



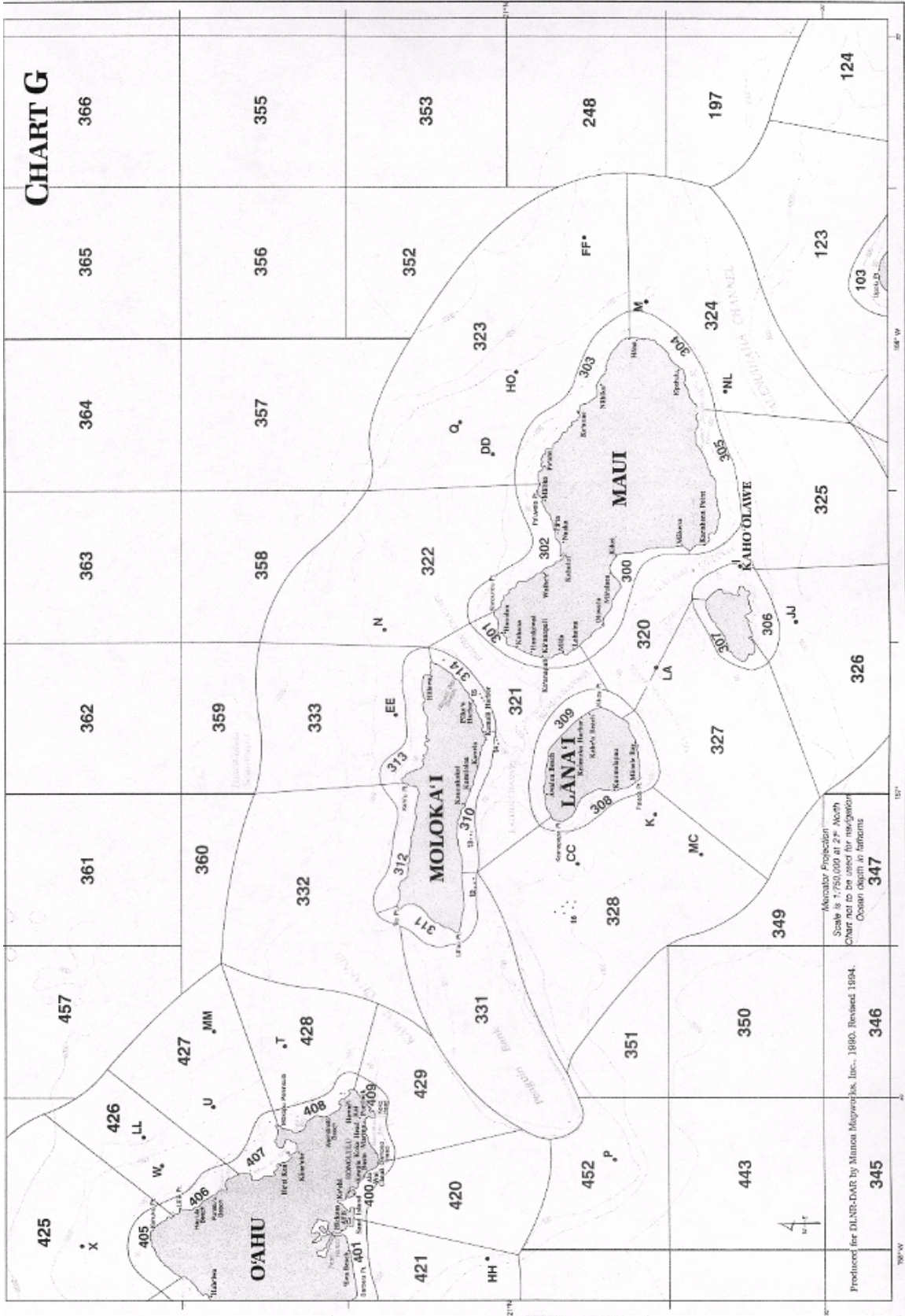






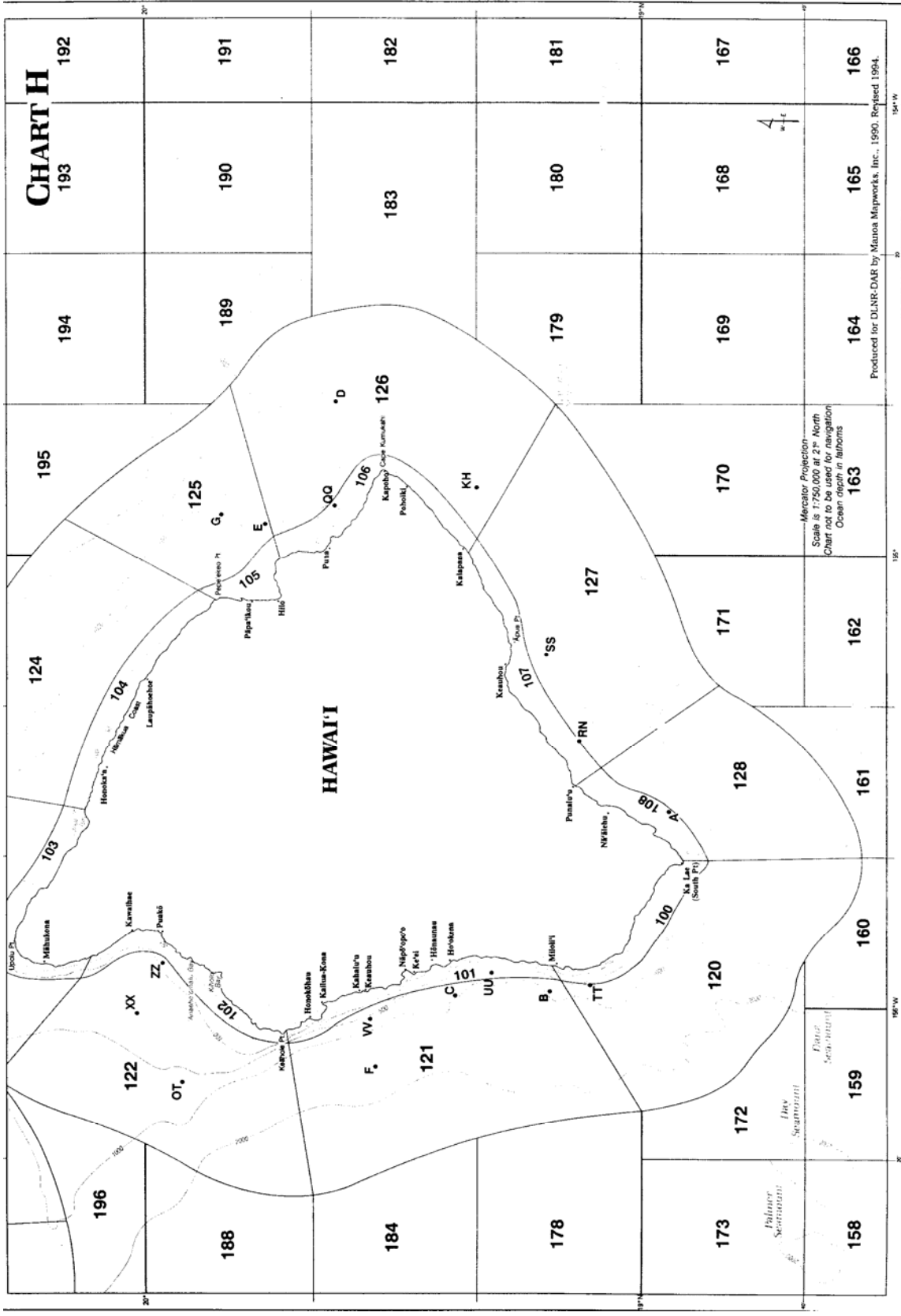


# CHART G



Mercator Projection  
Scale 1:750,000 at 2° North  
Chart not to be used for navigation  
Ocean depth in fathoms

Produced for DLNR-DAR by Minnea Megawick, Inc., 1880, Revised 1994.



**CHART H**  
193 192

Mercator Projection  
Scale is 1:750,000 at 2° North  
Chart not to be used for navigation  
Ocean depth in fathoms

Produced for DUNR-DNR by Manoa Mapworks, Inc., 1990. Reprinted 1994.

154° W

154° W

154° W

154° W

## Appendix III

### Summary of Catch and Dealer Data Reporting Quality

Prior to conducting catch and dealer data analyses, quality control was performed on each data set. This aided in organization of the data, determination of the amount of available data for each analysis and comparison of the level of completeness between the two sets.

As described in the methods section, the data fields from the report forms used in these analyses are;

| Catch Data  | Dealer Data   |
|---|---|
| <ul style="list-style-type: none"><li>• Day fished</li><li>• Area fished (sorted by region)</li><li>• Gear type</li><li>• Species caught</li><li>• Number caught</li><li>• Pounds caught</li><li>• Pounds sold</li><li>• Value (Value of pounds sold)</li></ul> | <ul style="list-style-type: none"><li>• Day of sale</li><li>• Species</li><li>• Pounds bought</li><li>• Number bought</li><li>• (Value) Amount paid</li></ul> |

These data field titles can be seen on the report forms found in Appendix I and definitions of these can be found in the glossary in Appendix VI.

#### 1. Data Completeness –Catch Data

Although the DAR has required since 1989 that fishers provide effort information for days with no fish caught (“skunk trips”), there were no zero catch entries in the data set. The number of unreported “skunk trips” would have a direct effect on total effort, and subsequently, average CPUE.

The following section breaks down the data completeness per entry for the whole data set and by island region.

##### *Area fished*

Of 6,656 entries, 6,633 (99.7%) had realistic entries for area fished. Twelve entries did not report area fished, and were removed from the data set. This accounted for 876 pounds of lobster. Eleven entries reported area 99999, which does not exist. This accounted for 10,136 pounds of lobster. It was assumed that these entries were from NWHI lobster permittees, and were also removed from the list.

### Gear type

On the catch forms, gear type is listed as “fishing method used.” Eighteen categories of gear were reported within the data set (see Appendix V for full breakdown). Within these categories is “other.” 96 entries (1.5%) were reported as other. Entering other in this field did not eliminate it from any analyses.

### Species caught

Fishermen were not requested to differentiate between green and red spiny lobsters until October 2002. Reports prior to 2002 differentiate only between “spiny lobster” (5546 entries), “slipper lobster” (723 entries), and ridgeback “*haanii*” (14 entries). In 2003, there was 77.3% compliance with reporting exact species (i.e., green or red spiny lobster vs. spiny lobster). Compliance improved to 100% in 2004.

**Table 1. Accuracy in reporting species composition**

| 1984-2002   |         |         | 2003-2004   |        |         |
|-------------|---------|---------|-------------|--------|---------|
| Species     | Pounds  | Percent | Species     | Pounds | Percent |
| Green Spiny | 0       | 0.00%   | Green Spiny | 8,477  | 65.07%  |
| Red Spiny   | 0       | 0.00%   | Red Spiny   | 2,845  | 21.84%  |
| Ridgeback   | 0       | 0.00%   | Ridgeback   | 44     | 0.34%   |
| Slipper     | 17,885  | 10.38%  | Slipper     | 32     | 0.25%   |
| Spiny       | 154,350 | 89.62%  | Spiny       | 1,630  | 12.51%  |
| Total       | 172,235 |         | Total       | 13,028 |         |

### Number caught

Throughout the islands, 80% of the entries included number caught. Number caught is most important for mean weight data analyses. As can be seen in the table, this impacted analyses on Oahu most. The Kauai data set was already too small for regional mean weight analysis.

**Table 2. Completeness – number caught**

|             | Reports with data | Total reports | Percent complete |
|-------------|-------------------|---------------|------------------|
| Hawaii      | 1,041             | 1,237         | 84.2%            |
| Maui        | 3,077             | 3,429         | 89.7%            |
| Oahu        | 897               | 1,572         | 57.1%            |
| Kauai       | 294               | 395           | 74.4%            |
| All Islands | 5,309             | 6,633         | 80.0%            |

### *Pounds caught*

The highest compliance rate in catch reports was for pounds caught, except for an anomaly with the ridgeback slipper lobster *S. haanii*. Of fourteen total entries, seven (50%) did not include pounds landed. This accounted for seven of the eight entries for which pounds landed was not recorded.

**Table 3. Completeness – pounds caught**

|             | Reports with data | Total reports | Percent complete |
|-------------|-------------------|---------------|------------------|
| Hawaii      | 1,237             | 1,237         | 100%             |
| Maui        | 3,429             | 3,429         | 100%             |
| Oahu        | 1,564             | 1,572         | 99.5%            |
| Kauai       | 395               | 395           | 100%             |
| All Islands | 6,625             | 6,633         | 99.9%            |

### *Pounds sold*

Determining data completeness for pounds sold is not possible, as a blank column may mean that catch was not sold. Based on this assumption, 34,829 of 185,263 pounds caught (18.8 %) were not sold. After 2002, new reporting requirements did not require sales data on catch reports. These two years account for one-third of the unsold catch.

**Table 4. Percent of catch not reported sold**

|             | Reports with data | Total reports | Percent reported | Pounds not sold |
|-------------|-------------------|---------------|------------------|-----------------|
| Hawaii      | 914               | 1,237         | 73.9%            | 7158            |
| Maui        | 2,506             | 3,429         | 73.1%            | 20743           |
| Oahu        | 1,311             | 1,572         | 83.4%            | 5419            |
| Kauai       | 280               | 395           | 70.9%            | 1509            |
| All Islands | 5,011             | 6,633         | 75.5%            | 34829           |

### *Value*

Values were reported for all records in which “pounds sold” data were reported. This implies 100% compliance, as long as the amount of “pounds sold” is accurate.

## 2. Data Completeness – Dealer Data

### *Species*

Reporting of species purchased improved over the period of time covered by this data set. From 1984 – 2004, the proportion of dealers reporting only “lobster” in a given year (without clarification) ranged from 0% to 100%. Of the 3740 entries, 1668 reported “lobster” in the species name column. However, only 271 of these entries occurred after 1990. Only two “lobster” entries occurred after 2000.

### *Pounds bought*

Pounds bought was near 100% complete with only 28 entries from the data set not including pounds bought.

|             | Reports with data | Total reports | Percent complete |
|-------------|-------------------|---------------|------------------|
| Hawaii      | 296               | 297           | 99.7%            |
| Maui        | 1,959             | 1,983         | 98.8%            |
| Oahu        | 812               | 815           | 99.6%            |
| Kauai       | 521               | 521           | 100%             |
| All Islands | 3,588             | 3,616         | 99.2%            |

### *Number bought*

Throughout the islands, only 41% of the entries included number caught. Number caught is most important for mean weight analyses. As can be seen in this table, and is reflected in the main report, mean weight from dealer data could only be determined for the island of Maui. Subsets of data for the other regions were too small to permit analysis.

**Table 5. Completeness – number bought**

|             | Reports with data | Total reports | Percent complete |
|-------------|-------------------|---------------|------------------|
| Hawaii      | 155               | 297           | 52.2%            |
| Maui        | 1,086             | 1,983         | 54.8%            |
| Oahu        | 197               | 815           | 24.2%            |
| Kauai       | 47                | 521           | 9.0%             |
| All Islands | 1,485             | 3,740         | 41.1%            |

### *Value*

On the dealer forms, value is listed as “amount paid.” Value is important for average price analysis and total value of the fishery. Oahu dealers had very poor completion of value data, causing the data set to be too small for average price analysis. Data sets from Kauai and Hawaii were already too small for dealer data average price analysis.

**Table 6. Completeness - value**

|             | Reports with data | Total reports | Percent complete |
|-------------|-------------------|---------------|------------------|
| Hawaii      | 230               | 297           | 77.4%            |
| Maui        | 1,898             | 1,983         | 95.7%            |
| Oahu        | 236               | 815           | 29.0%            |
| Kauai       | 516               | 521           | 99.0%            |
| All Islands | 2,880             | 3,616         | 79.6%            |

### 3. Accuracy

Mean weight is not reported directly by the fisher, but is calculated from the pounds caught and number caught fields. Some licensees estimate the total pounds, while others appear to obtain the information from dealers at time of sale. While we were unable to truly know how accurately fishermen estimated the weight of their catch, all entries were estimated to whole pounds. Thus, weight estimates for smaller catches (i.e., one to two lobsters) may have been as much as 25 to 50 % off. A catch of 1-2 lobsters was typical for the majority of fishermen. Therefore, this affected the data significantly. Of 6,633 records, 2,588 (40%) reported catching three or fewer lobsters. In addition, as seen in Table 8, it was apparent that some fishers did not accurately record the number of lobsters caught.

**Table 7. Quality control – mean weight (catch data)**

|        | Low mean weight | High mean weight |
|--------|-----------------|------------------|
| Hawaii | 0.33            | 14.0             |
| Maui   | 0.27            | 25.0             |
| Oahu   | 0.17            | 30.5             |
| Kauai  | 0.50            | 16.0             |

The majority of buyers and all fishers also rounded the weight of lobster purchased to the nearest pound. While some buyers purchase substantial quantities from individuals, most purchase small quantities on a regular basis. This causes similar inaccuracies to those described for the catch report data. Nevertheless, because dealers are likely more concerned with exact weight as this indicates how much they must pay the fisher, mean weight values should be more accurate from dealer data. Unfortunately, as was discussed above in the dealer completeness section, dealers were less concerned with recording the number of lobsters bought, making this data set very small (1,485 points for all islands and all species across the time-series). This equates to an average of less than 10 data points each year from the islands of Hawaii, Oahu and Kauai. Subsequently, only Maui dealer data was used for mean weight analysis.

#### *Average Price*

Average price is provided in dollars per pound, and is obtained from the value and pounds sold fields. Table 8 shows the range of price obtained on each island and the average price over the 20-year period.

**Table 8. Quality control – price\* (catch data)**

|        | Low price | High price | Average |
|--------|-----------|------------|---------|
| Hawaii | \$ 0.40   | \$14.87    | \$5.90  |
| Maui   | \$ 0.60   | \$16.60    | \$8.41  |
| Oahu   | \$ 0.40   | \$20.00    | \$6.28  |
| Kauai  | \$ 1.22   | \$14.12    | \$6.54  |

\*Data is not inflation-adjusted

#### 4. Potential for double counting sales

The DLNR has a mandatory reporting requirement for any primary business that purchases locally caught seafood directly from licensed commercial fishermen for resale purposes to submit monthly dealer reports. Secondary businesses that purchase seafood from primary dealers are not required to submit dealer reports. Dealer reports that include purchases from other dealers caused difficulty during analysis, creating the possibility of double counting harvested lobsters. There were thirteen individuals who acted as dealers and were also listed as fishers to other dealers. Over 13,000 pounds of lobster sales were associated with these people. In one instance, a dealer reported three sales for 572 pounds, apparently bought from himself. These three sales were the largest individual sales of lobster, averaging 190.7 pounds per sale. These are not insignificant numbers, constituting 13.5% of reported sales. Nevertheless, it is not possible to determine if any of these reports are due to reselling lobsters or if the business acted as both a buyer and a fisher during the course of operations.

## Appendix IV

### Confidentiality Matrix

The following four tables illustrate the difficulty in analyzing catch data in a multi-tiered format. The number of data points and fishers reporting are listed for each tier (e.g., all hand harvest data for the Island of Hawaii by year). Analyses with fewer than three fishers are considered confidential and are highlighted. The number of data points available for each analysis provides an indication of the quality of the result. If a majority of the years are highlighted for a given tier, analyses could not be conducted.

**Table 1. Island of Hawaii**

| Year | Gear        |           |          |               |              | All   |
|------|-------------|-----------|----------|---------------|--------------|-------|
|      | Hand (1)    | Trap (2)  | Net (3)  | Fish trap (4) | Gill net (5) |       |
| 1984 | 2e, 2f      | 4e, 2f    | 0e, 0f   | 0e, 0f        | 1e, 1f       | OK    |
| 1985 | 6e, 4f      | 6e, 3f    | 7e, 4f   | 0e, 0f        | 6e, 1f       | OK    |
| 1986 | 19e, 7f     | 33e, 3f   | 6e, 1f   | 0e, 0f        | 0e, 0f       | OK    |
| 1987 | 56e, 15f    | 3e, 2f    | 10e, 3f  | 0e, 0f        | 3e, 2f       | OK    |
| 1988 | 58e, 12f    | 9e, 1f    | 5e, 3f   | 2e, 1f        | 0e, 0f       | OK    |
| 1989 | 34e, 9f     | 5e, 2f    | 0e, 0f   | 0e, 0f        | 0e, 0f       | OK    |
| 1990 | 83e, 18f    | 26e, 3f   | 1e, 1f   | 0e, 0f        | 0e, 0f       | OK    |
| 1991 | 87e, 16f    | 0e, 0f    | 1e, 1f   | 0e, 0f        | 0e, 0f       | OK    |
| 1992 | 44e, 12f    | 11e, 3f   | 0e, 0f   | 0e, 0f        | 0e, 0f       | OK    |
| 1993 | 41e, 9f     | 4e, 2f    | 0e, 0f   | 0e, 0f        | 0e, 0f       | OK    |
| 1994 | 16e, 6f     | 0e, 0f    | 0e, 0f   | 0e, 0f        | 0e, 0f       | OK    |
| 1995 | 54e, 11f    | 1e, 1f    | 1e, 1f   | 0e, 0f        | 2e, 2f       | OK    |
| 1996 | 102e, 21f   | 3e, 2f    | 4e, 2f   | 0e, 0f        | 1e, 1f       | OK    |
| 1997 | 53e, 14f    | 0e, 0f    | 7e, 1f   | 0e, 0f        | 0e, 0f       | OK    |
| 1998 | 101e, 13f   | 2e, 2f    | 6e, 2f   | 0e, 0f        | 0e, 0f       | OK    |
| 1999 | 58e, 10f    | 0e, 0f    | 0e, 0f   | 0e, 0f        | 0e, 0f       | OK    |
| 2000 | 50e, 11f    | 1e, 1f    | 0e, 0f   | 0e, 0f        | 0e, 0f       | OK    |
| 2001 | 25e, 10f    | 0e, 0f    | 0e, 0f   | 0e, 0f        | 3e, 1f       | OK    |
| 2002 | 20e, 5f     | 0e, 0f    | 0e, 0f   | 0e, 0f        | 0e, 0f       | OK    |
| 2003 | 21e, 8f     | 0e, 0f    | 1e, 1f   | 0e, 0f        | 0e, 0f       | OK    |
| 2004 | 90e, 9f     | 0e, 0f    | 0e, 0f   | 0e, 0f        | 0e, 0f       | OK    |
| All  | 1020e, 124f | 108e, 21f | 49e, 16f | 2e, 1f        | 16e, 7f      | 1237e |

| Month     | Gear        |           |          |               |              | All   |
|-----------|-------------|-----------|----------|---------------|--------------|-------|
|           | Hand (1)    | Trap (2)  | Net (3)  | Fish trap (4) | Gill net (5) |       |
| September | 164e, 56f   | 5e, 4f    | 4e, 4f   | 0e, 0f        | 2e, 2f       | OK    |
| October   | 145e, 44f   | 10e, 4f   | 3e, 2f   | 0e, 0f        | 0e, 0f       | OK    |
| November  | 122e, 36f   | 9e, 3f    | 5e, 3f   | 0e, 0f        | 2e, 2f       | OK    |
| December  | 126e, 41f   | 23e, 4f   | 8e, 3f   | 0e, 0f        | 1e, 1f       | OK    |
| January   | 123e, 40f   | 18e, 4e   | 3e, 2f   | 0e, 0f        | 0e, 0f       | OK    |
| February  | 99e, 27f    | 6e, 4f    | 11e, 4f  | 0e, 0f        | 2e, 1f       | OK    |
| March     | 97e, 34f    | 13e, 4f   | 5e, 3f   | 0e, 0f        | 7e, 6f       | OK    |
| April     | 110e, 33f   | 8e, 4f    | 8e, 6f   | 2e, 1f        | 1e, 1f       | OK    |
| May       | 31e, 17f    | 16e, 4f   | 2e, 1f   | 0e, 0f        | 1e, 1f       | OK    |
| All       | 1020e, 124f | 108e, 21f | 49e, 16f | 2e, 1f        | 16e, 7f      | 1237e |

**Table 2. Island of Maui**

| Year | Gear      |           |          |               |              | All  |
|------|-----------|-----------|----------|---------------|--------------|------|
|      | Hand (1)  | Trap (2)  | Net (3)  | Fish trap (4) | Gill net (5) |      |
| 1984 | 0e, 0f    | 150e, 5f  | 9e, 5f   | 0e, 0f        | 1e, 1f       | 162  |
| 1985 | 1e, 1f    | 354e, 13f | 26e, 3f  | 0e, 0f        | 3e, 3f       | 420  |
| 1986 | 66e, 10f  | 149e, 10f | 16e, 12f | 0e, 0f        | 2e, 2f       | 238  |
| 1987 | 91e, 14f  | 136e, 8f  | 19e, 4f  | 0e, 0f        | 3e, 3f       | 262  |
| 1988 | 114e, 12f | 113e, 5f  | 11e, 7f  | 0e, 0f        | 7e, 3f       | 245  |
| 1989 | 85e, 9f   | 18e, 8f   | 13e, 5f  | 0e, 0f        | 0e, 0f       | 116  |
| 1990 | 46e, 13f  | 14e, 6f   | 21e, 9f  | 0e, 0f        | 0e, 0f       | 81   |
| 1991 | 65e, 15f  | 19e, 3f   | 10e, 7f  | 1e, 1f        | 0e, 0f       | 95   |
| 1992 | 68e, 12f  | 51e, 4f   | 6e, 4f   | 0e, 0f        | 0e, 0f       | 125  |
| 1993 | 36e, 9f   | 0e, 0f    | 2e, 2f   | 0e, 0f        | 1e, 1f       | 39   |
| 1994 | 27e, 10f  | 1e, 1f    | 3e, 1f   | 0e, 0f        | 0e, 0f       | 40   |
| 1995 | 64e, 8f   | 15e, 2f   | 10e, 3f  | 0e, 0f        | 0e, 0f       | 91   |
| 1996 | 160e, 17f | 7e, 1f    | 9e, 3f   | 0e, 0f        | 1e, 1f       | 177  |
| 1997 | 118e, 15f | 22e, 3f   | 6e, 4f   | 0e, 0f        | 0e, 0f       | 146  |
| 1998 | 173e, 22f | 3e, 2f    | 39e, 3f  | 0e, 0f        | 3e, 2f       | 219  |
| 1999 | 126e, 26f | 4e, 1f    | 3e, 2f   | 0e, 0f        | 1e, 1f       | 134  |
| 2000 | 212e, 26f | 1e, 1f    | 10e, 2f  | 0e, 0f        | 5e, 1f       | 229  |
| 2001 | 166e, 27f | 0e, 0f    | 10e, 3f  | 0e, 0f        | 2e, 1f       | 178  |
| 2002 | 161e, 25f | 0e, 0f    | 11e, 2f  | 0e, 0f        | 0e, 0f       | 172  |
| 2003 | 130e, 19f | 0e, 0f    | 8e, 3f   | 0e, 0f        | 9e, 3f       | 147  |
| 2004 | 110e, 14f | 0e, 0f    | 3e, 1f   | 0e, 0f        | 0e, 0f       | 113  |
| All  | 2019e,    | 1057e,    | 245e,    | 1e, 1f        | 38e,         | 3429 |

| Month     | Gear      |           |           |               |              | All |
|-----------|-----------|-----------|-----------|---------------|--------------|-----|
|           | Hand (1)  | Trap (2)  | Net (3)   | Fish trap (4) | Gill net (5) |     |
| September | 416e, 81f | 129e, 15f | 110e, 30f | 0e, 0f        | 11e, 6f      |     |
| October   | 255e, 57f | 117e, 15f | 50e, 13f  | 0e, 0f        | 2e, 2f       |     |
| November  | 191e, 35f | 122e, 20f | 8e, 6f    | 0e, 0f        | 4e, 1f       |     |
| December  | 198e, 41f | 100e, 14f | 9e, 6f    | 1e, 1f        | 5e, 2f       |     |
| January   | 208e, 29f | 163e, 19f | 6e, 5f    | 0e, 0f        | 1e, 1f       |     |
| February  | 164e, 40f | 106e, 12f | 15e, 8f   | 0e, 0f        | 1e, 1f       |     |
| March     | 235e, 45f | 111e, 14f | 13e, 8f   | 0e, 0f        | 2e, 2f       |     |
| April     | 191e, 44f | 130e, 13f | 19e, 9f   | 0e, 0f        | 7e, 4f       |     |
| May       | 57e, 14f  | 78e, 7f   | 15e, 10f  | 0e, 0f        | 4e, 4f       |     |
| All       | 2019e,    | 1057e,    | 246e,     | 1e, 1f        |              |     |

**Table 3. Island of Oahu**

| Year | Gear  |       |      |           |          |          |       |
|------|-------|-------|------|-----------|----------|----------|-------|
|      | Hand  | Trap  | Net  | Fish trap | Gill net | All      | Other |
| 1984 | 4/1   | 93/10 | 7/3  | 0/0       | 3/1      | 113/16   | 0/0   |
| 1985 | 9/3   | 124/7 | 19/4 | 0/0       | 1/1      | 223/17   | 5/4   |
| 1986 | 15/4  | 66/8  | 9/4  | 17/1      | 1/1      | 141/16   | 33/2  |
| 1987 | 47/6  | 27/5  | 6/4  | 5/2       | 8/1      | 95/18    | 2/1   |
| 1988 | 27/5  | 34/5  | 2/2  | 1/1       | 3/1      | 68/11    | 1/1   |
| 1989 | 15/4  | 81/7  | 3/2  | 0/0       | 0/0      | 99/13    | 0/0   |
| 1990 | 14/3  | 52/7  | 6/2  | 0/0       | 0/0      | 72/12    | 0/0   |
| 1991 | 31/8  | 30/6  | 14/4 | 1/1       | 0/0      | 76/18    | 0/0   |
| 1992 | 37/8  | 54/7  | 14/7 | 0/0       | 3/2      | 108/23   | 0/0   |
| 1993 | 7/4   | 24/5  | 20/5 | 0/0       | 0/0      | 53/14    | 2/2   |
| 1994 | 20/5  | 19/3  | 15/6 | 0/0       | 0/0      | 54/14    | 0/0   |
| 1995 | 20/6  | 8/1   | 6/3  | 14/1      | 4/1      | 52/11    | 0/0   |
| 1996 | 15/9  | 2/1   | 10/4 | 30/4      | 0/0      | 57/16    | 0/0   |
| 1997 | 6/5   | 1/1   | 19/6 | 14/2      | 0/0      | 40/12    | 0/0   |
| 1998 | 4/3   | 8/2   | 13/4 | 26/5      | 0/0      | 51/10    | 0/0   |
| 1999 | 7/2   | 13/3  | 11/7 | 27/5      | 0/0      | 78/14    | 20/1  |
| 2000 | 15/10 | 1/1   | 4/3  | 38/4      | 1/1      | 59/17    | 0/0   |
| 2001 | 6/4   | 5/2   | 2/2  | 38/4      | 0/0      | 55/9     | 4/1   |
| 2002 | 12/4  | 3/1   | 1/1  | 34/3      | 0/0      | 51/8     | 1/1   |
| 2003 | 1/1   | 2/1   | 1/1  | 13/4      | 0/0      | 18/7     | 1/1   |
| 2004 | 0/0   | 0/0   | 0/0  | 7/2       | 0/0      | 8/2      | 1/1   |
| All  |       |       |      |           |          | 1571/132 |       |

| Month     | Gear  |        |       |           |          |          |       |
|-----------|-------|--------|-------|-----------|----------|----------|-------|
|           | Hand  | Trap   | Net   | Fish trap | Gill net | All      | Other |
| September | 58/18 | 57/9   | 50/17 | 33/7      | 2/2      | 214/48   | 14/2  |
| October   | 31/16 | 101/14 | 28/13 | 39/6      | 1/1      | 204/45   | 4/3   |
| November  | 20/12 | 73/12  | 15/5  | 32/5      | 2/1      | 144/30   | 2/1   |
| December  | 25/16 | 60/14  | 24/8  | 21/3      | 1/1      | 144/40   | 13/4  |
| January   | 26/15 | 106/16 | 9/8   | 22/5      | 1/1      | 174/42   | 10/4  |
| February  | 45/18 | 95/14  | 11/3  | 37/5      | 4/2      | 206/39   | 14/3  |
| March     | 26/14 | 81/11  | 15/6  | 37/5      | 4/4      | 176/38   | 13/6  |
| April     | 51/15 | 56/13  | 15/9  | 37/4      | 5/3      | 165/41   | 1/1   |
| May       | 27/9  | 81/14  | 12/7  | 4/2       | 4/2      | 133/32   | 5/3   |
| All       | 309   | 710    | 179   | 262       | 24       | 1572/132 |       |

**Table 4. Island of Kauai**

| Year | Gear     |          |         |               |              |        |
|------|----------|----------|---------|---------------|--------------|--------|
|      | Hand (1) | Trap (2) | Net (3) | Fish trap (4) | Gill net (5) | All    |
| 1984 | 0/0      | 8/1      | 2/0     | 0/0           | 1/1          | 11/3   |
| 1985 | 3/3      | 11/1     | 0/0     | 0/0           | 0/0          | 21/5   |
| 1986 | 21/4     | 9/3      | 7/3     | 0/0           | 0/0          | 37/8   |
| 1987 | 8/1      | 56/2     | 6/2     | 3/1           | 0/0          | 74/5   |
| 1988 | 6/2      | 15/1     | 3/1     | 0/0           | 0/0          | 25/4   |
| 1989 | 6/2      | 8/2      | 5/1     | 0/0           | 0/0          | 19/6   |
| 1990 | 4/1      | 10/2     | 1/1     | 0/0           | 0/0          | 15/4   |
| 1991 | 3/2      | 10/2     | 1/1     | 0/0           | 0/0          | 14/5   |
| 1992 | 1/1      | 3/1      | 0/0     | 0/0           | 0/0          | 4/2    |
| 1993 | 1/1      | 0/0      | 0/0     | 0/0           | 0/0          | 1/1    |
| 1994 | 7/3      | 0/0      | 0/0     | 0/0           | 0/0          | 7/3    |
| 1995 | 11/3     | 0/0      | 4/1     | 0/0           | 0/0          | 15/4   |
| 1996 | 34/7     | 18/1     | 0/0     | 0/0           | 0/0          | 52/9   |
| 1997 | 37/6     | 2/1      | 0/0     | 13/1          | 0/0          | 52/8   |
| 1998 | 1/1      | 1/1      | 0/0     | 21/1          | 0/0          | 23/3   |
| 1999 | 1/1      | 0/0      | 0/0     | 0/0           | 0/0          | 1/1    |
| 2000 | 2/1      | 0/0      | 0/0     | 0/0           | 0/0          | 2/1    |
| 2001 | 1/1      | 0/0      | 3/1     | 0/0           | 0/0          | 4/2    |
| 2002 | 9/4      | 0/0      | 0/0     | 0/0           | 0/0          | 9/4    |
| 2003 | 4/1      | 0/0      | 0/0     | 0/0           | 0/0          | 4/1    |
| 2004 | 6/1      | 0/0      | 0/0     | 0/0           | 0/0          | 6/1    |
| All  | 167/26   | 151/11   | 32/11   | 37/1          | 1/1          | 395/45 |

| Month     | Gear     |          |         |               |              |        |
|-----------|----------|----------|---------|---------------|--------------|--------|
|           | Hand (1) | Trap (2) | Net (3) | Fish trap (4) | Gill net (5) | All    |
| September | 38/11    | 19/4     | 5/2     | 5/1           | 0/0          | 71/17  |
| October   | 13/8     | 20/4     | 4/3     | 5/1           | 0/0          | 41/13  |
| November  | 7/2      | 25/3     | 3/1     | 2/1           | 0/0          | 36/6   |
| December  | 21/8     | 20/5     | 7/4     | 5/1           | 0/0          | 54/17  |
| January   | 20/7     | 9/3      | 8/3     | 5/1           | 1/1          | 43/13  |
| February  | 14/7     | 12/3     | 1/1     | 2/1           | 0/0          | 29/11  |
| March     | 18/7     | 10/4     | 4/3     | 3/1           | 0/0          | 29/14  |
| April     | 23/8     | 16/4     | 1/1     | 3/1           | 0/0          | 49/11  |
| May       | 12/4     | 20/4     | 0/0     | 0/0           | 0/0          | 34/8   |
| All       | 167/26   | 151/11   | 32/11   | 37/1          | 1/1          | 395/45 |

## Appendix V

### Data Analysis Tables

**Table 1. Mean weight, by species - all catch data**

| <b>Mean Weight, Standard Deviation and Number of entries per species</b> |         |       |     |                         |         |       |     |
|--|---------|-------|-----|-------------------------|---------|-------|-----|
| <b>Spiny Lobsters</b>  |         |       |     | <b>Slipper Lobsters</b> |         |       |     |
| Year   | Average | StDev | n   | Year                    | Average | StDev | n   |
| 1984   | 2.16    | 0.52  | 148 | 1984                    | 2.06    | 0.65  | 9   |
| 1985   | 2.16    | 0.50  | 293 | 1985                    | 2.05    | 0.65  | 107 |
| 1986   | 2.03    | 0.55  | 187 | 1986                    | 2.29    | 0.53  | 54  |
| 1987   | 2.13    | 0.51  | 300 | 1987                    | 2.05    | 0.60  | 76  |
| 1988   | 2.12    | 0.50  | 280 | 1988                    | 1.88    | 0.57  | 37  |
| 1989   | 2.04    | 0.50  | 146 | 1989                    | 2.17    | 0.48  | 14  |
| 1990   | 2.08    | 0.56  | 196 | 1990                    | 2.07    | 0.84  | 7   |
| 1991   | 2.08    | 0.57  | 174 | 1991                    | 1.57    | 0.83  | 16  |
| 1992   | 1.89    | 0.38  | 213 | 1992                    | 1.81    | 0.89  | 27  |
| 1993   | 1.89    | 0.52  | 92  | 1993                    | 1.42    | 1.01  | 10  |
| 1994   | 1.89    | 0.55  | 82  | 1994                    | 1.74    | 0.99  | 4   |
| 1995   | 1.89    | 0.47  | 140 | 1995                    | 1.78    | 0.78  | 16  |
| 1996   | 2.07    | 0.50  | 305 | 1996                    | 1.88    | 0.82  | 38  |
| 1997   | 2.02    | 0.52  | 247 | 1997                    | 1.53    | 0.73  | 25  |
| 1998   | 1.99    | 0.52  | 293 | 1998                    | 1.90    | 0.49  | 18  |
| 1999   | 1.94    | 0.50  | 199 | 1999                    | 2.27    | 0.57  | 10  |
| 2000   | 1.97    | 0.45  | 281 | 2000                    | 2.03    | 0.77  | 26  |
| 2001   | 1.94    | 0.44  | 225 | 2001                    | 2.16    | 0.73  | 21  |
| 2002   | 1.95    | 0.39  | 210 | 2002                    | 1.51    | 0.82  | 11  |
| 2003   | 2.06    | 0.41  | 36  | 2003                    | 0.78    | 0.20  | 3   |

Source: Analysis xcel/Mean weight/Fig5a data

Data set was derived from catch data. Of the 6633 total data points, this subset does not include 1324 entries that did not report number of lobsters caught or 391 entries where the mean weight was greater than the published maximum weight (3 lbs for both species). There are 4576 total entries, of which 57% came from Maui landings, 19% from Hawaii, 18% from Oahu and 6% from Kauai.

**Table 2. Mean weight for spiny lobsters by region and gear – catch data**

| Spiny lobster by hand - Hawaii |          |          |         | Spiny lobster by hand - Maui |          |          |          | Spiny lobster by hand - Oahu |          |          |         | Spiny lobster by hand - Kauai |          |          |         |
|--------------------------------|----------|----------|---------|------------------------------|----------|----------|----------|------------------------------|----------|----------|---------|-------------------------------|----------|----------|---------|
| Year                           | ave. wt. | st. dev. | n (746) | Year                         | ave. wt. | st. dev. | n (1634) | Year                         | ave. wt. | st. dev. | n (258) | Year                          | ave. wt. | st. dev. | n (128) |
| 1984                           | 2.17     | 0.49     | 6       | 1984                         | NA       | NA       | 0        | 1984                         | 2.24     | 0.43     | 5       | 1985                          | na       | na       | 1       |
| 1985                           | 2.72     | 0.89     | 9       | 1985                         | 2.62     | 1.05     | 12       | 1985                         | 2.03     | 0.55     | 8       | 1986                          | 1.54     | 0.50     | 15      |
| 1986                           | 2.51     | 0.90     | 28      | 1986                         | 2.54     | 0.63     | 56       | 1986                         | 2.01     | 0.52     | 17      | 1987                          | 1.40     | 0.46     | 8       |
| 1987                           | 2.57     | 0.66     | 62      | 1987                         | 2.31     | 0.77     | 69       | 1987                         | 1.78     | 0.45     | 36      | 1988                          | 1.66     | 0.58     | 3       |
| 1988                           | 2.19     | 0.51     | 42      | 1988                         | 2.09     | 0.68     | 71       | 1988                         | 1.93     | 0.48     | 18      | 1989                          | na       | na       | 2       |
| 1989                           | 2.51     | 1.07     | 71      | 1989                         | 2.26     | 0.52     | 73       | 1989                         | 1.65     | 0.35     | 28      | 1990                          | 2.22     | 0.25     | 4       |
| 1990                           | 2.30     | 0.64     | 68      | 1990                         | 2.59     | 0.68     | 44       | 1990                         | 1.62     | 0.55     | 10      | 1991                          | 2.11     | 0.19     | 3       |
| 1991                           | 2.25     | 0.82     | 50      | 1991                         | 2.25     | 0.70     | 50       | 1991                         | 1.72     | 0.66     | 24      | 1992                          | na       | na       | 1       |
| 1992                           | 2.10     | 0.46     | 25      | 1992                         | 1.75     | 0.27     | 50       | 1992                         | 2.38     | 0.92     | 21      | 1993                          | na       | na       | 0       |
| 1993                           | 2.55     | 0.81     | 15      | 1993                         | 2.34     | 0.85     | 23       | 1993                         | 1.88     | 0.68     | 13      | 1994                          | 1.86     | 0.35     | 5       |
| 1994                           | 2.37     | 0.65     | 15      | 1994                         | 2.22     | 0.77     | 50       | 1994                         | 1.94     | 0.64     | 23      | 1995                          | 1.38     | 0.48     | 11      |
| 1995                           | 2.58     | 0.83     | 53      | 1995                         | 2.18     | 0.44     | 126      | 1995                         | 1.93     | 0.70     | 13      | 1996                          | 1.67     | 0.27     | 33      |
| 1996                           | 2.18     | 0.67     | 78      | 1996                         | 2.13     | 0.43     | 122      | 1996                         | 2.07     | 0.78     | 9       | 1997                          | 1.62     | 0.36     | 29      |
| 1997                           | 2.22     | 0.75     | 50      | 1997                         | 2.25     | 0.65     | 126      | 1997                         | 2.22     | 0.83     | 6       | 1998                          | na       | na       | 1       |
| 1998                           | 2.34     | 0.61     | 62      | 1998                         | 1.96     | 0.48     | 163      | 1998                         | NA       | NA       | 1       | 1999                          | na       | na       | 1       |
| 1999                           | 2.00     | 0.93     | 54      | 1999                         | 1.97     | 0.50     | 162      | 1999                         | 2.36     | 0.82     | 6       | 2000                          | na       | na       | 2       |
| 2000                           | 2.15     | 0.89     | 38      | 2000                         | 2.08     | 0.64     | 199      | 2000                         | 2.59     | 0.56     | 11      | 2001                          | na       | na       | 1       |
| 2001                           | 2.33     | 1.32     | 11      | 2001                         | 2.04     | 0.49     | 132      | 2001                         | 2.06     | 0.65     | 4       | 2002                          | 1.92     | 0.41     | 6       |
| 2002                           | 1.56     | 0.70     | 9       | 2002                         | 2.08     | 0.51     | 106      | 2002                         | 2.28     | 0.49     | 5       | 2003                          | na       | na       | 1       |

| Spiny lobster by trap - Hawaii                             |          |          |         | Spiny lobster by trap - Maui     |          |          |         | Spiny lobster by trap - Oahu     |          |          |         | Spiny lobster by trap - Kauai                              |          |          |         |
|--|----------|----------|---------|----------------------------------|----------|----------|---------|----------------------------------|----------|----------|---------|--|----------|----------|---------|
| Year   | ave. wt. | st. dev. | n (676) | Year                             | ave. wt. | st. dev. | n (202) | Year                             | ave. wt. | st. dev. | n (202) | Year   | ave. wt. | st. dev. | n (202) |
| Analysis not conducted.<br>Only 58 data points in 21 years |          |          |         | 1984                             | 2.43     | 0.52     | 220     | 1984                             | 1.88     | 0.39     | 51      | Analysis not conducted.<br>Only 23 data points in 21 years |          |          |         |
|  |          |          |         | 1985                             | 2.43     | 0.70     | 139     | 1985                             | 1.67     | 0.53     | 33      |  |          |          |         |
|  |          |          |         | 1986                             | 2.66     | 0.76     | 86      | 1986                             | 1.84     | 0.40     | 19      |  |          |          |         |
|  |          |          |         | 1987                             | 2.42     | 0.59     | 83      | 1987                             | NA       | NA       | 2       |  |          |          |         |
|  |          |          |         | 1988                             | 2.31     | 0.62     | 77      | 1988                             | NA       | NA       | 1       |  |          |          |         |
|  |          |          |         | 1989                             | 2.08     | 0.81     | 13      | 1989                             | 1.76     | 0.43     | 20      |  |          |          |         |
|  |          |          |         | 1990                             | 2.47     | 0.93     | 10      | 1990                             | 1.64     | 0.24     | 13      |  |          |          |         |
|  |          |          |         | 1991                             | 2.67     | 1.15     | 31      | 1991                             | 1.80     | 0.48     | 42      |  |          |          |         |
|  |          |          |         | 1992                             | 1.72     | 0.17     | 17      | 1992                             | 1.61     | 0.26     | 10      |  |          |          |         |
|  |          |          |         | * only 28 data points after 1992 |          |          |         | 1993                             | 1.59     | 0.25     | 11      |  |          |          |         |
|  |          |          |         |                                  |          |          |         | * only 16 data points after 1993 |          |          |         |  |          |          |         |

| Spiny lobster by net - Hawaii                              |          |          |         | Spiny lobster by trap - Maui |          |          |         | Spiny lobster by net - Oahu |          |          |         | Spiny lobster by trap - Kauai                              |          |          |         |
|--|----------|----------|---------|------------------------------|----------|----------|---------|-----------------------------|----------|----------|---------|--|----------|----------|---------|
| Year   | ave. wt. | st. dev. | n (175) | Year                         | ave. wt. | st. dev. | n (144) | Year                        | ave. wt. | st. dev. | n (144) | Year   | ave. wt. | st. dev. | n (144) |
| Analysis not conducted.<br>Only 41 data points in 21 years |          |          |         | 1984                         | 2.44     | 0.43     | 25      | 1984                        | 1.71     | 0.48     | 21      | Analysis not conducted.<br>Only 12 data points in 21 years |          |          |         |
|  |          |          |         | 1985                         | 2.13     | 1.04     | 7       | 1985                        | 2.06     | 0.36     | 5       |  |          |          |         |
|  |          |          |         | 1986                         | 1.94     | 0.66     | 2       | 1986                        | 1.79     | 0.44     | 5       |  |          |          |         |
|  |          |          |         | 1987                         | 2.77     | 0.21     | 4       | 1987                        | NA       | NA       | 1       |  |          |          |         |
|  |          |          |         | 1988                         | 2.21     | 0.71     | 22      | 1988                        | 1.75     | 0.35     | 2       |  |          |          |         |
|  |          |          |         | 1989                         | 2.22     | 1.02     | 8       | 1989                        | 1.19     | 0.14     | 3       |  |          |          |         |
|  |          |          |         | 1990                         | 2.24     | 1.02     | 5       | 1990                        | 1.61     | 0.24     | 8       |  |          |          |         |
|  |          |          |         | 1991                         | 2.39     | 1.05     | 7       | 1991                        | 1.64     | 0.61     | 3       |  |          |          |         |
|  |          |          |         | 1992                         | 2.82     | 1.04     | 4       | 1992                        | 1.74     | 0.53     | 13      |  |          |          |         |
|  |          |          |         | 1993                         | NA       | NA       | 1       | 1993                        | 1.41     | 0.17     | 15      |  |          |          |         |
|  |          |          |         | 1994                         | 1.63     | 0.34     | 7       | 1994                        | 1.54     | 0.59     | 10      |  |          |          |         |
|  |          |          |         | 1995                         | 1.63     | 0.34     | 9       | 1995                        | 1.67     | 0.64     | 9       |  |          |          |         |
|  |          |          |         | 1996                         | 2.56     | 0.87     | 9       | 1996                        | 1.81     | 0.65     | 15      |  |          |          |         |
|  |          |          |         | 1997                         | 2.08     | 0.77     | 13      | 1997                        | 1.68     | 0.52     | 16      |  |          |          |         |
|  |          |          |         | 1998                         | 1.37     | 0.26     | 14      | 1998                        | 1.75     | 0.48     | 10      |  |          |          |         |
|  |          |          |         | 1999                         | 2.12     | 0.17     | 8       | 1999                        | 2.68     | 0.76     | 4       |  |          |          |         |
|  |          |          |         | 2000                         | 1.81     | 0.38     | 12      | 2000                        | NA       | NA       | 1       |  |          |          |         |
|  |          |          |         | 2001                         | 1.88     | 0.22     | 9       | 2001                        | 2.03     | 0.50     | 2       |  |          |          |         |
|  |          |          |         | 2002                         | 2.12     | 0.25     | 9       | 2002                        | NA       | NA       | 1       |  |          |          |         |

Source: Analysis xcel/Mean weight/Fig5b-d data

Data set was derived from catch data, and includes only data for spiny lobsters that had both pounds and numbers landed. Subset is 3,963 of total 6,633 points (60%).

**Table 3. Mean weight by species – dealer data**

**Annual Mean Weight by Species**

**Hawaii**

Mean weight of slipper lobsters cannot be measured on Hawaii, there are only 2 data points over 21 yrs.

**Spiny Lobster**

| <b>Year</b> | <b>Mean Weight</b> | <b>Std Dev</b> |   |
|-------------|--------------------|----------------|---|
| 1990-1991   | 1.62               | 0.27           |   |
| 1991-1992   | 1.48               | 0.40           |   |
| 1994-1995   | 1.72               | 0.46           |   |
| 1995-1996   | 1.60               | 0.33           |   |
| 2002-2003   | 3.24*              | 1.25           | *Includes lobsters weighing nearly 5 pounds |

**Kauai**

Not enough data for meaningful analysis!

**Maui**

Mean weight of slipper lobsters cannot be measured on Maui, there are only 48 data points over 21 yrs.

**Spiny Lobster**

| <b>Year</b> | <b>Mean Weight</b> | <b>Std Dev</b> |
|-------------|--------------------|----------------|
| 1991-1992   | 1.98               | 0.44           |
| 1993-1994   | 2.44               | 0.50           |
| 1994-1995   | 2.08               | 0.34           |
| 1995-1996   | 1.97               | 0.65           |
| 1996-1997   | 2.15               | 0.29           |
| 1997-1998   | 2.21               | 0.42           |
| 1998-1999   | 2.07               | 0.35           |
| 1999-2000   | 2.00               | 0.43           |
| 2000-2001   | 2.01               | 0.41           |
| 2001-2002   | 1.93               | 0.38           |
| 2002-2003   | 2.08               | 0.51           |
| 2003-2004   | 2.16               | 0.47           |

**Oahu**

Mean weight of slipper lobsters cannot be measured on Oahu, there are only 48 data points over 21 yrs.

**Spiny Lobster**

| <b>Year</b> | <b>Mean Weight</b> | <b>Std Dev</b> |
|-------------|--------------------|----------------|
| 2000-2001   | 1.51               | 0.30           |
| 2001-2002   | 2.06               | 0.88           |
| 2002-2003   | 1.96               | 0.62           |
| 2003-2004   | 1.86               | 0.47           |

**Table 4. Mean weight for red and green spiny lobsters, by region – catch data**

| Region | Species | Year | ave. wt. | st. dev. | n   |
|--------|---------|------|----------|----------|-----|
| Hawaii | RSL     | 2002 | 2.31     | 0.75     | 5   |
| Hawaii | RSL     | 2003 | 2.12     | 0.85     | 43  |
| Hawaii | RSL     | 2004 | 1.87     | 0.42     | 54  |
| Maui   | RSL     | 2002 | 2.38     | 0.22     | 6   |
| Maui   | RSL     | 2003 | 2.14     | 0.50     | 21  |
| Maui   | RSL     | 2004 | 2.84     | 0.23     | 2   |
| Oahu   | RSL     | 2003 | 2.14     | 0.50     | 11  |
| Maui   | GSL     | 2002 | 2.08     | 0.74     | 37  |
| Maui   | GSL     | 2003 | 2.15     | 0.47     | 106 |
| Maui   | GSL     | 2004 | 2.22     | 0.53     | 42  |

**Table 5. Inflation-adjusted (2004) price per pound by region & species – dealer data**

|         | Hawaii-Spiny |        | Kauai-Spiny |        | Maui-Spiny |        | Oahu-Spiny |        | Maui-Slipper |        | Oahu-Slipper |        |
|---------|--------------|--------|-------------|--------|------------|--------|------------|--------|--------------|--------|--------------|--------|
|         | Price        | StDev  | Price       | StDev  | Price      | StDev  | Price      | StDev  | Price        | StDev  | Price        | StDev  |
| 1984    |              |        |             |        | \$7.71     | \$0.93 |            |        | \$8.15       | \$1.24 |              |        |
| 1985    |              |        | \$14.35     | \$2.72 | \$7.11     | \$0.15 |            |        | \$6.98       | \$0.58 |              |        |
| 1986    |              |        |             |        | \$7.56     | \$0.23 |            |        | \$7.55       | \$0.36 |              |        |
| 1987    |              |        |             |        | \$7.25     | \$1.36 |            |        | \$6.48       | \$0.50 |              |        |
| 1988    |              |        | \$16.44     | \$0.03 |            | \$0.00 |            |        |              |        |              |        |
| 1989    |              |        |             |        |            | \$0.00 |            |        |              |        |              |        |
| 1990    |              |        | \$8.28      | \$0.00 |            | \$0.00 |            |        |              |        |              |        |
| 1991    | \$6.69       | \$0.30 | \$7.94      | \$0.39 |            | \$0.00 |            |        |              |        |              |        |
| 1992    | \$7.37       | \$0.02 |             |        | \$8.51     | \$0.70 |            |        |              |        |              |        |
| 1993    |              |        |             |        |            | \$0.00 |            |        |              |        |              |        |
| 1994    |              |        |             |        | \$8.11     | \$0.00 |            |        |              |        |              |        |
| 1995    | \$7.37       | \$0.01 |             |        | \$8.84     | \$0.50 |            |        | \$8.19       | \$0.50 |              |        |
| 1996    | \$6.83       | \$0.83 |             |        | \$7.88     | \$3.67 |            |        | \$11.48      | \$0.84 |              |        |
| 1997    |              |        |             |        | \$11.79    | \$1.35 |            |        |              |        |              |        |
| 1998    |              |        |             |        | \$12.16    | \$0.70 |            |        |              |        |              |        |
| 1999    |              |        |             |        | \$12.49    | \$1.30 |            |        |              |        |              |        |
| 2000    |              |        |             |        | \$12.88    | \$1.59 |            |        | \$13.61      | \$0.48 |              |        |
| 2001    |              |        |             |        | \$12.55    | \$1.93 | \$9.96     | \$1.67 | \$12.55      | \$1.99 | \$8.27       | \$0.57 |
| 2002    |              |        |             |        | \$13.48    | \$1.36 | \$8.80     | \$1.74 |              |        | \$9.41       | \$1.54 |
| 2003    | \$8.14       | \$2.56 |             |        | \$11.83    | \$2.58 | \$8.34     | \$1.98 |              |        | \$8.67       | \$0.56 |
| 2004    |              |        |             |        | \$10.32    | \$2.76 | \$9.62     | \$0.96 |              |        |              |        |
| Average | \$7.28       |        | \$11.75     |        | \$10.03    |        | \$9.18     |        | \$9.37       |        | \$8.78       |        |

Source: Analysis xcel/CPI/DLR Price

### Types of Gear:

Eighteen categories of gear were identified at least once in the catch reports. Of these, hand harvest account for 52.9% of all entries. Lobster traps account for 30.7% of the entries. Lobster net accounts for 7.7% of the entries. The remaining 8.8% of entries account for 11 of the gear types. It is possible that lobsters were an incidental catch to the target species for these entries.

**Table 6. Number and percentage of trips by gear type**

| Gear Type                  | Entries | %age          |
|----------------------------|---------|---------------|
| diving                     | 2968    | 44.57%        |
| hand picked                | 421     | 6.32%         |
| Spear fishing <sup>1</sup> | 132     | 1.98%         |
|                            |         | <b>52.88%</b> |
| Lobster trap               | 1152    | 17.30%        |
| Trap (misc.)               | 890     | 13.37%        |
|                            |         | <b>30.67%</b> |
| fish trap                  | 306     | 4.60%         |
| gill net                   | 82      | 1.23%         |
|                            |         | <b>5.83%</b>  |
| Lobster net                | 431     | 6.47%         |
| Net (misc.)                | 81      | 1.22%         |
|                            |         | <b>7.69%</b>  |
| Bullpen trap               | 3       | 0.05%         |
| casting                    | 14      | 0.21%         |
| crab net                   | 1       | 0.02%         |
| crab trap                  | 72      | 1.08%         |
| deep-sea handline          | 2       | 0.03%         |
| Inshore handline           | 6       | 0.09%         |
| Other                      | 96      | 1.44%         |
| Seine net                  | 1       | 0.02%         |
| Throw net                  | 1       | 0.02%         |
|                            |         | <b>2.94%</b>  |

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<sup>1</sup> By regulation, lobsters caught in the MHI may not be taken by spear, nor may anyone sell a mutilated or tailed lobster. It would inhibit the effectiveness of the prohibition on taking egg-bearing females or undersized lobsters, as the fisher would likely kill the lobster prior to determining its developmental state. Thus, we assume for these data that fishers landed lobster by hand without a spear incidentally during a spearfishing trip.

## Appendix VI

### Glossary

|                   |   |
|-------------------|---|
| Area fished       | A required field in catch reports, determined from ‘Commercial Fisheries Statistical Chart.’  |
| Catch data        | Data derived from commercial fish catch reports, submitted by commercial fishers  |
| Catch report      | The State of Hawaii commercial fishing activity report form (see Appendix I)  |
| Fish Dealer       | Any person who sells or exchanges, or who is an agent in the transfer of marine life obtained directly from a commercial marine licensee who sells or exchanges marine life at retail.  |
| Commercial Fisher | A person who has been issued a commercial marine license pursuant to HRS, Section 189-2.  |
| CPUE              | Catch per unit effort in units of pounds per day fished.  |
| Dealer data       | Data derived from sales of marine life caught in the state by a fisher to a fish dealer, submitted by dealers.  |
| Dealer report     | The State of Hawaii commercial dealer sales report form (see Appendix I)  |
| Gear type         | Fishing method used and reported in catch reports, includes the primary methods of hand harvest, lobster traps and lobster nets.  |
| Hand harvest      | Various methods of harvesting or “picking” marine life by hand. In the information included with the “Fishing Report” booklet provided to commercial fishers, specific categories and definitions are provided for when fishers are taking marine life by “dive,” “spear fishing” and “handpicked.” |
| Highliner         | Any fisher who landed at least 2,000 pounds of lobsters over the 21-year time-series.   |
| Lobster net       | A net of cotton, linen or nylon of various lengths that is secured on hard substrate (usually overnight) and is sometimes baited with fish heads.   |

|                 |   |
|-----------------|---|
| Lobster trap    | A wire or plastic mesh trap, commonly rectangular in shape, with a funnel shaped mouth located at one or both ends. Weights are placed on the bottom of traps to prevent movement during deployment. Most traps are deployed from a boat.                           |
| Mean weight     | Calculated from the reported weight of lobster purchased and the number reported.   |
| Number caught   | A data field on catch reports, denoting the number of lobsters landed in a trip.  |
| Pounds bought   | A data field on dealer reports denoting the total pounds in a given sale. In analyses, pounds bought always relates to dealer data.   |
| Pounds caught   | A data field on catch reports, denoting the total pounds of lobsters landed in a trip.  |
| Pounds sold     | A data field on catch reports, denoting the pounds of lobsters sold to a fish dealer (or directly to the public) from a single trip. In analyses, pounds bought always relates to catch data.   |
| Price per pound | Calculated from the total value of lobsters purchased by the number of pounds. In analyses, price per pounds is used for both catch and dealer data.  |
| Region          | A means to organize and analyze the data. A Region includes the island and surrounding waters. Maui region includes Lanai, Molokai, Kahoolawe and Penguin Bank and Kauai includes Niihau and Kaula Rock. Hawaii and Oahu are the other regions used in this report. |
| Value           | A data field on catch reports. On the dealer forms, value is listed as “amount paid,” although for this report value is used for both catch and dealer data.  |