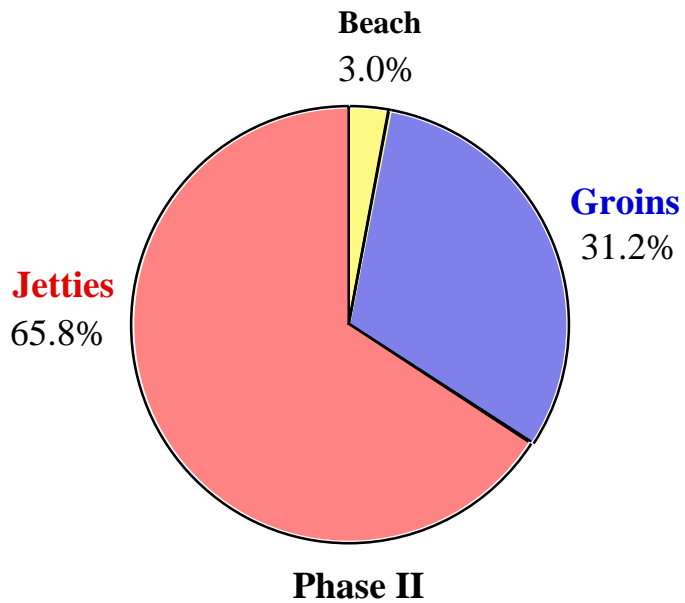
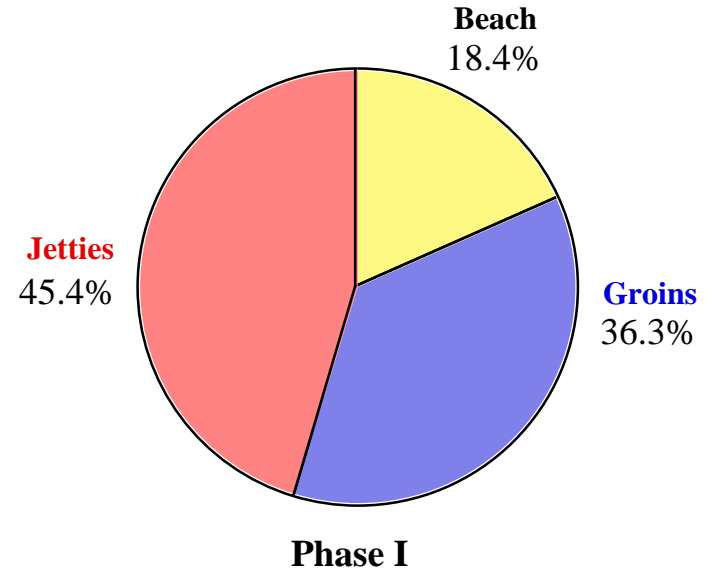
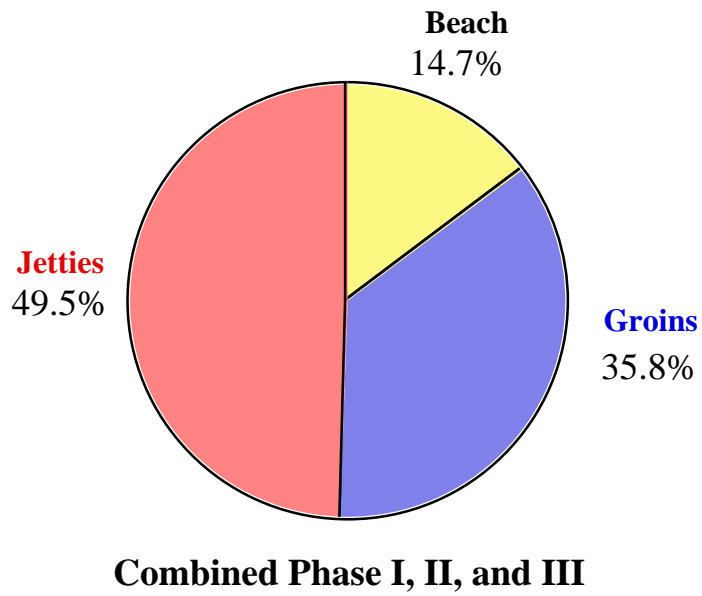
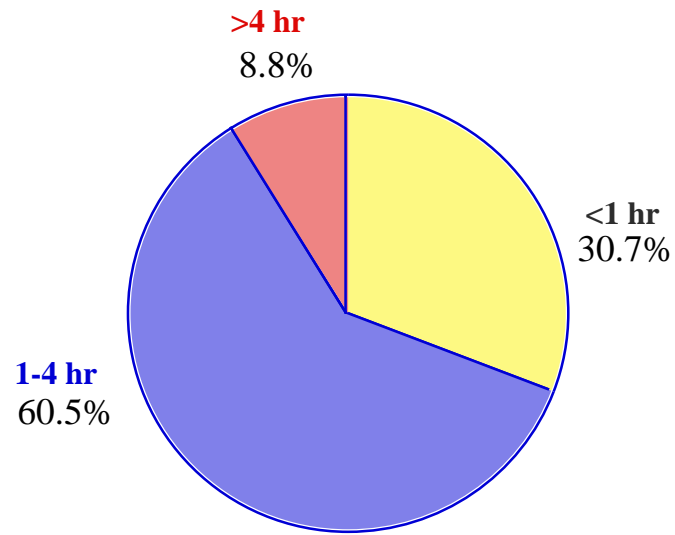
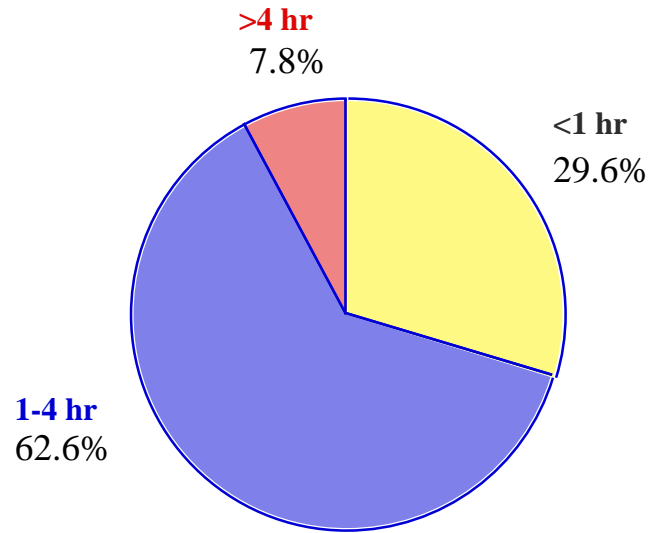


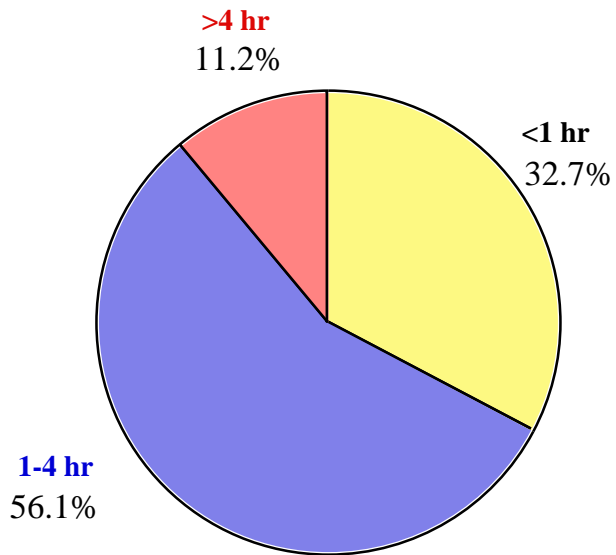
Figure 11-7. Area utilized by recreational anglers during the 1995, 1996, 1997, and 1998
Recreational Fisherman survey of the NY District USACE Biological Monitoring Program.



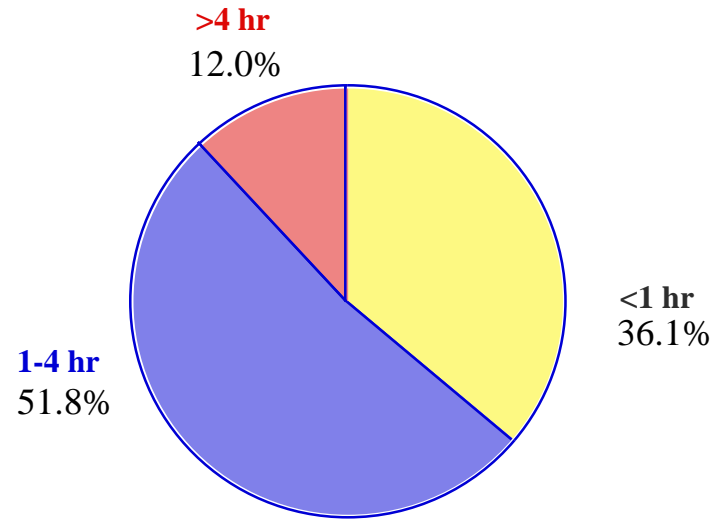
Combined Phase I, II, and III



Phase I



Phase II



Phase III

Figure 11-8. Response results of the duration of time spent fishing by recreational anglers during the Recreational Fisherman survey of the NY District USACE Biological Monitoring Program.

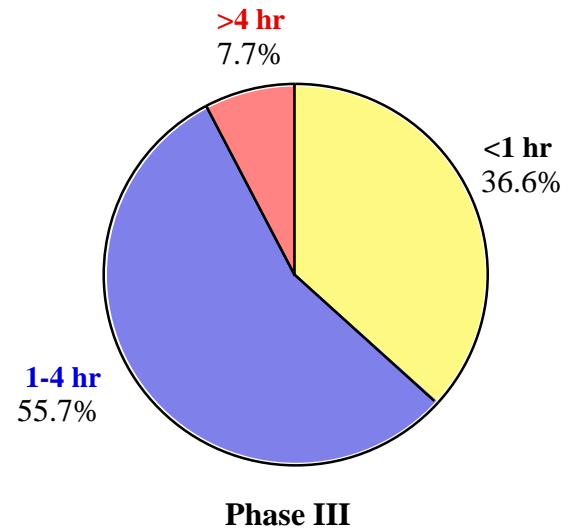
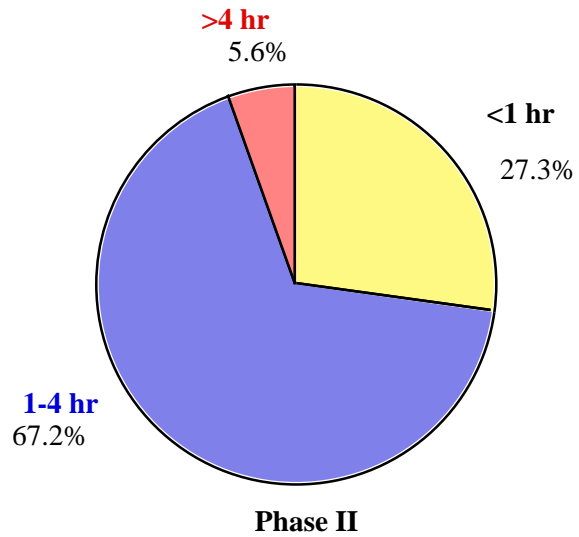
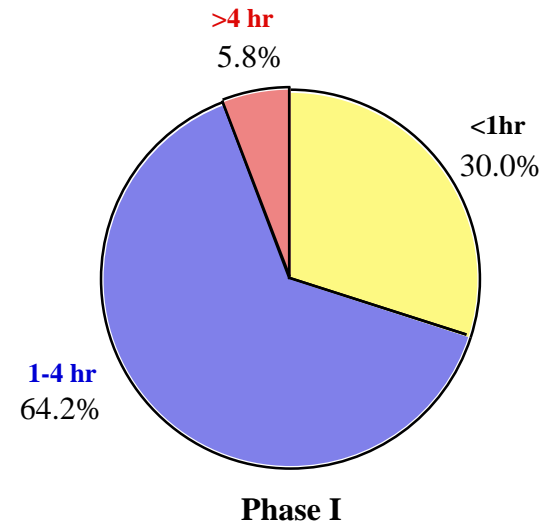
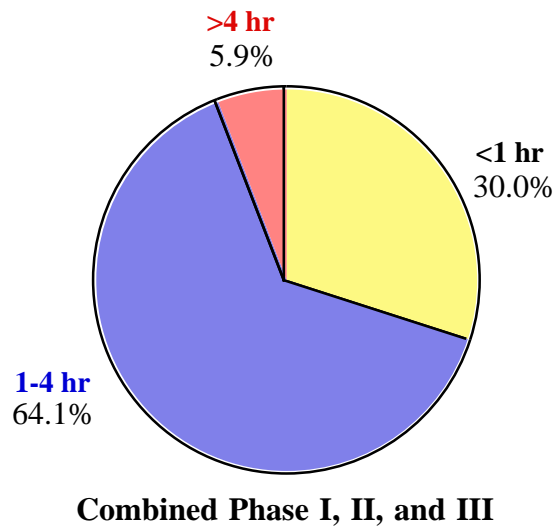


Figure 11-9. Continued amount of time spent by recreational anglers in the study area for the Recreational Fisherman survey of the NY District USACE Biological Monitoring Program.

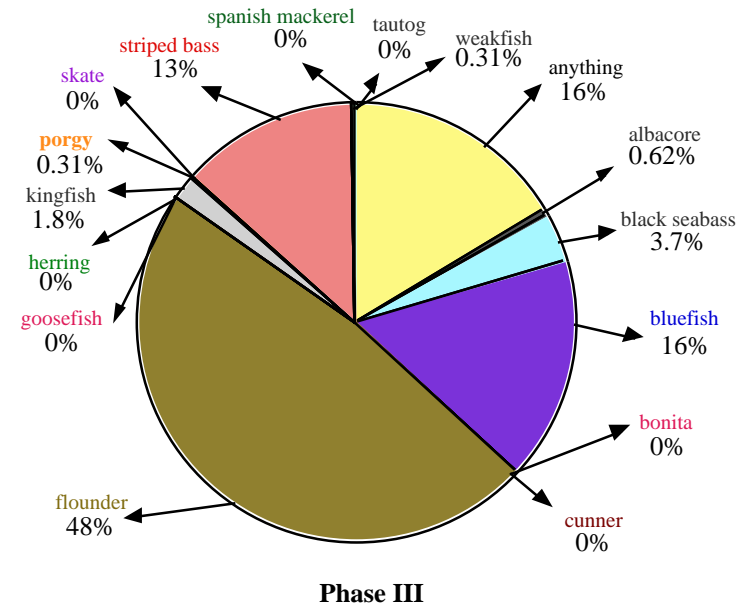
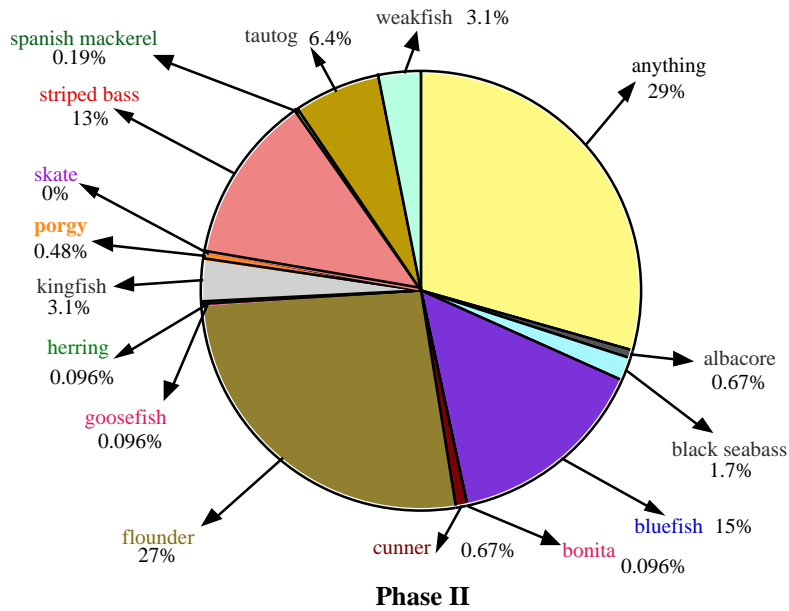
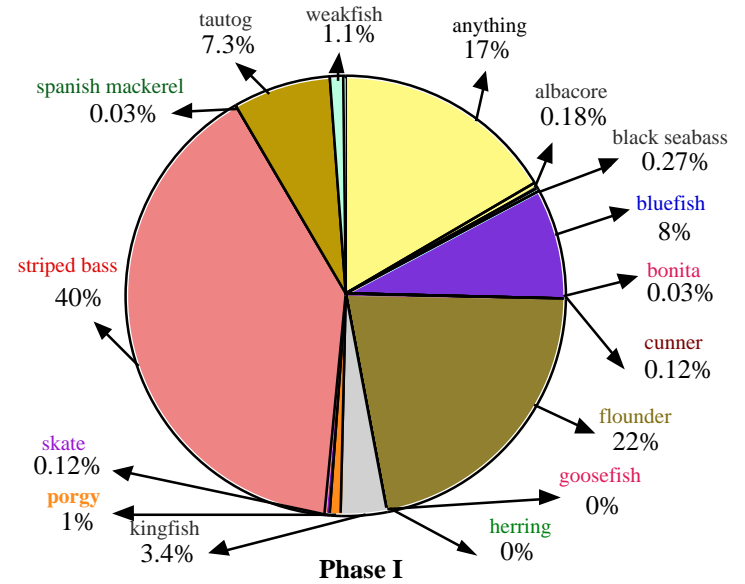
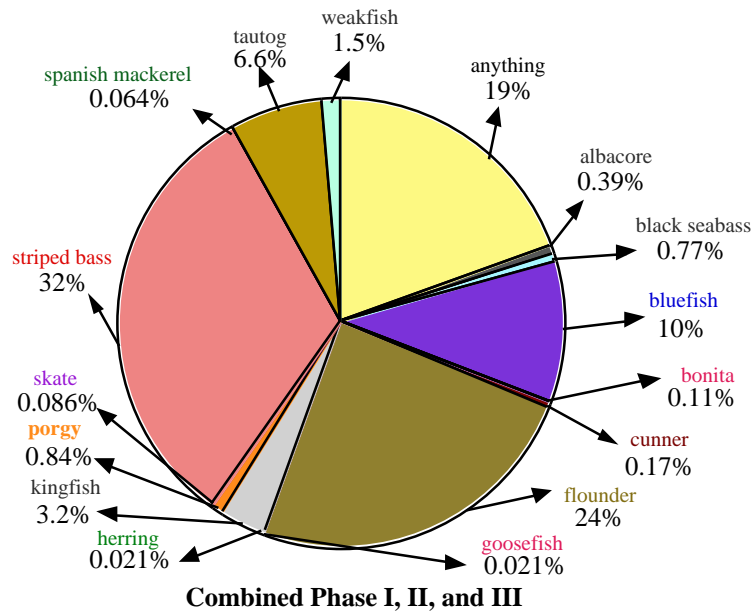


Figure 11-10. Species targeted by recreational anglers during 1995, 1996, 1997, and 1998
Recreational Fisherman survey of the NY District USACE BMP.

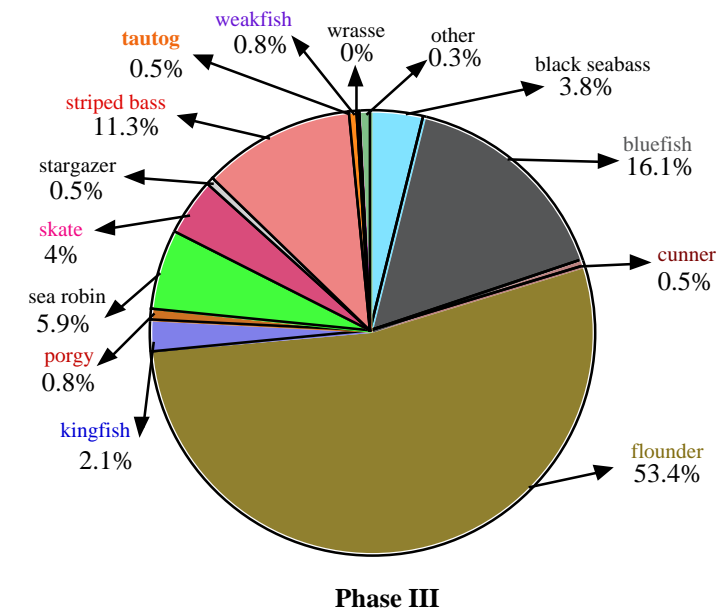
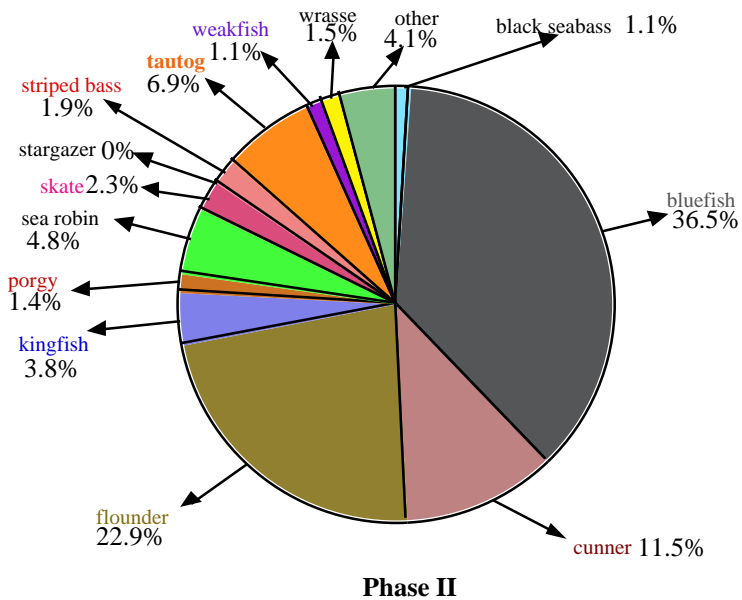
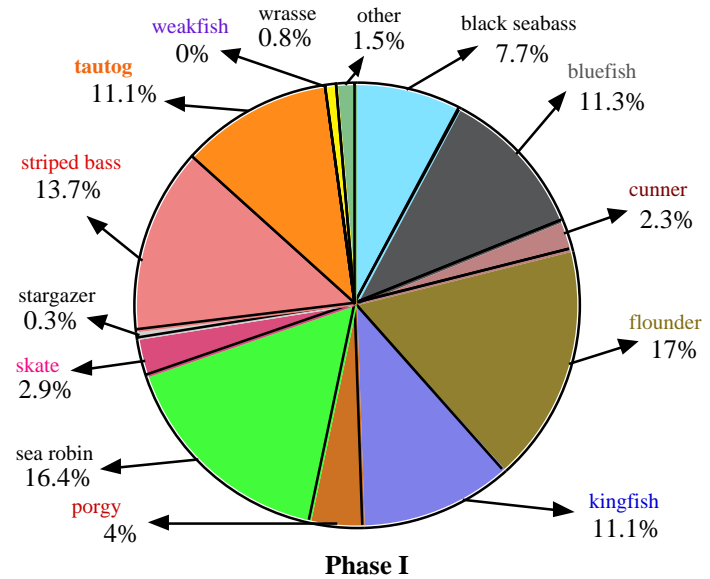
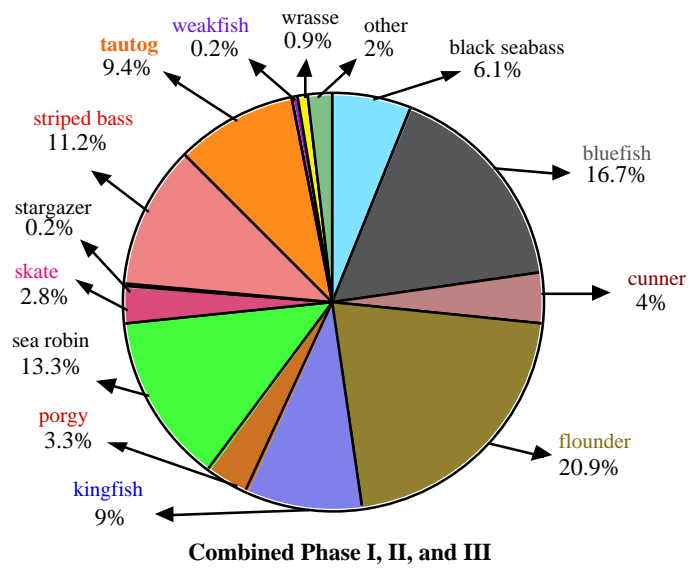
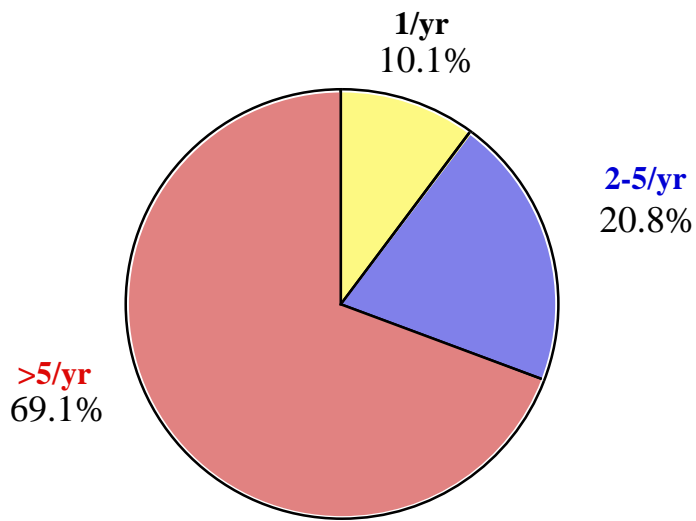
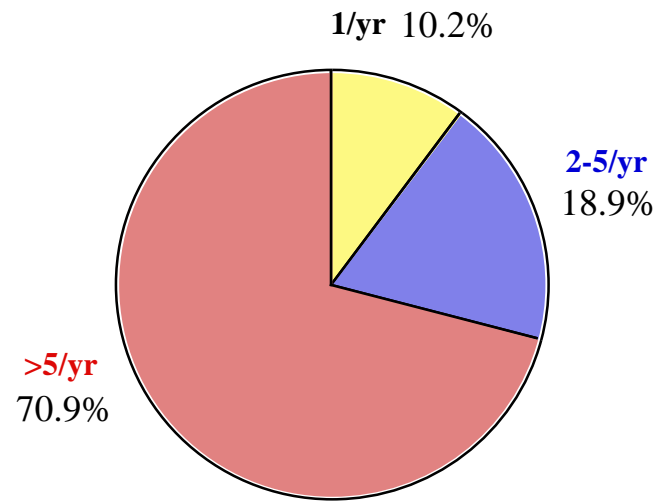


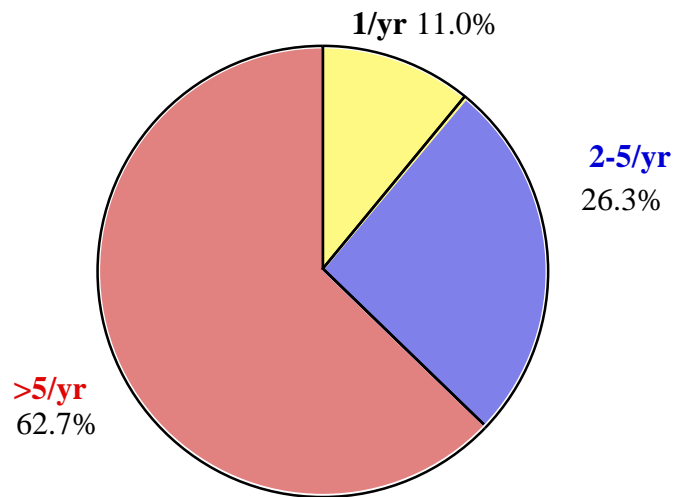
Figure 11-11. Creel landings of the recreational anglers surveyed during the 1995, 1996, 1997, and 1998 Recreational Fisherman survey of the NY District USACE BMP.



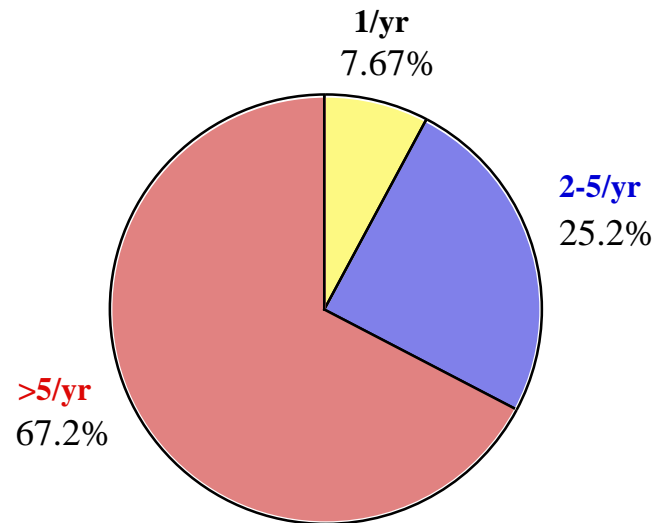
Combined Phase I, II, and III



Phase I



Phase II



Phase III

Figure 11-12. Response results of the frequency of fishing by recreational anglers in the study area for the Fisherman survey of the NY District USACE Biological Monitoring Program.

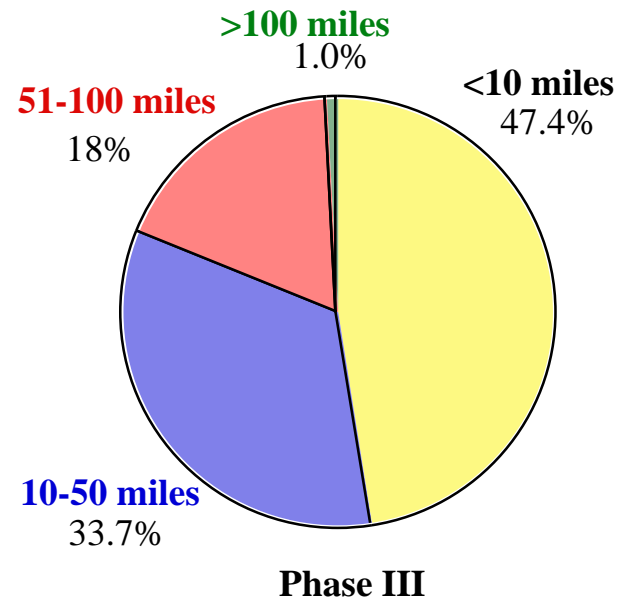
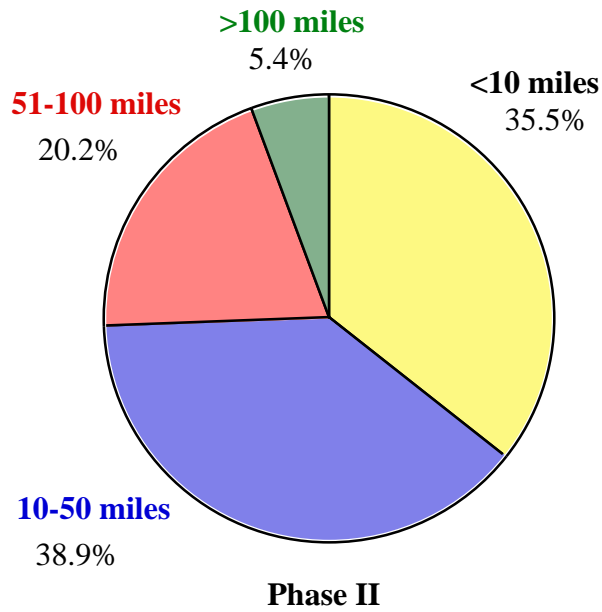
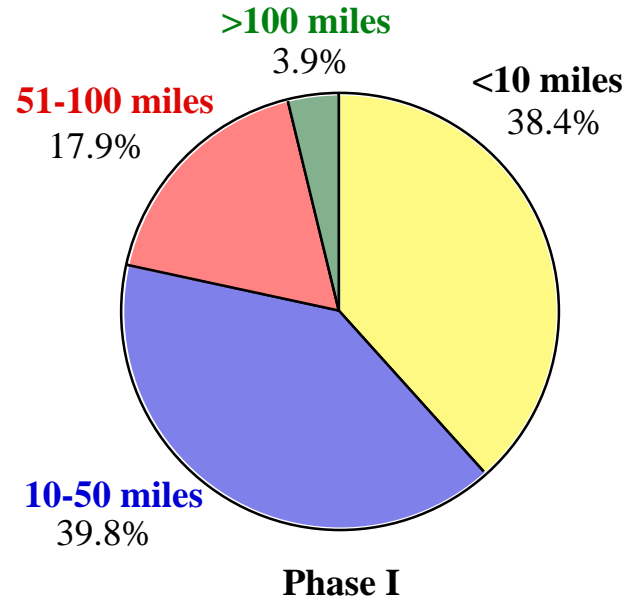
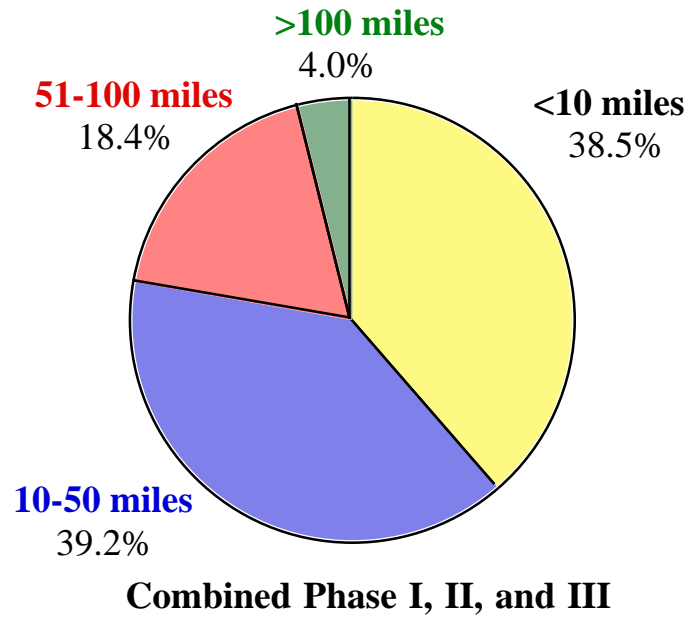
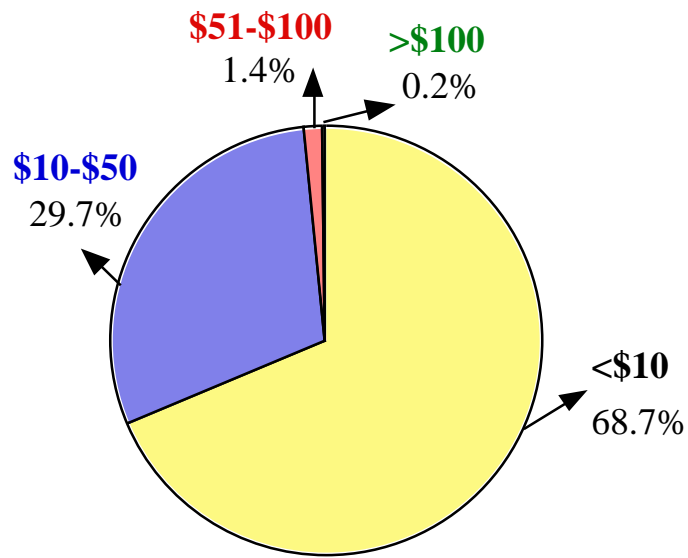
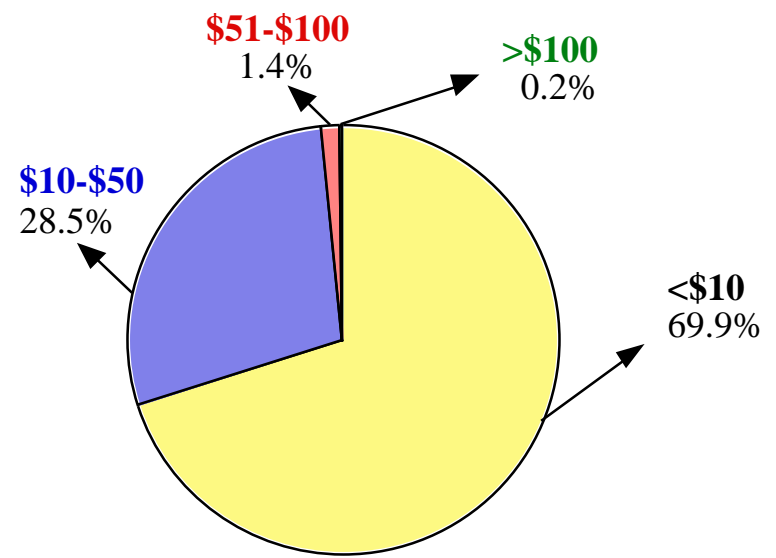


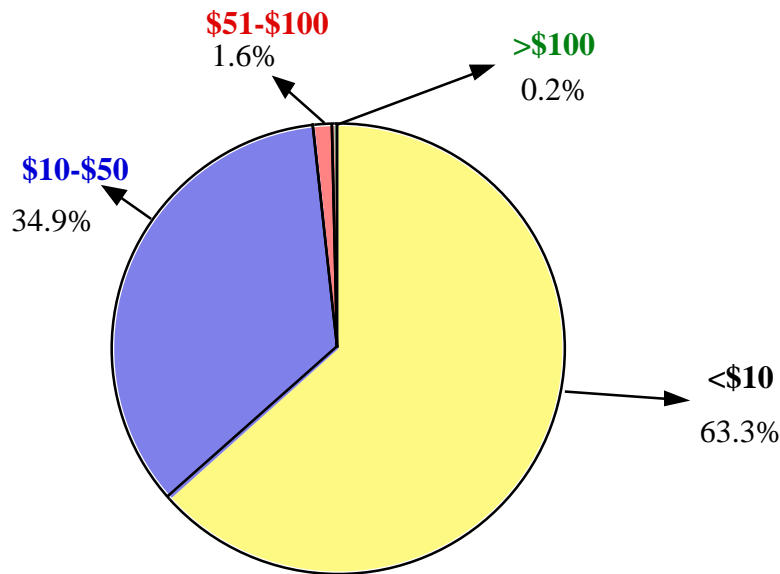
Figure 11-13. Distance traveled by recreational anglers surveyed during the Recreational survey of the NY District USACE Biological Monitoring Program.



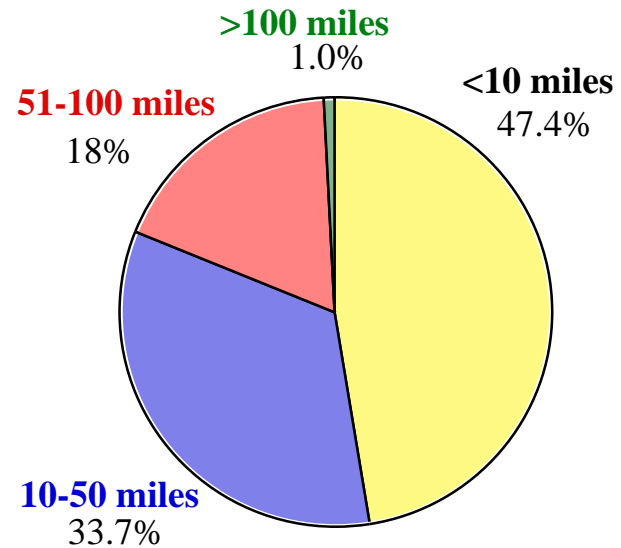
Combined Phase I, II, and III



Phase I



Phase II



Phase III

Figure 11-14. Response results for the amount of money spent per fishing trip by recreational anglers for the Fisherman survey of the NY District USACE Biological Monitoring Program.

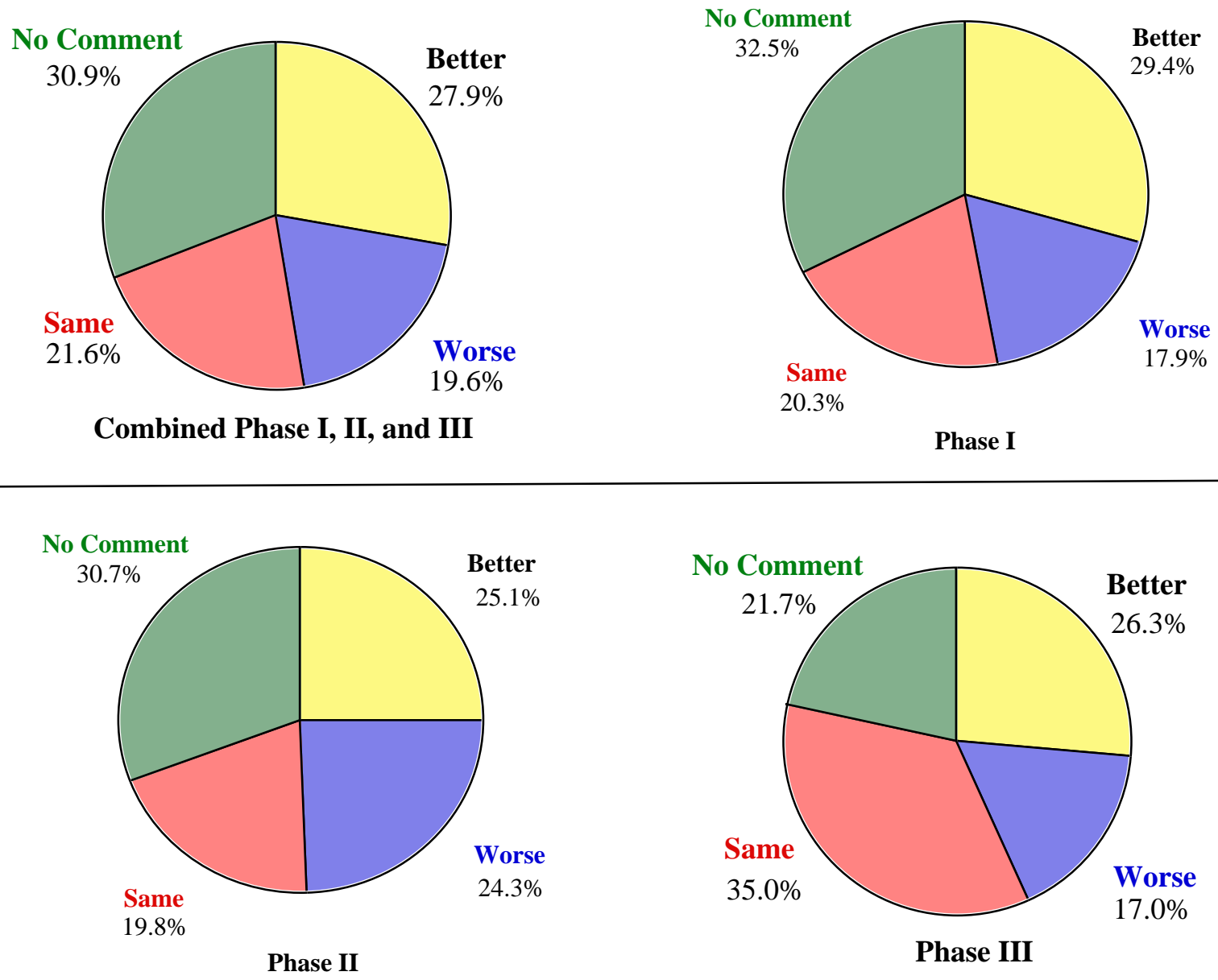


Figure 11-15. Response results for recreational anglers opinions on fishing quality in the study area for the Recreational survey of the NY District USACE Biological Monitoring Program.

TABLE 11-1. NEARSHORE RECREATIONAL FISHING QUESTIONNAIRE

Note: This document is designed to assess the general usage of nearshore recreational fishing. Please ask the questions below and check/complete the appropriate boxes/blanks:

1. Where did you fish? From the beach (indicate area) _____
 From nearshore groins (indicate area) _____
 Beyond nearshore groins (indicate area) _____

2. How long have you been fishing? Less than 1 hour
 1 - 4 hour s
 Greater than 4 hours (indicate time) _____

3. How much longer do you anticipate to fish? Less than 1 hour
 1 - 4 hours
 Greater than 4 hours (indicate time) _____

4. What are you fishing for? _____

5. What did you catch?

| Type | Qty. | Length(s) (inches) | Weight(s) (lb) |
|-------|-------|-----------------------|-------------------|
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

6. How often do you fish here? Once per year
 2 - 5 times per year
 Greater than 5 times per year (indicate number) _____

7. How far did you travel to fish? Less than 10 miles
 10 - 50 miles
 51 - 100 miles
 Greater than 100 miles (indicate miles) _____

8. How much did you (bait, lures, food, etc.) spend fishing today? Less than \$10
 \$10 - \$50
 \$51 - \$100
 Greater than \$100 (indicate amount) _____

9. How is the fishing this year compared to last year? Better
 Worse
 Same
 No comment

10. Have you been interviewed before? Yes
 No

| |
|----------------------|
| Date: _____ |
| Time: _____ |
| Weather/Tides: _____ |
| Interviewer: _____ |