

FISH COMMISSION OF OREGON  
TRAWL INVESTIGATION

Cruise Report 66-~~2~~<sup>1</sup> - Shrimp

Vessels: MV Faymar and MV Columbia, chartered trawl vessels.

Dates: March 1-April 1, 1966.

- Purposes:
1. To determine the distribution and abundance of pink shrimp (Pandalus jordani) off Oregon.
  2. To determine size, sex ratio, and age composition of shrimp caught.
  3. To determine the feasibility of using shrimp traps for vertical distribution studies, and to collect gravid female shrimp.
  4. To collect age and length data for juvenile Dover, English, and petrale sole as time permits.
  5. To identify, count, and weigh incidentally caught fish.
  6. To collect incidentally caught fish and molluscs as requested.

Results: Two hundred and seven tows were made in five subareas with a 41-foot headrope Gulf semiballoon trawl net having 1-1/8 inch stretch mesh in the body and intermediate, 1-1/2 inch mesh in the codend, and an innerlining in the codend of 1/2-inch knotless netting.

The area surveyed was the Oregon coastal waters between 50 and 125 fathoms (Figure 1). This area was divided into five subareas of three depth strata each: (1) Oregon-California border to Cape Blanco; (2) Cape Blanco to the Umpqua River; (3) Umpqua River to Cape Perpetua; (4) Cape Perpetua to Cape Lookout; and (5) Cape Lookout to the Columbia River. Within each subarea 15 tows each were scheduled in the depth strata 50-70 fathoms and 70-90 fathoms; 10 tows were scheduled between 90-125 fathoms for a total 40 tows per subarea. This schedule was met or surpassed by extra tows in all areas but subarea 3, where 13, 11, and 9 tows were made in each respective depth strata, going from the shallowest to the deepest.

Area 1. Between the California-Oregon border and Cape Blanco 44 tows of approximately 15 minutes each were made in depths of 48 to 119 fathoms. An additional tow was made in 20 fathoms off Brookings. Shrimp were caught at an average rate of 50 pounds per hour with a range of from 0 to 1,360 pounds per hour. Of the 45 tows made, 20 tows produced shrimp. Only three tows produced catches greater than 100 lbs/hour. The age composition by number was 15% one-year olds, 83% two-year olds, 2% three-year olds, and 0.5% fours. Shrimp size ranged from 87 to 260 shrimp per pound with an average of 126 shrimp per pound. The sex composition was 60% males, 6.5% transitionals, and 33.5% females: 54% of the females were gravid.

Area 2. Between Cape Blanco and the Umpqua River 41 tows averaging approximately 15 minutes each were made in depths from 50-120 fathoms. Shrimp were caught at an average rate of 344 lbs/hr with a range of from 0 to 3,300 lbs/hr. Of the 41 tows made, 25 tows produced shrimp. Thirteen tows produced catches greater than 100 lbs/hr. The age composition by number was 29% one-year olds, 69% two-year olds, 2% three-year olds, and 0.2% fours. Shrimp size ranged from 64 to 291 shrimp/pound with an average of 160 shrimp/pound. The sex composition was 61.5% males, 6% transitionals, and 32.5% females; 30.5% of the females were gravid.

Area 3. From the Umpqua River to Cape Perpetua 33 tows of approximately 15 minutes each were made in depths of from 48 to 138 fathoms. Shrimp were caught at an average rate of 16 lbs/hr with a range of from 0 to 258 lbs/hr. Of the 33 tows made, 15 tows produced shrimp. Only two tows produced catches greater than 100 lbs/hr. The age composition by number was 58% one-year olds, 40% two-year olds, 2% three-year olds, and no fours. Shrimp size ranged from 98 to 230 shrimp per pound with an average of 192. The sex composition was 69% males, 3% transitionals, and 28% females; 11% of the females were gravid.

Area 4. From Cape Perpetua to Cape Lookout 43 tows of approximately 15 minutes each were made in depths of from 50 to 135 fathoms. Shrimp were caught at an average rate of 54 pounds per hour with a range of from 0 to 700 lbs/hr. Of the 43 tows made, 18 produced shrimp. Five tows produced catches greater than 100 lbs/hr. The age composition by number was 2% one-year olds, 95% two-year olds, 3% three-year olds, and no fours. Shrimp size ranged from 110 to 155 shrimp per pound with an average of 133 shrimp/pound. The sex composition was 57% males, 11% transitionals, and 29% females; 50% of the females were gravid.

Area 5. Between Cape Lookout and the Columbia River 45 tows of approximately 15 minutes each were made in depths of from 48 to 136 fathoms. Shrimp were caught at an average rate of 55 lbs/hr with a range of from 0 to 100 lbs/hr. Of the 45 tows made, 17 tows produced shrimp. Five tows produced catches greater than 100 lbs/hr. The age composition by number was 26% one-year olds, 73% two-year olds, 1% three-year olds, and no fours. Shrimp size ranged from 146 to 314 shrimp per pound with an average of 189. The sex composition was 60% males, 13% transitionals, and 27% females; 9% of the females were gravid.

Fish were common in many of the tows and dominated the catch in northern areas. The more common species were rex sole, slender sole, sanddab, anchovies, and smelt.

Shrimp traps were fished off Cascade Head in 74 fathoms. They were circular 22"x14" traps with a plastic tubing frame covered with 1/2-inch nylon netting. Three short tunnels allowed access; and the traps were suspended on a vertical line surface to bottom.

Information on the design is to be published by the Fish and Wildlife service, Auke Bay laboratory, Alaska, whose pattern was used in construction. At approximately four-hour intervals for

12 hours, the pots were pulled and checked. No shrimp were captured.

Ageing structures, length, and sex were collected from 467 Dover sole, 99 English sole, and 47 petrale sole. Dover sole ranged in length from 57 mm to 530 mm, and English sole ranged from 102 mm to 341 mm.

Incidentally caught fish and molluscs were collected for Oregon State University and Portland State College.

Personnel: MV Columbia

Robert Demory, Party Chief 3/1-30/66  
 Melvin Wick, Jr., Vessel Captain  
 Gary Milburn, Aquatic Biologist 3/1-30/66  
 Basil Warnock, Crewman  
 Matt Huckler, Crewman

MV Paymar

Jack Robinson, Party Chief 3/1-4/1/66  
 Max Carlson, Vessel Captain  
 Halbert Bailey, Aquatic Biologist 3/1-25/66  
 Terry Link, Biologist Aide 3/26-4/1/66  
 Ray Weaver, Crewman

Jack G. Robinson  
 May 25, 1966

Distribution

Astoria Lab - 12  
 Newport Lab - 5  
 Charleston Lab  
 Library  
 OFC - Portland  
 Dahlstrom - CFG  
 Gotshall - CFG  
 Lindsey - WDF  
 BCF - Seattle  
     Alverson  
     Moore  
 BCF - Auke Bay  
 WDF - Olympia  
 ADPC - Juneau  
 Van Hyning  
 Kruse  
 A-1 File

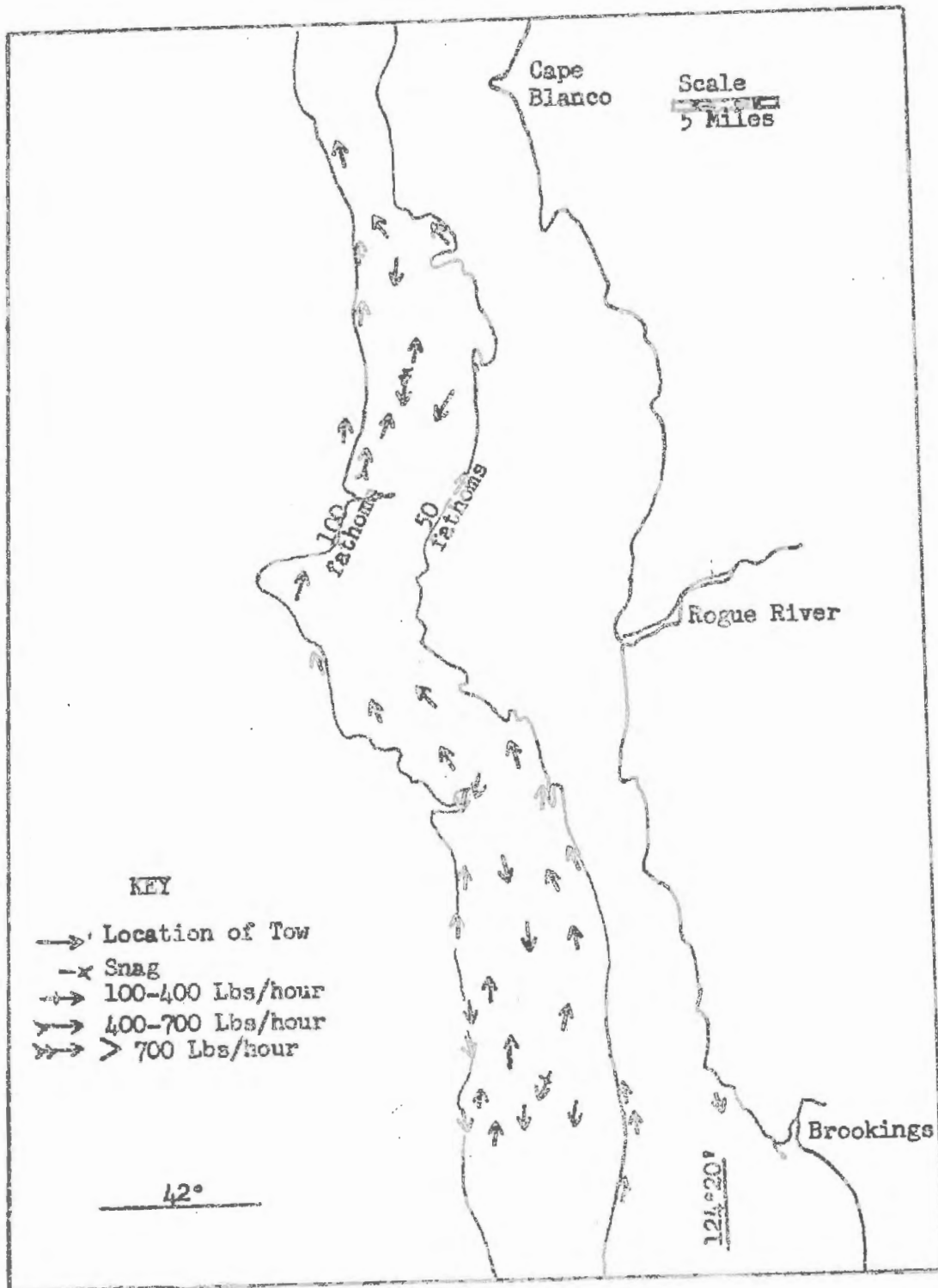
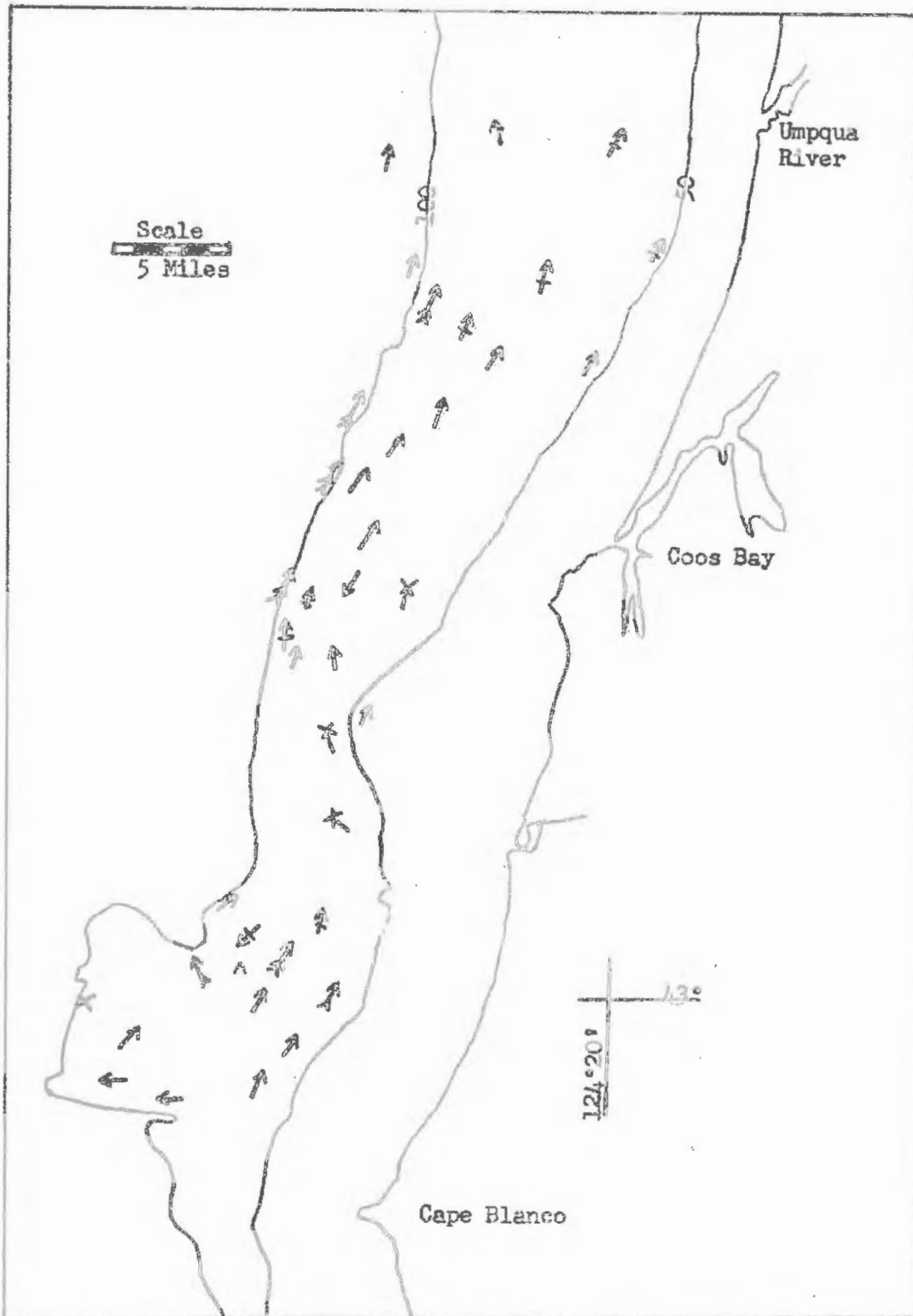
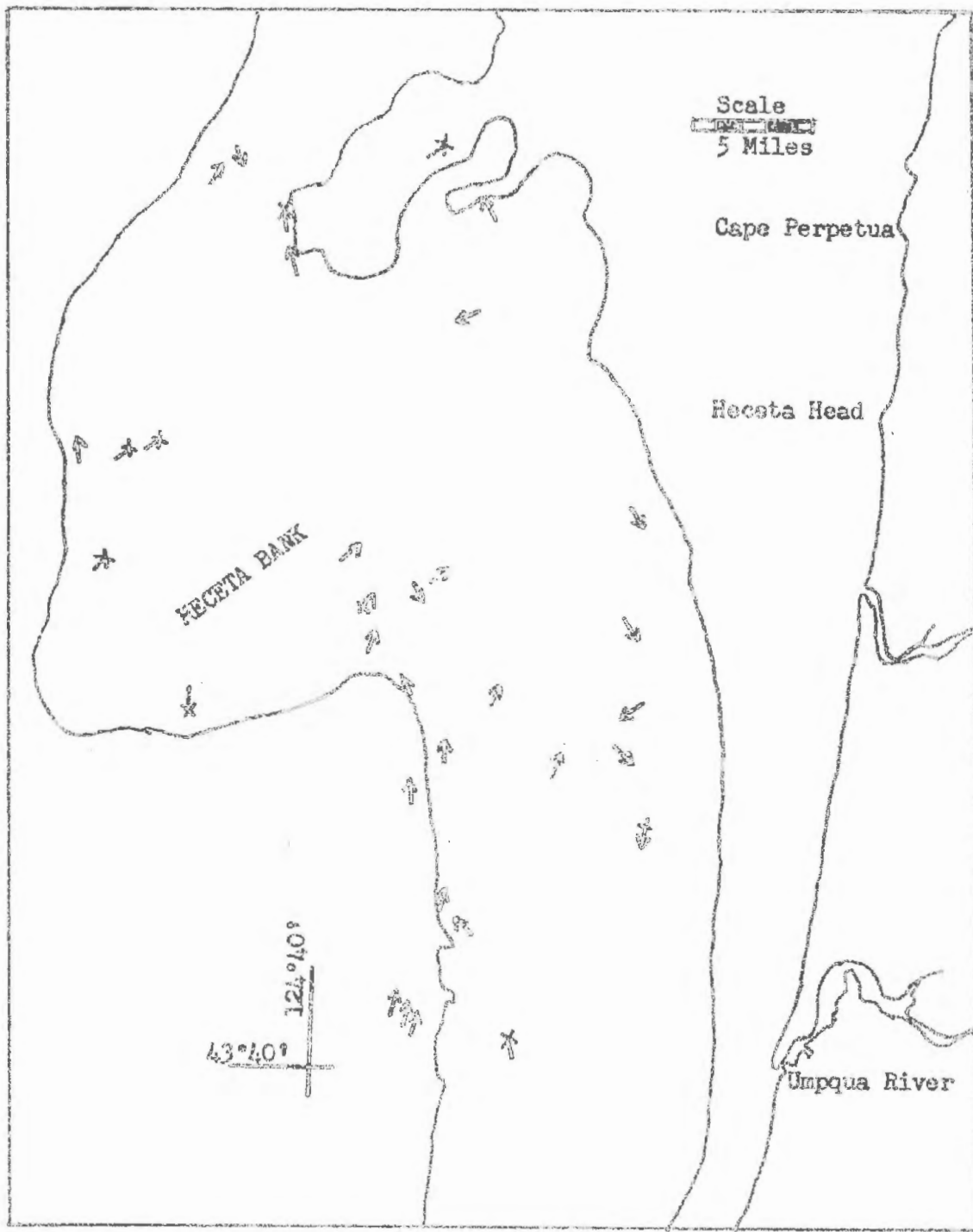


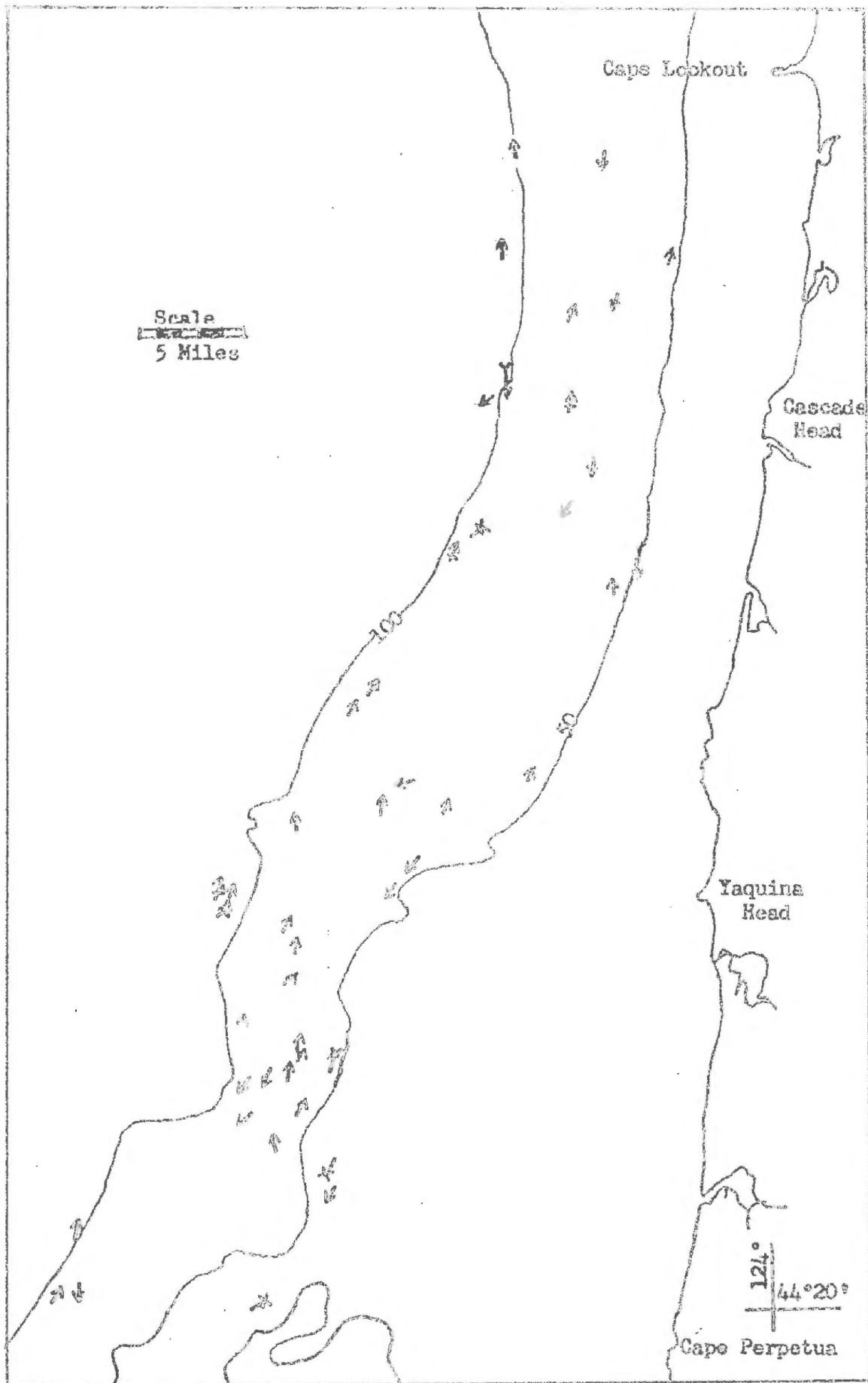
Figure 1. Area 1, Tow Locations and Shrimp Catches.



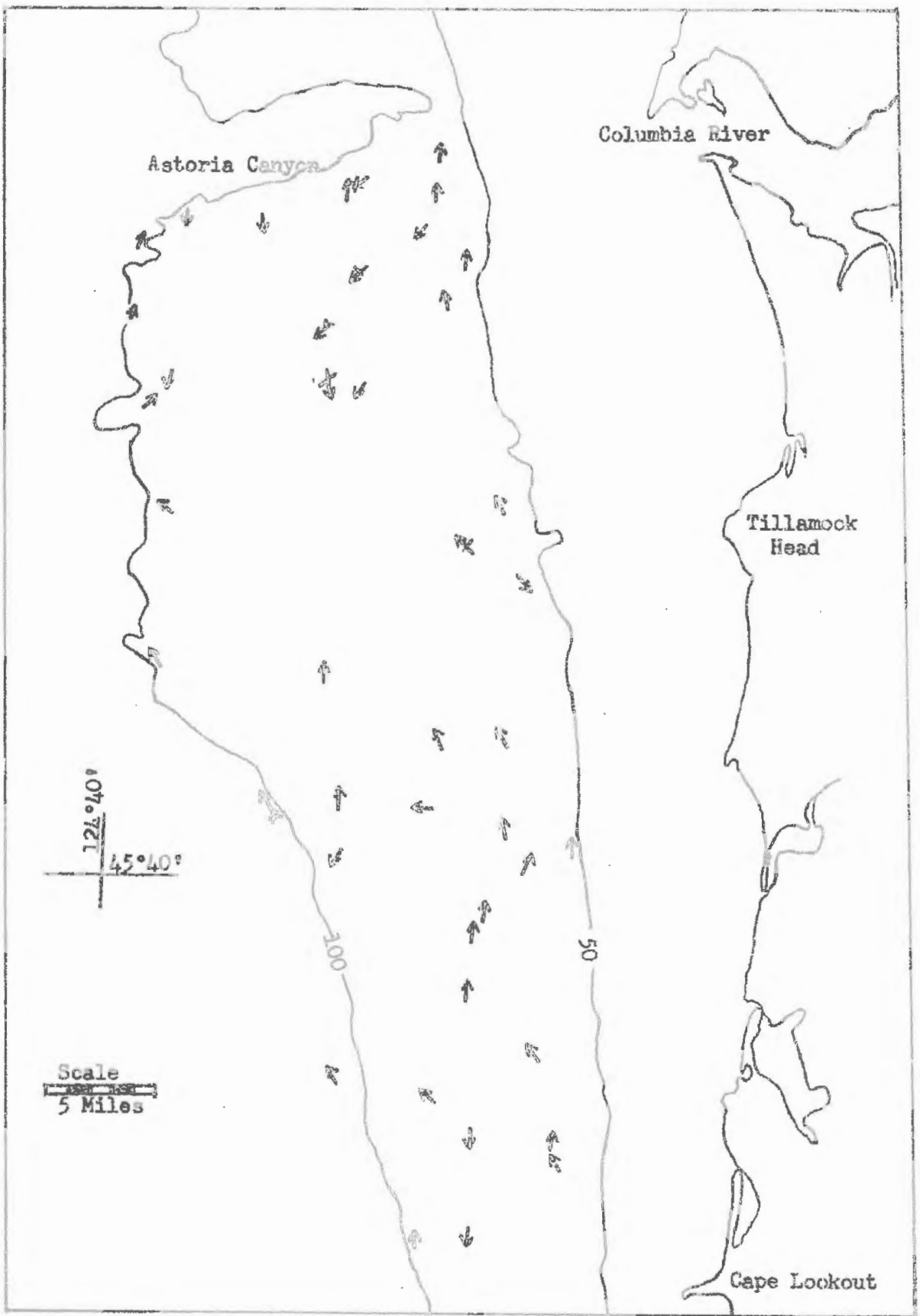
Area 2, Tow Locations and Shrimp Catches.



Area 3, Tow Locations and Shrimp Catches.



Area 4, Tow Locations and Shrimp Catches.



Area 5, Tow Locations and Shrimp Catches.