

RESULTS OF THE 1963 DRIFT BOTTLE PILOT STUDY

INTRODUCTION

The sporadic and often isolated distribution of razor clam set on Clatsop beaches suggests that the inshore ocean currents may be an important factor in the distribution. A drift bottle study was organized and a pilot run initiated on March 7, 1963 to provide preliminary information for a comprehensive study.

METHODS

The pilot run consisted of a drop of 140 bottles at 1-mile intervals along the 5-fathom curve (about 1 mile offshore) between Tillamook Head and the Columbia River.

The drift bottles were 11-ounce bear bottles weighted with sand so that they would either float with just the tip of the neck above the water or sink to the bottom. Five bottles of each weight were released at each of 14 stations (Figure 1).

RESULTS AND DISCUSSION

The 5-fathom curve is visibly nearer the shore off Gearhart than it is from the Peter Iredale north. Thus, the releases north of the Peter Iredale were about 1.5 to 2 miles offshore instead of the desired 1 mile.

The first recoveries were made on the morning of March 8, and 35 were finally found during the day. On March 9, 14 bottles were recovered on the Seaside Beach. The lateral drift of the first recoveries ranged to 1.3 miles both north and south of the release sites, but those recovered at Seaside had drifted from 9.5 to 12.5 miles from stations 8, 9, and 10 and one had drifted 4.5 miles south from Station 3.

COLUMBIA RIVER

2.

XIV

NORTH

XIII

XII

Peter Iredale Road

XI

3

X

IX

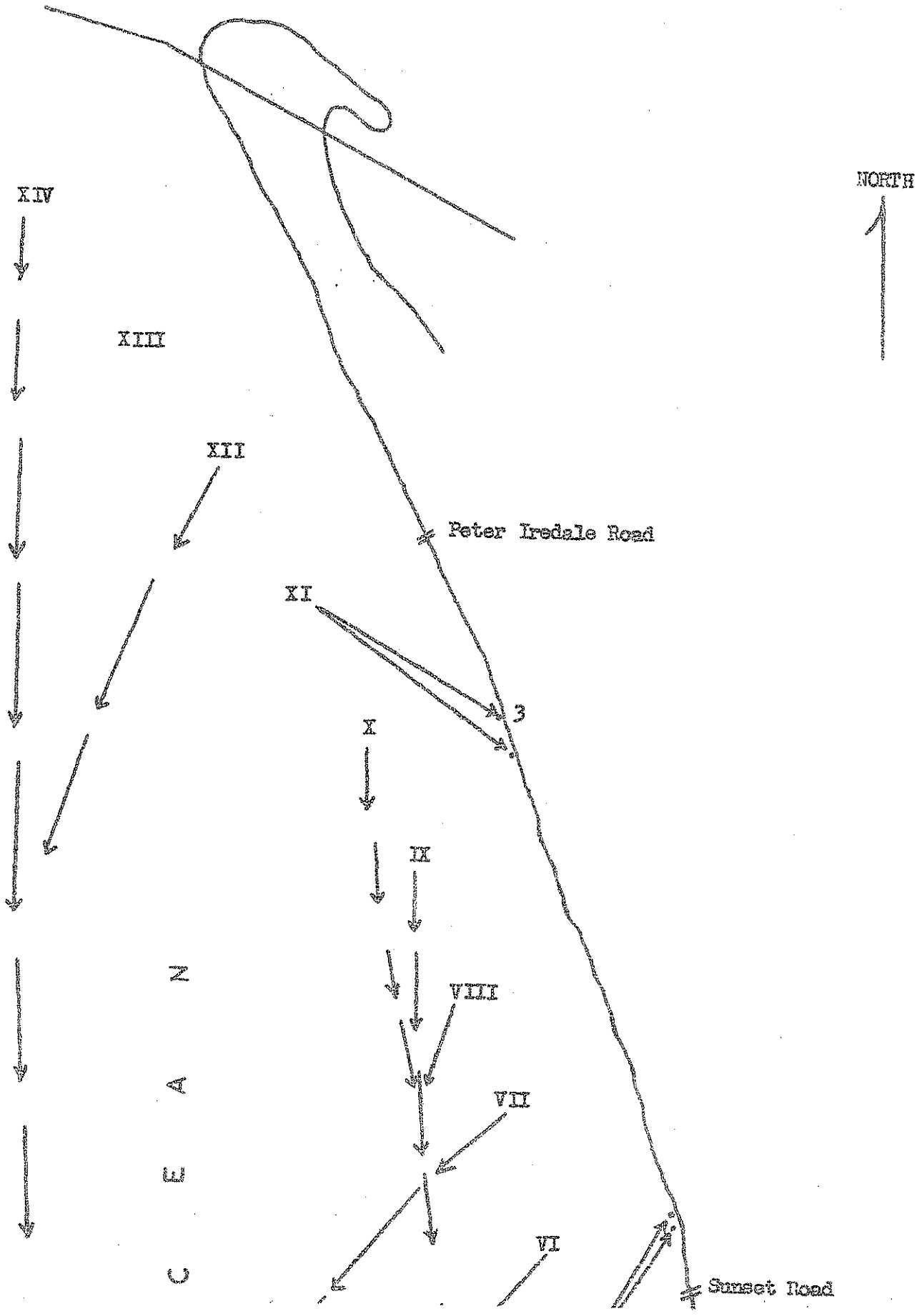
VIII

VII

VI

C
E
A
N

Sunset Road



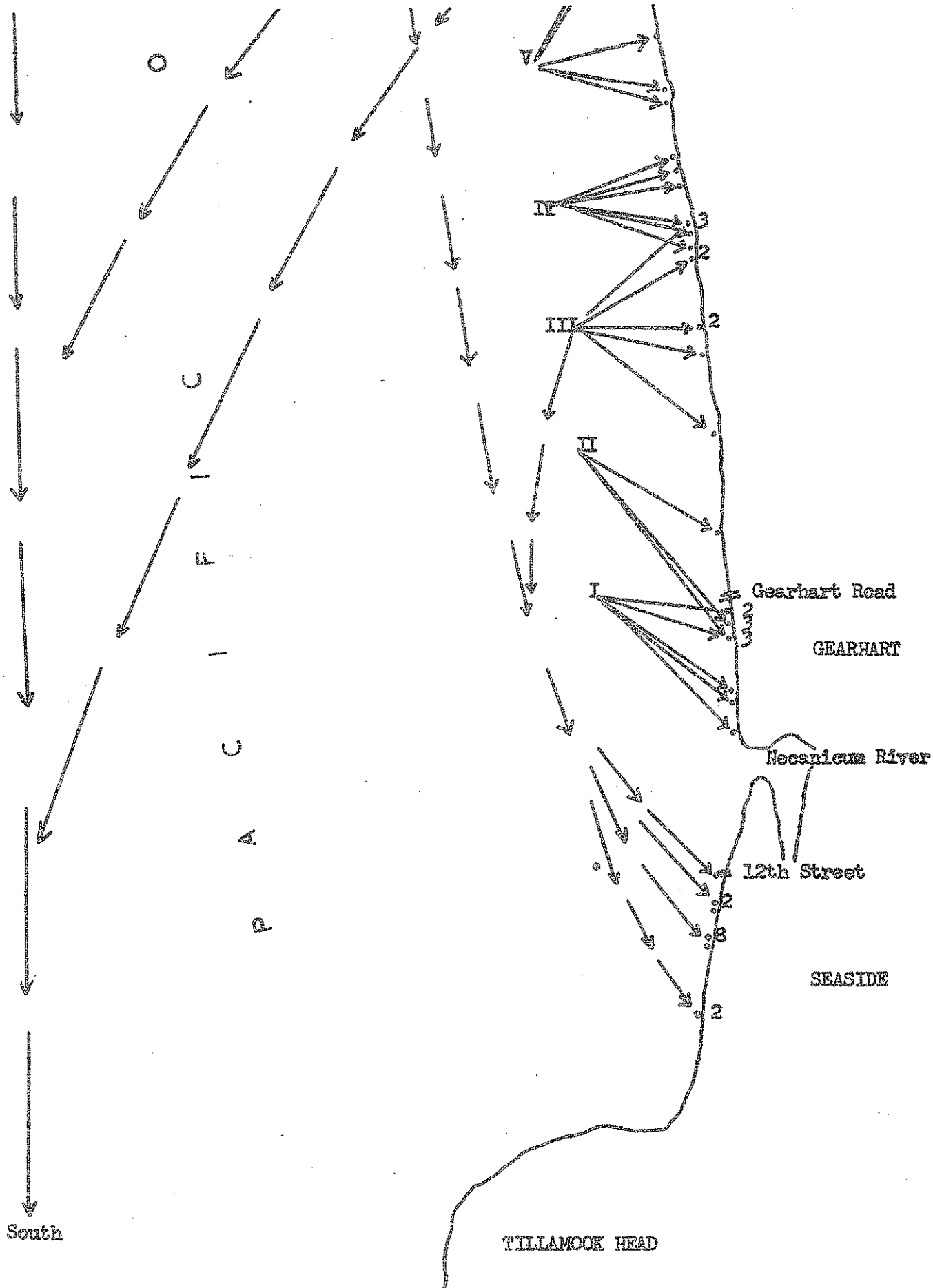


Figure 1. Outline of Northern Oregon Coast Showing Location of Release Sites and Recovery Pattern of 49 Bottles Released March 7, 1963.

On March 10 a bottle was reported from Rockaway, 37 miles south of the release site. The next day another was found at the mouth of the Nestucca River, 64 miles south of the release site. On March 14 one bottle was found at Seal Rock and 2 near Yachats that had drifted 90 and 112 miles respectively. On March 19 one bottle each was recovered at Beverly Beach north of Newport, at China Creek near Necota Head, at Sutton Creek north of Florence, with respective drifts of 87, 120, and 130 miles. The last recovery to date was a bottle from Gleneden Beach on April 4, that had drifted 75 miles. Figures 1 and 2 show the general drift pattern. To date, 59 bottles have been recovered.

Two factors probably account for the bottles that drifted far south from the area of release: (1) the releases from the Peter Iredale north were dropped out further than intended, and (2) a light east wind appears to have been effective enough to push the bottles into the offshore southerly current.

The heavier bottles which sank exhibited a similar pattern to the floaters in that they came ashore quite close to the area of release, but only 9 of them were found.

The general weather conditions were noted during the test run to see what effect the wind would have on the bottles. From March 7-9 the wind was northeast to east at 5-10 knots. On March 10-12 it shifted northwest 15-30 knots, and to southwest at 5 knots on March 13.

The easterly wind seems to have had little effect on the bottles except north of the Peter Iredale, but the strong NW wind probably pushed the bottles out of the southerly current onto the south coast area.

The ground swell as reported in the local newspaper was also noted and may have had more effect on the drift pattern than the wind. A swell from the northeast was reported March 7-9, but changed to west southwest on March 10.

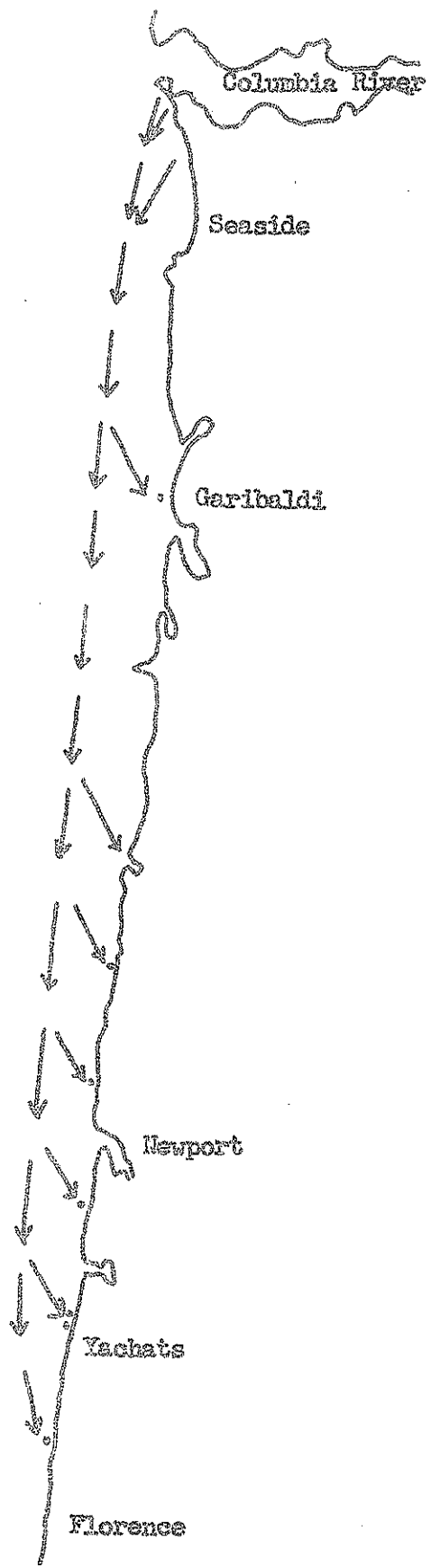


Figure 2. Drift Pattern of 9 Bottles that Drifted South from Clatsop Beaches.

SUMMARY AND CONCLUSIONS

On March 7, 1963, 140 weighted drift bottles were released at 1-mile intervals along the 5-fathom curve between Tillamook Head and the Columbia River. Fifty-nine of the bottles were recovered; 50 on Clatsop Beach and 9 between Rockaway and Florence. The extent of lateral drift ranged from 0 to 130 miles.

Little can be predicted from the pilot run, but the information acquired will enable improvements in technique to be made, such as adding 2 more stations off Seaside, eliminating the sinker bottles, and allowing for the variance of the 5-fathom curve north of the Peter Iredale.