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OCEAN SHRIMP REPORT
1980 SEASON

by

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and
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TWENTY-FOURTH ANNUAL SHRIMP REPORT

2) MARINE RESOURCES
Administrative Report No. 81-5

May 1981

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ABSTRACT

Statewide Pacific ocean shrimp, *Pandalus jordani*, landings totaled 2,033.1 mt (4,472,749 lb) down 204.6 mt (450,108 lb) from the 1979 catch of 2,237.7 mt (4,922,857 lb). The 1980 landings are the lowest since 1976 when 1,545.5 mt (3,400,191 lb) were landed. Area A (Eureka-Crescent City) landings dropped to 1,234 mt (2,716,147 lb) from 1,842.5 mt (4,053,605 lb) landed during the previous season. Area B-1 (Fort Bragg) landings totaled 79.3 mt (174,395 lb) from catches made during the last 9 days of the season. Only 100 lb were reported caught in Area B-2 (Bodega Bay). Record landings of 719.1 mt (1,582,107 lb) were made in Area C (Morro Bay-Avila), surpassing the previous record of 391 mt (864,867 lb) landed in 1979. In Area A a record 80 vessels, 34 double-rigged and 46 single-rigged, made shrimp deliveries during the season. Average catch per hour was a very low .11 mt (234 lb) and .20 mt (446 lb) for single-rig and double-rig vessels, respectively. In Area C average catch per hour was .25 mt (557 lb) and .21 mt (462 lb) for single-rig and double-rig vessels, respectively. Area A shrimp catches were dominated by 1-year-old shrimp in percent by number throughout the season. The age composition in Area C shifted from predominately 2-year-old shrimp in April, May, and June to predominately 1-year-old shrimp for the remainder of the season. Area A was closed for one month from June 1 to July 1 because closure criteria of less than .16 mt (350 lb) per hour for two consecutive weeks was met and year class composition exceeded 70% of year-old shrimp. The season was closed for the year on August 25 when the catch per hour and percent 1-year-old shrimp criteria was exceeded again.

1/ Marine Resources Administrative Report No. 81-5

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INTRODUCTION

California's 1980 Pacific ocean shrimp, *Pandalus jordani*, landings totaled 2,033.1 metric tons (4,472,749 lb), down 204.6 mt (450,108 lb) from the 1979 catch of 2,237.7 mt (4,922,857 lb). The 1980 landings are the lowest since 1976 when 1,545.5 mt (3,400,191 lb) were landed.

Eureka-Crescent City landings dropped to 1,234.6 mt (2,716,147 lb) from 1,842.5 mt (4,053,605 lb) landed in 1979. The Fort Bragg shrimp bed produced 79.3 mt (174,395 lb) in late October, while the Bodega Bay shrimp bed was unproductive. Record landings of 719.1 mt (1,582,107 lb) were made in the Morro Bay-Avila area nearly doubling record 1979 landings of 393.1 mt (864,867 lb).

One-year-old shrimp dominated the catches at Eureka and Crescent City in percent by number throughout the season and by weight during April, July, and October. Two-year-old shrimp dominated the catch in the Morro Bay-Avila area in April, May, and June. For the remainder of the season, the catch was predominately composed of 1-year-old shrimp.

Price to the fishermen began at a record price of 52¢ per lb in April, jumped to 57¢ per lb in mid-June and increased again in late July to a final high of 60¢ per lb.

AREA A

Area A shrimp landings from the ports of Eureka and Crescent City totaled 1,234.6 mt (2,716,147 lb) for 1980. This is a decrease of 43% from the 1979 landings of 1,842.5 mt (4,053,605 lb). Shrimpers landed 282.3 mt (621,122 lb) in Crescent City that had been caught off Oregon in PMFC Areas 84, 86, and 88; 87.5% of the shrimp being caught in Area 86. A 1.3 mt (2,975 lb) landing originated in the PMFC Area 74 off the state of Washington.

The 1980 season opened April 16 with the fishermen receiving 52¢ per lb for their shrimp. The price jumped to 57¢ per lb in mid-June and increased again in late July to a final high of 60¢ per lb. This was 14¢ per lb more than the previous high set in 1979.

A record 80 vessels, 34 double-rigged and 46 single-rigged, made shrimp deliveries during the season (Table 1). The double-rigged fleet was composed of 18 California based boats, 14 Oregon boats and two Washington boats, while the home ports of the single-rigged boats were made up of 40 from California and six from Oregon. California fishermen reported that as many as 20 non-California registered boats fished Area A on a single day.

Fishing effort was concentrated throughout the season from approximately 2 miles north of Point St. George to around 2 miles south of the Klamath River in 70 to 110 fm (Figure 1). A small area just off Patricks Point in 60 to 90 fm was fished by boats out of Eureka during April and May. The area from the Oregon border to Point St. George was fished only during the first two weeks in May and the traditional fishing area off Redding Rock was fished only during July in deep water from 60 to 100 fm.

The average catch per hour (CPUE) was very low throughout the season (Table 1), averaging only 234 lb per hour for single-rigged vessels and 446 lb per hour for double-rigged vessels. The CPUE started declining after the first week and by the end of the fourth week had fallen below the established season closure criteria of .16 mt (350 lb) per hour for two consecutive weeks and the year class composition had exceeded 70% 1-year-old shrimp. The season was not closed until June 1, the eighth week, due to extenuating circumstances (brown water, bad weather, etc.). The season was reopened on July 1 with good catches by both single- and double-rigged boats. The CPUE dropped again after the first week's fishing.

TABLE 1. Area A Monthly Catch and Effort Data, 1980

| Month | Pounds landed | Effort* (hours) | Pounds* per hour | Vessels | Trips |
|---------------------------|-----------------------|-----------------|----------------------------|-----------------|-----------|
| <u>Single-rig vessels</u> | | | | | |
| April | 506,538 | 1,455.6 | 337 | 36 | 184 |
| May | 316,954 | 1,768.7 | 169 | 31 | 238 |
| June | - - - - - | - - - - - | SEASON CLOSED | - - - - - | - - - - - |
| July | 520,775 | 2,179.5 | 235 | 28 | 226 |
| August | 36,975 | 294.0 | 110 | 21 | 48 |
| September | - - - - - | - - - - - | SEASON CLOSED | - - - - - | - - - - - |
| October | - - - - - | - - - - - | SEASON CLOSED | - - - - - | - - - - - |
| Totals | 1,381,242 627.8 mt | 5,697.8 | 234 ⁺ .11 mt | 46 [‡] | 696 |

| | | | | | |
|---------------------------|-----------------------|-----------|------------------|-----------------|-----------|
| <u>Double-rig vessels</u> | | | | | |
| April | 519,585 | 765.8 | 678 | 28 | 72 |
| May | 361,627 | 1,048.3 | 345 | 21 | 76 |
| June | - - - - - | - - - - - | SEASON CLOSED | - - - - - | - - - - - |
| July | 420,214 | 1,016.6 | 413 | 18 | 64 |
| August | 33,479 | 160.3 | 209 | 7 | 14 |
| September | - - - - - | - - - - - | SEASON CLOSED | - - - - - | - - - - - |
| October | - - - - - | - - - - - | SEASON CLOSED | - - - - - | - - - - - |
| Totals | 1,334,905 606.8 mt | 2,990.9 | 446 ⁺ | 34 [‡] | 226 |

| | | | | | |
|--------------------|-----------|---------|------------------|-----------------|-----|
| <u>All vessels</u> | | | | | |
| Season's Totals | 2,716,147 | 8,688.7 | 287 ⁺ | 80 [‡] | 922 |

* Effort and pounds per hour are based upon boat logs

+ Mean

‡ Total vessels that made landings

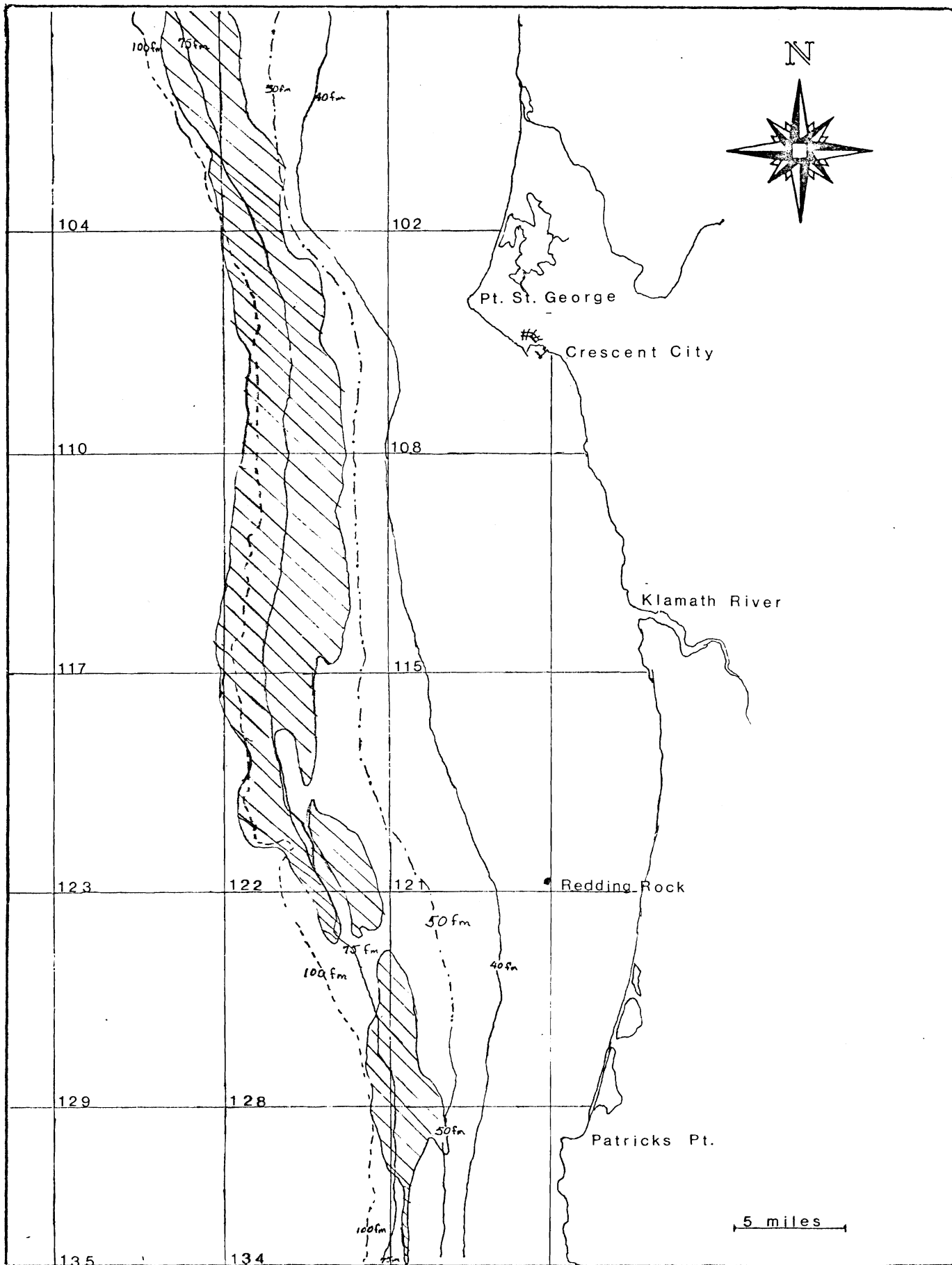


FIGURE 1. Area A Pacific ocean shrimp, *Pandalus jordani*, catch locations, 1980.

The season was finally closed for the year on August 25 with both closure criteria of CPUE and percent 1-year-old shrimp in the catch being exceeded.

One-year-old shrimp dominated the fishery in percent by number throughout the season and percent by weight during April, July, and October (Table 2). The shrimp used to determine the October figures were obtained from Oregon vessels shrimping illegally off California during the closed season. All male shrimp sampled during the season were 1-year-olds (Table 3). Transitional shrimp were equally divided between 1's and 2's during April and May, but thereafter 1-year-olds made up the largest percentage of the transitionals. The females followed a similar pattern with an equal division between 2- and 3-year-olds during April and May, and predominately 2-year-olds subsequently.

The average sizes of all age classes of shrimp during the 1980 season were similar to the corresponding age classes during the 1978 and 1979 seasons, with the exception of 3-year-old shrimp during July and August when the 1977 year class shrimp were slightly larger than the 1976 and 1975 year class shrimp (Table 4).

TABLE 2. Area A Count Per Pound and Year Class Composition of Shrimp, 1980 Season

| Month | Count per lb | Age Class percent by number | | | Age Class percent by weight | | |
|-----------|--------------|-----------------------------|------|------|-----------------------------|------|------|
| | | I | II | III | I | II | III |
| April | 162.6 | 79.2 | 16.1 | 4.7 | 53.8 | 33.0 | 13.1 |
| May | 126.6 | 69.1 | 25.3 | 5.6 | 37.3 | 45.0 | 17.7 |
| June | - - - - - | SEASON CLOSED - - - - - | | | | | |
| July | 120.9 | 78.7 | 20.3 | 1.0 | 62.1 | 32.1 | 5.8 |
| August | 88.4 | 57.7 | 39.7 | 2.6 | 40.8 | 54.7 | 4.5 |
| September | - - - - - | SEASON CLOSED - - - - - | | | | | |
| October* | 97.2 | 73.5 | 19.1 | 17.4 | 65.6 | 24.0 | 10.9 |

TABLE 3. Year Class and Sex Composition of Area A Shrimp by Number by Month, 1980 Season (Percentages)

| Month | Males | | Transitionals | | | Females | | |
|-----------|-----------|-------------------------|---------------|------|-----|---------|------|-----|
| | I | II | I | II | III | I | II | III |
| April | 69.1 | - | 10.1 | 11.7 | - | - | 4.3 | 4.7 |
| May | 47.5 | - | 21.6 | 19.7 | - | - | 5.6 | 5.6 |
| June | - - - - - | SEASON CLOSED - - - - - | | | | | | |
| July | 50.3 | - | 28.2 | 9.4 | 0.1 | 0.2 | 10.9 | 0.9 |
| August | 32.9 | - | 24.4 | 18.2 | - | 0.4 | 21.6 | 2.6 |
| September | - - - - - | SEASON CLOSED - - - - - | | | | | | |
| October* | 63.6 | - | 7.0 | 1.9 | - | 3.0 | 17.2 | 7.4 |

* Shrimp used to obtain figures for October were obtained from samples taken from Oregon vessels fishing illegally off California during the closed season.

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| | I | II | I | II | III | I | II | III |
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| June | - - - - - | SEASON CLOSED - - - - - | | | | | | |
| July | 50.3 | - | 28.2 | 9.4 | 0.1 | 0.2 | 10.9 | 0.9 |
| August | 32.9 | - | 24.4 | 18.2 | - | 0.4 | 21.6 | 2.6 |
| September | - - - - - | SEASON CLOSED - - - - - | | | | | | |
| October* | 63.6 | - | 7.0 | 1.9 | - | 3.0 | 17.2 | 7.4 |

* Shrimp used to obtain figures for October were obtained from samples taken from Oregon vessels fishing illegally off California during the closed season.

TABLE 4. Average Carapace Length (mm) of Area A Shrimp, 1978, 1979, and 1980 Seasons

| Season (Year Class) | I | | | II | | | III | | |
|------------------------|------|------|------|------|------|------|------|------|------|
| | 1978 | 1979 | 1980 | 1978 | 1979 | 1980 | 1978 | 1979 | 1980 |
| April | 15.1 | 15.4 | 15.3 | 20.1 | 20.1 | 20.4 | 22.9 | 22.9 | 23.6 |
| May | 15.5 | 15.5 | 15.8 | 20.4 | 20.1 | 20.8 | 22.8 | 23.0 | 23.6 |
| June | 16.0 | 16.1 | - | 20.7 | 20.4 | - | 23.5 | 23.1 | - |
| July | 16.6 | 17.0 | 17.0 | 20.9 | 20.4 | 21.7 | 23.6 | 23.0 | 24.9 |
| August | 17.2 | 18.2 | 18.0 | 21.3 | 22.3 | 22.4 | 23.9 | 24.5 | 25.5 |
| September | 17.6 | 18.6 | - | 21.9 | 22.5 | - | 24.5 | 24.9 | - |
| October * | 18.4 | 18.7 | 18.3 | 22.3 | 23.1 | 22.4 | 24.2 | 25.0 | 24.9 |

* Shrimp used to obtain figures for October were obtained from samples taken from Oregon vessels fishing illegally off California during the closed season.

OUTLOOK

The 1981 season will probably be no better than the 1980 season as indicated by the low CPUE all season and few incoming year-class shrimp seen.

AREA B-1

Area B-1 landings totaled 79.3 mt (174,395 lb); all taken during the last 9 days of the season. Landings were not made in Noyo Harbor and no samples were taken.

Five vessels fished a total of 128 hours. Of the 128 hrs, 10 were expended from Westport to Mistake Point in 62 to 77 fm with no commercial quantities taken. A few shrimp were caught, reportedly representing three year classes.

The shrimp caught at the end of the season were taken within an area of about 1 by 1.75 miles (20-microsecond area) in 65 to 70 fm off Pt. Delgada. The concentration of shrimp was good. Once shrimp were located by double-rig vessels, in 118 hours of fishing, catches averaged 1,478 lb per hour.

AREA B-2

Only one landing of .05 mt (110 lb) was reported from Area B-2 (Bodega Bay). This was caught on April 17. Exploratory efforts by three vessels from April 16 to 19 failed to reveal shrimp in commercial quantity. A total of 23 exploratory tows, which encompassed 15 hours, was conducted by the three vessels from off Gualala to Pt. Reyes in 37 to 105 fm.

AREA C

Area C (Morro Bay-Avila) Pacific ocean shrimp landings totaled 719.1 mt (1,582,107 lb) for the 1980 season, nearly doubling record 1979 landings of 393.1 mt (864,867 lb). The season opened April 16 and remained open through November 19, as last season's extension in Fish and Game Commission regulations was not rescinded in time.

TABLE 4. Average Carapace Length (mm) of Area A Shrimp, 1978, 1979, and 1980 Seasons

| Season (Year Class) | I | | | II | | | III | | |
|------------------------|------|------|------|------|------|------|------|------|------|
| | 1978 | 1979 | 1980 | 1978 | 1979 | 1980 | 1978 | 1979 | 1980 |
| April | 15.1 | 15.4 | 15.3 | 20.1 | 20.1 | 20.4 | 22.9 | 22.9 | 23.6 |
| May | 15.5 | 15.5 | 15.8 | 20.4 | 20.1 | 20.8 | 22.8 | 23.0 | 23.6 |
| June | 16.0 | 16.1 | - | 20.7 | 20.4 | - | 23.5 | 23.1 | - |
| July | 16.6 | 17.0 | 17.0 | 20.9 | 20.4 | 21.7 | 23.6 | 23.0 | 24.9 |
| August | 17.2 | 18.2 | 18.0 | 21.3 | 22.3 | 22.4 | 23.9 | 24.5 | 25.5 |
| September | 17.6 | 18.6 | - | 21.9 | 22.5 | - | 24.5 | 24.9 | - |
| October * | 18.4 | 18.7 | 18.3 | 22.3 | 23.1 | 22.4 | 24.2 | 25.0 | 24.9 |

* Shrimp used to obtain figures for October were obtained from samples taken from Oregon vessels fishing illegally off California during the closed season.

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The first landing was made April 27. A record total of 21 vessels participated in the 1980 Area C fishery. All but seven were from home ports other than Morro Bay or Avila. Included in the total were three vessels targeting on spot prawns, *P. platyceros*, and landing incidentally-caught ocean shrimp under ocean shrimp permits. Twelve of the vessels were single-rigged and nine were double-rigged. Participating vessels made from one to 24 landings.

Ex-vessel price was a record 52¢ in April and rose by early August to 60¢ where it remained until the end of the season. Except for small quantities bought by local buyers, all of the shrimp landed went to three processors, two in northern California and one in southern Oregon.

No permits allowing mesh sizes less than 1-1/2-inches stretched mesh between the knots were issued this season. Analysis of data from 1979 Area C landings indicated that Area C shrimp of a given age class appeared to be larger than their Area A counterparts. In addition, allowing the use of smaller mesh in the ocean shrimp fishery could conflict with the 1-1/2 inch mesh requirement in the spot prawn fishery.

Almost all effort was expended in an area off Pt. San Luis to off Pt. Buchon with most of that effort expended off Pt. Buchon in 64 to 140 fm (Figure 2). Some sporadic effort was expended, particularly during late July and in September, off Pt. Sal in an area that produced good catches in May through September 1979. Production was not as good there as last season and fishermen repeatedly returned to the more consistently productive area from Pt. San Luis to Pt. Buchon.

At .25 mt (557 lb), single-rigged vessels had a higher average catch per hour than double-rigged vessels which averaged .21 mt (462 lb) per hour (Table 5). Average hourly catch rate for all reporting vessels was

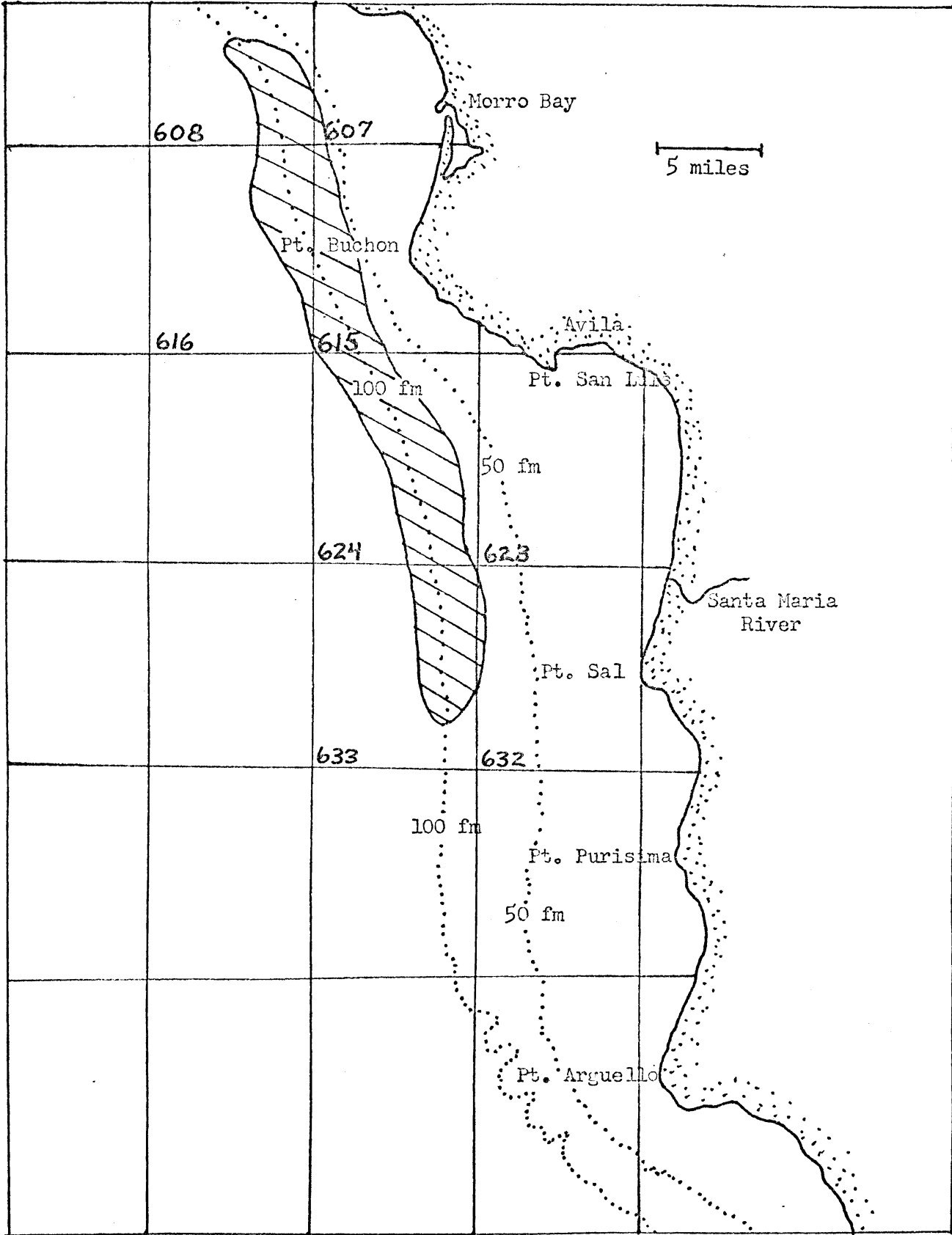


FIGURE 2. Area C Pacific ocean shrimp catch location, 1980 season.

TABLE 5. Area C Monthly Catch and Effort, 1980

| Month | Pounds landed | Effort (hours) | Pounds per hour | Vessels | Trips |
|---------------------------|-----------------------|---------------------|-------------------------------|-----------------|-------|
| <u>Single-rig vessels</u> | | | | | |
| April | 8,486 | 14.48 | 586 | 1 | 1 |
| May | 49,969 | 56.26 | 888 | 2 | 8 |
| June | 177,818 | 230.46 | 771 | 5 | 18 |
| July | 287,801 | 416.41 | 691 | 5 | 22 |
| August | 201,658 | 354.41 | 569 | 4 | 17 |
| September | 124,959 | 389.08 | 321 | 6 | 23 |
| October | 35,235 | 106.58 | 330 | 5 | 7 |
| November | 8,216 | 36.83 | 223 | 3 | 4 |
| Totals | 894,142 406.4 mt | 1,604.51 | 557.26 ⁺ .25 mt | 8 ⁺ | 100 |
| <u>Double-rig vessels</u> | | | | | |
| May | 11,079 | 17.53 | 632 | 1 | 1 |
| June | 96,277 | 177.76 | 541 | 3 | 9 |
| July | 109,362 | 174.31 | 627 | 3 | 10 |
| August | 116,636 | 221.33 | 527 | 3 | 13 |
| September | 239,394 | 537.46 | 445 | 7 | 29 |
| October | 52,542 | 190.30 | 276 | 6 | 11 |
| November | 23,694 | 84.58 | 280 | 3 | 4 |
| Totals | 648,984 295.0 mt | 1,403.27 | 462 ⁺ 0.21 mt | 8 ⁺ | 76 |
| <u>All Vessels</u> | | | | | |
| Season Totals | 1,543,126 701.4 mt | 3,007.78 0.23 mt | 513 [*] | 16 ⁺ | 176 |

* Effort and pounds per hour based upon boat logs

+ Mean

† Total vessels making landings

.23 mt (513 lb), with weekly averages ranging from .008 mt (18 lb) to .59 mt (1,291 lb) per hour. The highest average catch per hour for a trip was 1.4 mt (3,191 lb) achieved by a single-rigged vessel. That trip also set the record for highest landing weight for a single trip at 24.7 mt (54,254 lb).

Compliance with the fishing log regulation improved this season. Fishermen submitted logs for 178 (96.7%) of a total of 184 trips, compared to a 75% compliance rate during the 1979 season.

The age composition of the 1980 catch shifted from predominately 2-year-old shrimp in April, May, and June to predominately 1-year-olds for the remainder of the season (Table 6). Two and 3-year-old females dominated samples in April, May, and June. One-year-old males dominated samples from July through the remainder of the season. Among transitionals, 2-year-olds were dominant in samples during April, May, and June. By July, 1-year-old transitionals began to increase and were most abundant in September. Transitionals of all ages were most abundant in July and least abundant in October and November (Table 7).

During the last two weeks of September, the percentage of 1-year-olds in the catch exceeded the 70% criterion for closure of the fishery, but no action was taken to close the fishery due to very low fishing effort. Percentage of 1-year-olds dropped in October to 49.8% and did not rise to the 70% criterion for the remainder of the season.

Average count per lb ranged from 50.6 in April to 67.5 in September with an overall season average of 63.4 (Table 6). Average count per lb for individual samples ranged from 40.9 to 100.6.

The fishery in 1980 differed from that of 1979. Fishing effort shifted north to Pt. Buchon in 1980; most effort in 1979 occurred off

Pt. Sal (Figure 2). Average catch per hour for single-rig vessels increased in 1980 to 557 lb per hour, while double-rig vessels' catch per hour decreased to 462 lb per hour as did the total fleet catch per hour (Table 5).

Average count per lb in 1980 samples was 63.4 compared to 57.1 for 1979 (Table 6). Samples from 1980 contained a higher percentage of 1-year-olds than did samples from 1979, both by month (except October) and for the entire season (Table 6).

TABLE 6. Area C Count Per Pound and Age Class Composition of Shrimp, 1979 and 1980 Seasons

| Month | Count per pound | | Age Class Percent by Number | | | | | | | | | |
|-------------|-----------------|------|-----------------------------|------|------|------|------|------|------|------|------|------|
| | 1979 | 1980 | 0 | I | | II | | III | | IV | | |
| | 1979 | 1980 | 1979 | 1980 | 1979 | 1980 | 1979 | 1980 | 1979 | 1980 | 1979 | 1980 |
| April | - | 50.6 | - | - | - | 5.6 | - | 56.3 | - | 38.1 | - | - |
| May | 49.9 | 59.4 | - | - | 15.4 | 25.6 | 50.2 | 52.2 | 34.4 | 22.2 | - | - |
| June | 55.8 | 60.1 | - | - | 25.7 | 40.5 | 51.3 | 43.5 | 23.0 | 15.9 | - | 0.1 |
| July | 59.4 | 65.1 | - | - | 53.5 | 58.6 | 36.6 | 32.2 | 9.9 | 8.8 | - | 0.4 |
| August | 62.5 | 63.8 | - | - | 49.9 | 60.7 | 34.5 | 27.6 | 15.6 | 11.4 | - | 0.3 |
| September | 52.3 | 67.5 | - | - | 33.1 | 59.8 | 48.1 | 23.7 | 18.9 | 16.4 | - | 0.1 |
| October | 65.1 | 64.5 | - | - | 75.2 | 63.6 | 21.3 | 30.9 | 3.5 | 5.4 | - | 0.1 |
| November* | 53.2 | 59.1 | - | - | 51.5 | 56.9 | 42.1 | 35.6 | 6.4 | 7.2 | - | 0.3 |
| Season Mean | 57.1 | 63.4 | - | - | 42.5 | 51.5 | 40.8 | 34.7 | 16.7 | 13.4 | - | 0.4 |

* Season extension, through November 19

TABLE 7. Age Class Composition by Sex by Month of Area C Shrimp, 1980 Season

| Month | Males | | Transitionals | | | Females | | | |
|-----------|-------|-----|---------------|------|-----|---------|------|------|-----|
| | I | II | I | II | III | I | II | III | IV |
| April | 4.2 | 8.0 | 1.4 | 19.4 | 0.7 | - | 28.8 | 37.4 | - |
| May | 21.9 | 4.3 | 3.6 | 23.6 | 0.4 | - | 24.3 | 21.8 | - |
| June | 32.0 | 2.8 | 6.7 | 21.2 | 0.2 | 1.8 | 19.4 | 15.8 | 0.1 |
| July | 40.2 | 0.7 | 13.6 | 18.0 | 0.2 | 4.9 | 13.5 | 8.6 | 0.4 |
| August | 46.0 | 0.2 | 9.8 | 9.8 | 0.1 | 5.0 | 17.7 | 11.2 | 0.4 |
| September | 42.8 | 0.6 | 12.0 | 7.3 | 0.1 | 5.0 | 15.8 | 16.3 | 0.1 |
| October | 52.4 | 1.6 | 1.9 | 4.4 | - | 9.4 | 24.9 | 5.4 | 0.1 |
| November* | 47.6 | 1.1 | 1.0 | 0.8 | - | 8.3 | 33.7 | 7.2 | 0.3 |

* Area C season extension, through November 19

OUTLOOK

As in 1979 and 1980, the success of the 1981 Area C shrimp fishery will depend, in part, on what happens in the Area A and Area B fisheries. Two vessels from northern ports made Morro Bay their new home port and remained after the 1980 season to fish groundfish. Other northern California fishermen have expressed interest in moving to this area, as well. A total of seven local vessels participated in the 1980 Area C fishery compared to only three in 1979. Local interest is increasing and there is speculation regarding the establishment of a local processing facility. Reports regarding incidentally-taken ocean shrimp in the local spot prawn fishery have indicated that shrimp may again be available in fishable concentrations off Point Sal, at least at the beginning of the season. Other areas with promising signs are located off Pt. San Luis and off the Santa Maria River.

The impact, if any, of the 1.5 inch-minimum mesh size is not clear. More shrimp were caught in 1980 than in 1979 when permits for 1.375-inch mesh nets were issued. Average catch per hour was generally down from 1979, but percentage of 1-year-olds was up from 1979.