
 HARLEQUIN DUCK RECORDS MOSTLY FROM LINCOLN COUNTY, OREGON

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ABSTRACT.--612 Harlequin Duck records are given for Lincoln County, and another 74 records are listed for other coastal counties. In Lincoln County, Harlequins are found mostly in winter, there were often more males than females, the most ever counted was 14, and there is no indication that they nested.

In contrast, Alex Walker's unpublished nesting record in 1940 is given for Tillamook County, and as many as 75 Harlequins were found in June along the Lane County coast, so they may nest nearby, as Gordon (1984) reports.

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A. INTRODUCTION

A-1. INTRODUCTION

The Harlequin Duck (*Histrionicus histrionicus*) is now a species of concern. In about 1991, Ray Davis of the U.S. Forest Service asked me for all our Lincoln County Harlequin records. I was not able to completely fulfill his request because we had many records of Harlequins that were mixed in with those for other species, so extracting all Harlequin records was not feasible. But I sent him photocopies of our hand-written records that I had compiled for several sites.

In August 1992, Rebecca Goggans and Mary Jo Hedrick of the Oregon Department of Fish and Wildlife (ODFW) requested inland observations of Harlequins; I wrote Hedrick that we did not have any inland records in Lincoln County, I sent photocopies of most of the Lincoln County records that I had earlier sent Davis, and I wrote that Gordon (1984) indicated that Harlequins nested along the Lane County Coast.

Roy Lowe of the U.S. Fish and Wildlife Service (USFWS) requested any records that I or others had in the November 1993 Sandpiper (a publication of Yaquina Birders & Naturalists, Lincoln County); this request was picked up and also published in the spring 1994 issue of *Oregon Birds* on p. 26. Lowe noted that these records were to be jointly used by the USFWS and ODFW.

Because of the continuing interest in

Harlequins by several governmental agencies, I began compiling a more complete report in late 1993 than I had earlier supplied to Ray Davis, and on 18 March 1994, I sent Lowe a report that is mostly the same as this article for Lincoln County records but which has been expanded by several historical non-Lincoln County notes and by some 1994 Lincoln County notes.

A-2. LINCOLN COUNTY RECORDS

This article is based mostly on the field notes of many birders who have shared their Lincoln County field notes with me because these are the records that I have spent the most effort in compiling, not because Harlequins are more abundant or frequent in Lincoln County than in other Oregon Coast counties. In spite of shortcomings (see section B), this article greatly elucidates the seasonal status and abundance of Harlequins at Lincoln County sites (Fig. 1).

I have compiled these records while manually looking through my hand-written notes for coastal sites for observations made through 1992. I also searched for all Harlequin records from some observers (Yaquina Head Outstanding Natural Area, Bureau of Land Management staff's sightings through April 1994; Pat & Meagan Dickey's records through May 1994, Kathy Merrifield's sightings through mid-June 1994, Dawson & Bobby Mohler's reports through May 1994, Lloyd & Luella Seabury's sightings through June 1994, and Ruth

Warren's records that I've received through June 1994). Note that I have not included any records in which the site was not specified.

I have also included all Harlequin Duck records for Lincoln County during USFWS aerial surveys by John Annear, John Cornely, and Roy Lowe that I have, but I appear to be lacking surveys for at least late 1981 (i.e., on 26 November 1981, five Harlequins were recorded for the Oregon Coast as indicated on their 22 November 1982 survey report).

A-3. NON-LINCOLN COUNTY COASTAL RECORDS

My compilation of Harlequin records elsewhere along the Oregon coast is woefully incomplete. Several years ago I tried to compile what I considered to be noteworthy Oregon coastal records outside of Lincoln County that were given in Bird-Lore, Audubon Field Notes, American Birds, and Oregon Birds, and I have included some of those Harlequin records here, but that compilation is inadequate. I have also received some field notes for the Lane County coast that included Harlequin records, and those records are listed here. I also searched Bayer and Lowe (1988) and Bayer (1986a and 1989) for non-Lincoln County records and searched the unpublished field notes or cards of Overton Dowell, Jr. (Table 5) and Stanley G. Jewett (Tables 4-6). I also examined Ira N. Gabrielson's index cards (but not journals) for Tillamook County records (Table 4); I do not have access to his Clatsop, Coos, Curry, and Lane county index cards (which may be at the Denver Public Library) and did not look through copies of his journals for records in these counties.

I have not included USFWS aerial survey records for other Oregon coastal counties, but, in skimming through USFWS surveys, I noted that Harlequins were regularly found in Tillamook County in recent years.

In Table 7, I list several additional sources for Oregon Harlequin records.

B. SHORTCOMINGS

Shortcomings of these records include:

- 1) these are incidental notes, not systematic censuses, and I suspect that the number of Harlequins may have often been underestimated.
- 2) these notes have not always been double-checked against the original field notes, so there could be transcription errors.
- 3) not all field notes have been thoroughly compiled into lists that can be easily searched, so some records may have been missed.
- 4) the observer or date was sometimes not clear from my transcriptions and is indicated by a "?"; in the future, I may be able to determine these.

- 5) I may have missed some USFWS aerial censuses, particularly those in late 1981.
- 6) these are only records of when Harlequins are present; we have many systematic observations that document their absence, but it isn't currently feasible to give these observations. Absence, as well as presence, is important in elucidating a species' status.

Hopefully, at some point in the future, when I double-check data for each Lincoln County site, I will be able to ferret out any errors and make additions; but that time is not in the foreseeable future.

C. GENERAL RESULTS AND DISCUSSION

C-1. HARLEQUIN PRESENCE AT NEARSHORE AND ESTUARINE SITES IN LINCOLN COUNTY

In Lincoln County, Harlequins were found at a variety of locations, with most records at Yaquina Head, Yaquina Estuary, and the Seal Rocks area (Table 1). I feel that observation effort for most of these sites was adequate, with the exception of the Mooloch Beach/Otter Rock area around Cape Foulweather (Table 3-G), where I think Harlequins may regularly occur but where there have been few observations.

The only Lincoln County estuary where Harlequins were regularly seen some distance from the coastline was Yaquina Estuary, where some were east of the Highway 101 Bridge (Table 3-J). Perhaps they went up Yaquina Estuary because it has a deeper channel than other Lincoln County estuaries.

No Harlequins were ever recorded at Devils Lake or Eckman Lake (Table 1) in spite of extensive observations at both of these freshwater lakes that are very near the coastline.

C-2. HARLEQUIN SEASONAL STATUS AND ABUNDANCE

In Lincoln County, Harlequins were most abundant from November through March when as many as 14 were counted (Table 1). However, even in winter, less than 10 were usually noted, so Harlequins do not appear to be abundant (Table 1), although systematic censuses would probably reveal more Harlequins than the incidental observations given in this report.

At Yaquina Estuary, it has been my impression that peak Harlequin abundance occurred in March, but the data in this report do not support my impression (Table 1). However, future analyses of censuses may reveal that Harlequins may be more frequent in spring.

Harlequins appear to be more abundant in Tillamook and Lane Counties than Lincoln County (Table 1), even though I have put little effort

into trying to compile records for those counties and there are undoubtedly many more observations available for those counties (e.g., Table 7). Further, Christmas Bird Counts suggest that Harlequins are more abundant in Tillamook and Curry Counties than in Lincoln County (Bayer and Krabbe 1984:119).

C-3. HISTORICAL CHANGES IN HARLEQUIN ABUNDANCE IN LINCOLN COUNTY

Because there are so few historical records, discussing changes in abundance is conjectural, especially since early observers didn't have the necessary optical equipment to make thorough observations.

But based on Bretherton's statement in Woodcock (1902; see Table 7:#5) that 2-3 pairs of Harlequins were seen at Yaquina Bay in March every year, Harlequin Duck status at Yaquina Estuary may not have changed much since about 1900 (Table 1).

At Yaquina Head, Bretherton noted in 1899 that Harlequin's did not nest and were rare (Bayer 1986a:38), so their status at Yaquina Head may also have changed little (Table 3-H). However, BLM staff regularly reported Harlequins at Yaquina Head in 1985-1987 but not in more recent years (Table 3-H), even though BLM staff and Kathy Merrifield have continued to regularly make observations there. This decline, however, may not be significant because the most Harlequins ever reported at Yaquina Head was only four (Table 1), so their reduced presence is not much of a change in numbers at this site.

In the Mooloch Beach/Otter Rock area near Cape Foulweather, Bretherton noted six Harlequins in 1900 and said that they were rare (Bayer 1986a:42)(Table 3-G). Although we have few recent records, those we do have suggest that Harlequin abundance may not have changed at this site (Table 3-G).

In conclusion, the very few historical records we do have suggest that Harlequin abundance has not declined precipitously and may have changed little since 1900 at several sites in Lincoln County. But it is essential to remember that our only pioneer observer (B. J. Bretherton) may have not seen many Harlequins because he did not have good optical equipment. Gabrielson and Jewett (1940:165-168) do not mention the abundance of Harlequins along the coast, but simply note that this species "winters regularly on the coast."

C-4. HARLEQUIN DUCK NESTING STATUS ALONG THE OREGON COAST

There is no indication that Harlequins nest in Lincoln County but that is not true elsewhere. In Tillamook County, Alex Walker confirmed a nest

along the Wilson River on 27 May 1940 (Table 4), and they may have nested along the Trask River in 1925 (Table 4). In July 1986, I interviewed retired Oregon Department of Fish and Wildlife biologist Wesley M. Batterson (Bayer 1986b). I believe Wes told me that Alex Walker had found evidence of Harlequins nesting in Tillamook County, but I have not found any published accounts of this.

In Lane County, Overton Dowell, Jr., collected one in "downy plumage" that may have hatched nearby on 20 August 1919 (Table 5); this specimen is at the Oregon State University Department of Fisheries and Wildlife (Museum No. 10122)(Bayer 1989:167) and examination of this specimen may indicate if it could have hatched nearby. Further, based on the first year of Lane County Breeding Bird Atlas results, Steve Gordon (1984) wrote that Harlequins had "recently fledged young" along the Lane County coast; his unpublished results may better indicate their possible nesting location(s) (Table 7:#1). Given the high numbers of Harlequins along the northern Lane County coast in summer (Tables 1 and 5), their nesting in that area is possible.

C-5. HARLEQUIN DUCK SEX RATIOS

Several observers noted subadult male plumaged Harlequins that I have recorded as males.

In Lincoln County, the sex ratio was even at Yaquina Head, was about 60% males at the South Jetty in 1987-1993 and Seal Rocks, and was 72% males at the South Jetty in 1978-1986 (Table 2). The reason for the statistically significant change at the South Jetty (Table 2) is puzzling; one explanation may be that observers in 1978-1986 were more biased in overlooking the less conspicuous females in favor of the brightly colored males than more recent observers.

Gabrielson and Jewett (1940:168) note that during spring courtship Harlequins were often found in trios of two males and a female (67% males), so the skewed sex ratio at Yaquina Estuary and Seal Rocks where Harlequins were more abundant than at Yaquina Head (Table 1) suggests that these sites may be more important for courtship activities than Yaquina Head and that a slightly skewed sex ratio may not be a recent phenomenon.

C-6. APPARENT ABSENCE IN CLATSOP AND COOS COUNTIES

Gabrielson and Jewett (1940:165-168) and Jewett's index cards do not indicate that they knew of any Harlequin records in these counties. Further, Harlequins were rare or absent during Christmas Bird Counts in the past in these counties (Bayer and Krabbe 1984:119). Nevertheless, my effort in compiling Harlequin

records in these counties has been inadequate to infer that Harlequins are rare in these counties.

D. FIGURE AND TABLES

Fig. 1. Lincoln County locations mentioned in the text. The section for each site is given in parentheses.

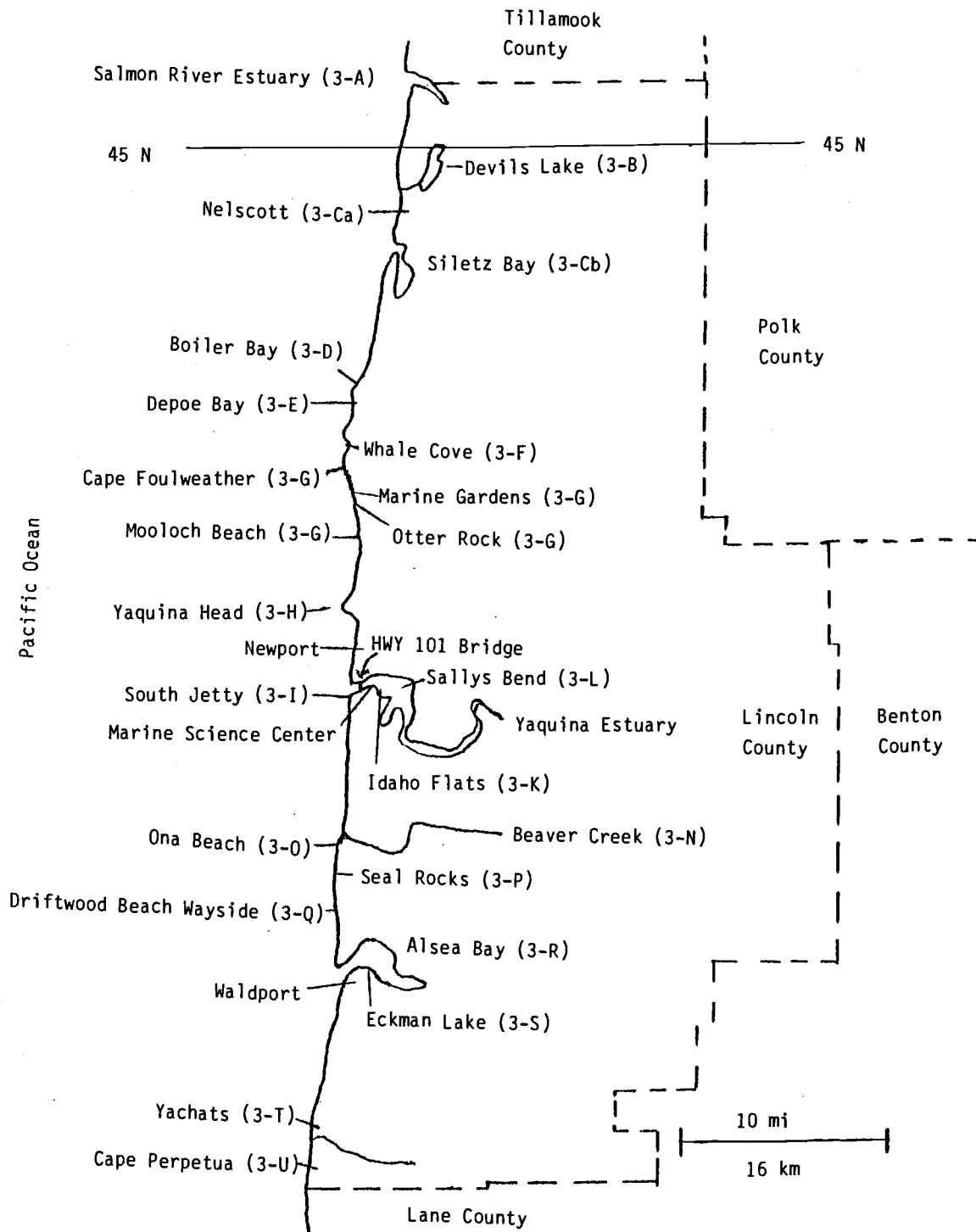


Table 1. Number of Harlequin Duck records given in Tables 3-6 at different areas shown in Fig. 1. Lincoln Co. sites are arranged from north to south. TBL=Table number and section, if applicable.

Total Number of Records=records in all years. P=present; the number of Harlequins was not recorded.

| TBL | Site | Total Number of Records | Maximum Number of Harlequins/Month..... | | | | | | | | | | | |
|-----------------|--|-------------------------------|---|----|----|----|----|----|----|----|----|----|----|----|
| | | | Ja | Fb | Mr | Ap | My | Jn | Jl | Ag | Sp | Oc | Nv | De |
| LINCOLN COUNTY: | | | | | | | | | | | | | | |
| 3-A | Salmon River Estuary | 6 | . | 1 | . | 2 | . | . | . | . | . | 4 | 3 | . |
| 3-B | Devils Lake | 0 | . | . | . | . | . | . | . | . | . | . | . | . |
| 3-Ca | Nelscott | 1 | . | . | . | . | 1 | . | . | . | . | . | . | . |
| 3-Cb | Siletz Bay | 1 | . | . | . | . | . | . | . | . | . | 1 | . | . |
| 3-D | Boiler Bay | 5 | 1 | 2 | 1 | . | . | . | . | . | . | 1 | . | . |
| 3-E | Depoe Bay | 2 | . | 2 | . | . | . | . | . | . | . | . | . | . |
| 3-F | Whale Cove | 0 | . | . | . | . | . | . | . | . | . | . | . | . |
| 3-G | Mooloch Beach/Otter Rock | 6 | . | P | . | 5 | . | . | . | . | . | . | 3 | . |
| 3-H | Yaquina Head | 71 | . | 4 | . | 1 | 2 | 2 | 3 | 4 | 4 | 4 | 1 | . |
| 3-I | Yaquina Estuary: South Jetty | 236 | | | | | | | | | | | | |
| 3-J | " " East of HWY 101 Bridge to Marine Science Center | 23 | | | | | | | | | | | | |
| 3-K | " " Idaho Flats | 1 | | | | | | | | | | | | |
| 3-L | " " Sallys Bend | 3 | | | | | | | | | | | | |
| 3-M | " " unspecified sites | 70 | | | | | | | | | | | | |
| | ALL YAQUINA ESTUARY | - | 12 | 14 | 13 | 7 | 6 | 2 | P | 2 | 2 | 6 | 6 | 13 |
| 3-N | Beaver Creek | 0 | . | . | . | . | . | . | . | . | . | . | . | . |
| 3-O | Ona Beach | 0 | . | . | . | . | . | . | . | . | . | . | . | . |
| 3-P | Seal Rocks | 130 | 4 | 7 | 9 | 8 | 3 | 2 | 2 | 2 | 7 | 5 | 14 | 4 |
| 3-Q | Seal Rocks to Driftwood Beach Wayside | 40 | P | P | P | 9 | 7 | P | P | . | . | . | . | P |
| 3-R | Alesea Bay | 4 | . | P | . | . | . | . | 1 | . | . | . | . | . |
| 3-S | Eckman Lake | 0 | . | . | . | . | . | . | . | . | . | . | . | . |
| 3-T | Yachats | 11 | 1 | 3 | 2 | P | . | . | . | . | . | 1 | . | . |
| 3-U | Cape Perpetua | 2 | . | . | . | . | 2 | . | . | . | . | . | . | . |
| | ALL LINCOLN COUNTY | 612 | 12 | 14 | 13 | 8 | 7 | 3 | 4 | 4 | 7 | 6 | 14 | 13 |
| 4 | TILLAMOOK COUNTY | 26 | 4 | 2 | 3 | 3 | 5 | . | 1 | 3 | 1 | 1 | 22 | . |
| 5 | LANE COUNTY | 36 | 15 | . | 7 | 8 | 15 | 75 | 7 | 25 | 30 | P | 2 | 3 |
| 6 | CURRY COUNTY | 12 | 25 | 2 | 12 | . | . | . | . | . | 3 | . | 5 | 1 |

Table 2. Sex ratios of Harlequin Ducks at three Lincoln County sites with many records. Note that the skewed sex ratios may be a result of observers

missing the less conspicuous females. All data are calculated from Table 3; TBL=section within Table 3.

| TBL | Site | Years | Total Harlequins | % Males | % Females |
|-----|--------------------------------|-----------|------------------|---------|-----------|
| 3-H | Yaquina Head | 1979-1993 | 22 | 50.0 | 50.0 |
| 3-I | South Jetty of Yaquina Estuary | 1978-1986 | 197 | 72.1 | 27.9 * |
| | " " " " | 1987-1993 | 123 | 57.7 | 42.3 * |
| 3-P | Seal Rocks | 1980-1993 | 69 | 60.9 | 39.1 |

* For numbers of males and females in 1978-1986 vs 1987-1993, chi-square 2 x 2 contingency test =6.38, df=1, two-tailed P<0.05.

Table 3. Harlequin Duck records for each Lincoln County site. Sites are arranged from north to south.

Codes:
 --Harlequin(s) seen on at least one date connected by an "--".
 ?=date or observer unknown; this may be determined in the future.
 M=male.
 F=female.
 P=species present, but the number is not given in my notes; the number may be in the observer's original notes.

Table 3-A. SALMON RIVER ESTUARY. In spite of many observations, the following are our only Harlequin records, and most or all of these are probably at the estuary mouth, which is in Tillamook County.

| Date | Observer(s) | Abundance |
|----------|----------------|-----------------------|
| 4/22/82 | Phil Pickering | 2 at estuary mouth |
| 10/5/82 | Phil Pickering | 4M near estuary mouth |
| 11/30/83 | Phil Pickering | 1 |
| 2/4/84 | Phil Pickering | 1 |
| 11/8/84 | John Cornely | 3 |
| 11/29/86 | Greg Gillson | 1F |

Table 3-B. DEVILS LAKE. We have no Harlequin records in spite of many observations.

Table 3-Ca. NELSCOTT. In spite of many walks along the Nelscott ocean beach between Taft and De Lake, Goodrich has only seen them once.

| Date | Observer(s) | Abundance |
|--------|---------------|-----------|
| 5/9/94 | Ruth Goodrich | 1M |

Table 3-Cb. SILETZ BAY. In spite of many observations, we only have one Harlequin record.

| Date | Observer(s) | Abundance |
|---------|-------------|-----------|
| 10/1/82 | Jim Mackie | 1 |

Table 3-D. BOILER BAY. In spite of many observations, we have few Harlequin records.

| Date | Observer(s) | Abundance |
|----------|----------------|-----------|
| 3/1/84 | Tom Love | 1 |
| 10/17/84 | Phil Pickering | 1 |
| 1/2/88 | Greg Gillson | 1 |
| 1/3/88 | Anthony Floyd | 1 |
| 2/28/92 | Don Alan Hall | 2 |

Table 3-E. DEPOE BAY. We only have two Harlequin records in spite of a fair number of observations.

| Date | Observer(s) | Abundance |
|---------|---------------|---------------------------------|
| 1/22/35 | ? | 1M & 1F (1935 Bird-Lore 37:147) |
| 2/28/92 | Don Alan Hall | 2 |

Table 3-F. WHALE COVE. We have no Harlequin records, but there were few observations.

Table 3-G. MOOLOCH BEACH/OTTER ROCK. There were few observations, so the few records at these sites, particularly at Marine Gardens, are very noteworthy, because the Marine Gardens area is somewhat similar to the Seal Rocks area where Harlequins occur regularly.

| Date | Observer(s) | Abundance |
|---------------------|-------------------|--|
| 9/28-29 & 10/4/1900 | B. J. Bretherton | 6 ("rare"; does not nest here; this probably at Cape Foulweather) (Bayer 1986a:42) |
| 2/13/72 | Fred Evenden, Jr. | P at Mooloch Beach |
| 2/1/75 | Fred Evenden, Jr. | P at Mooloch Beach |
| 11/29/89 | Janet Rogers | 3 at Marine Gardens |
| 4/12/94 | Michael Noack | 2M & 2F at Marine Gardens |
| 4/27/94 | Michael Noack | 1M & 2F at Marine Gardens |

Table 3-H. YAQUINA HEAD. BLM=Bureau of Land Management staff at Yaquina Head Outstanding Natural Area; major BLM observers include Kathy Liska, Michael Noack, and Gary Meyer.

Note that in spite of many observations in 1990-1993, Harlequins were reported much less than previously, so they appear to have decreased in frequency here in recent years.

Date Observer(s) Abundance
 3/24-26/1899 B. J. Bretherton 2 ("rare"; does not nest here)(Bayer 1986a:38)

| | | |
|----------|-------------------|---------|
| 6/19/76 | ? | P |
| 7/10/76 | ? | 1 |
| 6/6/79 | ? | 1M & 1F |
| 4/8/82 | Range Bayer | 1 |
| 9/19/82 | Floyd Schrock | 2 |
| 4/21/83 | Phil Pickering | 1M |
| 5/17/83 | Jan & Rick Krabbe | 2 |
| 7/11/85 | BLM | P |
| 7/13/85 | BLM | 2 |
| 7/14/85 | BLM | 3 |
| 7/15/85 | BLM | 2 |
| 7/16/85 | BLM | 2 |
| 7/17/85 | BLM | 2 |
| 7/21/85 | BLM | P |
| 7/23/85 | BLM | 3 |
| 7/24/85 | BLM | 3 |
| 7/25/85 | BLM | P |
| 8/4/85 | BLM | P |
| 8/5/85 | BLM | P |
| 8/6/85 | BLM | 4 |
| 8/7/85 | BLM | P |
| 8/9/85 | BLM | P |
| 8/11/85 | BLM | P |
| 8/13/85 | BLM | P |
| 8/14/85 | BLM | P |
| 8/23/85 | BLM | P |
| 8/28/85 | BLM | P |
| 8/31/85 | BLM | P |
| 6/10/86 | BLM | 1 |
| 6/16/86 | BLM | 2 |
| 6/19/86 | BLM | 2 |
| 6/20/86 | BLM | 1 |
| 6/30/86 | BLM | 1 |
| 6/31/86 | BLM | 1 |
| 7/23/86 | BLM | 1 |
| 7/29/86 | BLM | 2 |
| 7/30/86 | BLM | 2 |
| 8/1/86 | BLM | P |
| 8/2/86 | BLM | 2 |
| 8/15/86 | BLM | P |
| 8/30/86 | BLM | 4 |
| 9/4/86 | BLM | P |
| 9/12/86 | BLM | P |
| 9/13/86 | BLM | 2M & 2F |
| 9/14/86 | BLM | P |
| 9/26/86 | BLM | P |
| 9/27/86 | BLM | P |
| 10/9/86 | BLM | 1M |
| 10/14/86 | BLM | 1M |
| 6/17/87 | Roy Lowe | 1 |

Table 3-H. YAQUINA HEAD continued:

| Date | Observer(s) | Abundance |
|----------|------------------|-----------|
| 7/4/87 | BLM | 1 |
| 8/5/87 | BLM | P |
| 8/21/87 | BLM | 1 |
| 8/28/87 | BLM | 1 |
| 8/31/87 | BLM | P |
| 9/1/87 | BLM | P |
| 9/5/87 | BLM | P |
| 9/6/87 | BLM | P |
| 9/24/87 | BLM | P |
| 10/7/87 | BLM | P |
| 2/14/88 | Anthony Floyd | 1 |
| 9/17/88 | Anthony Floyd | 2M & 2F |
| 9/18/88 | BLM | 1F |
| 10/10/88 | BLM | 1F |
| 2/12/89 | BLM | 1M |
| 9/24/89 | BLM | 1 |
| 2/14/91 | BLM | 1F |
| 8/31/92 | BLM | P |
| 9/2/92 | BLM | 1F |
| 2/14/93 | Kathy Merrifield | 2M & 2F |

 YAQUINA ESTUARY. The following records are arranged from the mouth to upstream.

Table 3-I. SOUTH JETTY. There is a possibility that a few of the following records may include birds seen just outside of the jetties, but probably 90% or more of these records were within the estuary and west of the Highway 101 bridge.

| Date | Observer(s) | Abundance |
|----------|-------------|-----------|
| 5/13/73 | ? | P |
| 1/18/75 | ? | 2 |
| 2/23/75 | ? | 4 |
| 5/7/75 | ? | 2 |
| 9/2/75 | ? | P |
| 9/9/75 | ? | 1 |
| 9/25/75 | ? | P |
| 9/28/75 | ? | 2 |
| 10/9/75 | ? | 2 |
| 3/23/76 | ? | 4 |
| 5/11/76 | ? | 4 |
| 2/12/77 | ? | 3 |
| 2/26/77 | ? | 3 |
| 10/?/77 | ? | P |
| 4/1/78 | ? | 1 |
| 6/7/78 | ? | 1M |
| 1/15/79 | ? | P |
| 2/25/79 | ? | P |
| 3/28/79 | ? | P |
| 4/5/79 | ? | 3M & 1F |
| 4/9/79 | ? | P |
| 4/22/79 | ? | 2M & 2F |
| 1/6/80 | ? | 1M |
| 5/5/80 | ? | P |
| 10/26/80 | ? | P |
| 10/29/80 | ? | P |
| 1/31/81 | ? | P |
| 2/15/81 | ? | P |
| 2/21/81 | Paul Reed | 3 |
| 3/3/81 | ? | 1M & 1F |

Table 3-I. SOUTH JETTY continued:

| Date | Observer(s) | Abundance |
|----------|-------------------|-----------|
| 3/8/81 | ? | 3 |
| 3/10/81 | ? | P |
| 3/14/81 | Paul Reed | 2+ |
| 3/26/81 | ? | P |
| 4/5/81 | ? | P |
| 4/18/81 | Paul Reed | 4 |
| 4/26/81 | ? | 2 |
| 5/2/81 | ? | 1M |
| 5/3/81 | ? | 4 |
| 10/6/81 | Floyd Schrock | 1 |
| 10/31/81 | Range Bayer | 1M |
| 11/2/81 | ? | 1M |
| 11/12/81 | Range Bayer | 1M |
| 11/14/81 | Range Bayer | 4 |
| 11/19/81 | Range Bayer | 1 |
| 11/22/81 | Range Bayer | 2 |
| 1/10/82 | Range Bayer | 1M |
| 1/28/82 | Range Bayer | 1M |
| 2/17/82 | Range Bayer | 1M |
| 2/21/82 | Range Bayer | 2M |
| 2/23/82 | Range Bayer | 1M |
| 3/2/82 | ? | 4 |
| 3/3/82 | Range Bayer | 3M & 1F |
| 3/8/82 | Range Bayer | 4M & 1F |
| 3/12/82 | Range Bayer | 2 |
| 3/13/82 | Range Bayer | 6 |
| 3/16/82 | D. & G. Burt | 8 |
| 3/18/82 | Range Bayer | 4M & 2F |
| 3/20/82 | Range Bayer | 1M & 1F |
| 3/21/82 | ? | 4M & 2F |
| 3/23/82 | Range Bayer | 1F |
| 3/25/82 | Range Bayer | 1M |
| 3/26/82 | Range Bayer | 1F |
| 4/3/82 | Jan & Rick Krabbe | P |
| 4/5/82 | Range Bayer | 1M & 1F |
| 4/12/82 | Range Bayer | 2M & 1F |
| 4/14/82 | Range Bayer | 2M |
| 4/16/82 | Range Bayer | 3M & 1F |
| 4/17/82 | ? | 4 |
| 4/18/82 | ? | 7 |
| 4/29/82 | Range Bayer | 3 |
| 5/3/82 | ? | 3M & 1F |
| 5/5/82 | Range Bayer | 1 |
| 5/8/82 | ? | 3M & 1F |
| 5/12/82 | Range Bayer | P |
| 5/27/82 | Range Bayer | 1 |
| 6/2/82 | Becky Henry | P |
| 6/3/82 | Range Bayer | 1 |
| 10/24/82 | ? | 2 |
| 11/4/82 | Range Bayer | 3 |
| 11/7/82 | J. & R. Krabbe | 2 |
| 11/15/82 | Range Bayer | 1M |
| 12/11/82 | J. & R. Krabbe | 4 |
| 12/20/82 | Range Bayer | 1 |
| 1/10/83 | Range Bayer | 1M & 1F |
| 1/27/83 | ? | P |
| 1/28/83 | Range Bayer | 3M & 1F |
| 2/2/83 | Range Bayer | 1 |
| 2/4/83 | Range Bayer | 4 |
| 2/11/83 | Range Bayer | 2M |

Table 3-I. SOUTH JETTY continued:

| Date | Observer(s) | Abundance |
|----------|----------------|-----------|
| 2/15/83 | Range Bayer | 1M |
| 2/22/83 | ? | P |
| 2/23/83 | Range Bayer | 2M |
| 2/24/83 | Range Bayer | 2M & 2F |
| 2/25/83 | Range Bayer | 2M & 1F |
| 3/5/83 | ? | 3 |
| 3/7/83 | Range Bayer | 3M & 1F |
| 3/10/83 | ? | P |
| 3/15/83 | Range Bayer | 2M & 2F |
| 3/18/83 | Range Bayer | 3M & 1F |
| 4/1/83 | Range Bayer | 1M & 2F |
| 4/7/83 | Range Bayer | 2M & 2F |
| 4/11/83 | Range Bayer | 2M & 2F |
| 4/12/83 | Range Bayer | 3M & 2F |
| 4/13/83 | Range Bayer | 4M & 2F |
| 4/14/83 | Range Bayer | 3M & 2F |
| 4/15/83 | Range Bayer | 3M & 2F |
| 4/18/83 | Range Bayer | 3M & 2F |
| 4/19/83 | Range Bayer | 2M & 2F |
| 4/20/83 | Range Bayer | 5 |
| 4/21/83 | Range Bayer | 2M |
| 5/1/83 | Range Bayer | 1 |
| 5/3/83 | Range Bayer | 1 |
| 5/4/83 | Range Bayer | 1 |
| 5/10/83 | Range Bayer | 1 |
| 5/17/83 | ? | 6 |
| 10/8/83 | ? | 1M |
| 11/5/83 | ? | 2M & 1F |
| 11/24/83 | Range Bayer | 2M |
| 12/11/83 | Range Bayer | 1M |
| 12/15/83 | Range Bayer | 1F |
| 1/2/84 | Range Bayer | 1 |
| 1/5/84 | Andy Rivinus | 5M & 2F |
| 1/11/84 | Range Bayer | 1M |
| 1/25/84 | ? | 5M & 1F |
| 1/26/84 | Range Bayer | 2M & 1F |
| 3/13/84 | ? | 3M & 2F |
| 3/18/84 | Range Bayer | 5M & 1F |
| 4/22/84 | Range Bayer | 2M |
| 5/22/84 | ? | 4 |
| 5/24/84 | Range Bayer | 1M |
| 1/12/85 | ? | P |
| 1/20/85 | ? | 1M |
| 3/2/85 | Range Bayer | 3M & 1F |
| 3/17/85 | ? | P |
| 3/25/85 | ? | 3M |
| 9/26/85 | ? | P |
| 10/22/85 | ? | 3M |
| 12/6/85 | ? | 2M |
| 12/7/85 | ? | 1M |
| 3/16/86 | ? | 6 |
| 3/17/86 | ? | 8 |
| 10/22/86 | Roy Lowe | 3M |
| 2/21/87 | Greg Gillson | 8 |
| 3/28/87 | ? | P |
| 4/11/87 | Greg Gillson | 5 |
| 6/2/87 | Roy Lowe | 1F |
| 12/6/87 | Donna Lusthoff | P |
| 1/15/88 | J. & R. Krabbe | 12 |
| 1/28/88 | Wes Bell | 2M & 1F |

Table 3-I. SOUTH JETTY continued:

| Date | Observer(s) | Abundance |
|----------|------------------|-----------|
| 2/13/88 | Anthony Floyd | 7 |
| 2/27/88 | T. & C. Regier | P |
| 3/5/88 | Anthony Floyd | 7 |
| 3/10/88 | Wes Bell | P |
| 3/11/88 | Range Bayer | 4M & 2F |
| 3/12/88 | Anthony Floyd | 5 |
| 10/1/88 | Greg Gillson | 1F |
| 11/8/88 | Wes Bell | P |
| 11/25/88 | Anthony Floyd | P |
| 12/2/88 | Kathy Merrifield | 5 |
| 12/31/88 | Greg Gillson | 8 |
| 1/30/89 | Wes Bell | P |
| 3/?/89 | ? | 10 |
| 3/4/89 | T. & C. Regier | P |
| 3/7/89 | Wes Bell | 4M & 4F |
| 3/18/89 | Range Bayer | 12 |
| 3/19/89 | Kathy Merrifield | 7 |
| 3/26/89 | Kathy Merrifield | 3M |
| 4/2/89 | Kathy Merrifield | 7 |
| 10/1/89 | Kathy Merrifield | 1M & 1F |
| 10/15/89 | Kathy Merrifield | 1M & 1F |
| 10/22/89 | Kathy Merrifield | 3M & 2F |
| 11/5/89 | Kathy Merrifield | 5 |
| 11/12/89 | Kathy Merrifield | 4 |
| 11/19/89 | Kathy Merrifield | 3M & 2F |
| 11/26/89 | Kathy Merrifield | 6 |
| 12/10/89 | Kathy Merrifield | 2M & 2F |
| 12/17/89 | Kathy Merrifield | 2M & 1F |
| 12/24/89 | Kathy Merrifield | 7 |
| 1/1/90 | Kathy Merrifield | 1M & 1F |
| 1/7/90 | Kathy Merrifield | 3M & 1F |
| 1/20/90 | ? | 4 |
| 1/21/90 | Kathy Merrifield | 5 |
| 1/28/90 | Kathy Merrifield | 11 |
| 2/11/90 | Kathy Merrifield | 2M & 2F |
| 2/18/90 | Kathy Merrifield | 1F |
| 3/4/90 | Kathy Merrifield | 5M & 3F |
| 3/11/90 | Kathy Merrifield | 8 |
| 3/17/90 | Mark Hedrick | 2 |
| 4/1/90 | Kathy Merrifield | 1M |
| 4/21/90 | Mark Hedrick | 1 |
| 4/29/90 | Kathy Merrifield | 1M |
| 10/28/90 | Kathy Merrifield | 6 |
| 11/4/90 | Kathy Merrifield | 1M & 2F |
| 11/10/90 | Kathy Merrifield | 4 |
| 11/15/90 | Mark Hedrick | 2M & 2F |
| 11/23/90 | Kathy Merrifield | 2M & 1F |
| 12/16/90 | Kathy Merrifield | 3M & 1F |
| 12/30/90 | Kathy Merrifield | 1M |
| 12/30/90 | Greg Gillson | 3 |
| 1/1/91 | T. & C. Regier | 4 |
| 2/3/91 | Kathy Merrifield | 4 |
| 3/2/91 | Kathy Merrifield | 13 |
| 3/5/91 | Sue Riemer | 10 |
| 3/5/91 | Mark Hedrick | 4M & 5F |
| 3/10/91 | Kathy Merrifield | 1M & 2F |
| 12/5/91 | Kathy Merrifield | 1M |
| 12/29/91 | Greg Gillson | 3 |
| 2/23/92 | Kathy Merrifield | 2M & 1F |
| 2/25/92 | Mark Hedrick | 8M & 6F |

Table 3-I. SOUTH JETTY continued:

| Date | Observer(s) | Abundance |
|----------|------------------|-----------|
| 2/28/92 | Don Alan Hall | 8 |
| 3/24/92 | Jean Weakland | 1 |
| 8/16/92 | Kathy Merrifield | 1 |
| 10/17/92 | Mark Hedrick | 1M & 1F |
| 10/18/92 | Kathy Merrifield | 3 |
| 10/25/92 | Greg Gillson | 5 |
| 10/27/92 | P. & M. Dickey | 2M & 2F |
| 11/7/92 | Jamie Simmons | 1M & 1F |
| 12/6/92 | Kathy Merrifield | 2 |
| 12/8/92 | Nancy Morrissey | 13 |
| 12/15/92 | P. & M. Dickey | 3M & 2F |
| 1/25/93 | P. & M. Dickey | 5 |
| 1/31/93 | Kathy Merrifield | 1 |
| 3/7/93 | Kathy Merrifield | 8 |
| 3/7/93 | Kathy Merrifield | 3 |
| 4/5/93 | P. & M. Dickey | 1M |
| 4/25/93 | Kathy Merrifield | 3 |
| 11/12/93 | L. & L. Seabury | P |
| 11/13/93 | L. & L. Seabury | P |
| 11/21/93 | Kathy Merrifield | 1 |
| 12/5/93 | Kathy Merrifield | 1 |
| 12/15/93 | L. & L. Seabury | P |
| 1/13/94 | L. & L. Seabury | P |
| 1/17/94 | Kathy Merrifield | 1 |
| 2/14/94 | L. & L. Seabury | P |
| 2/27/94 | Kathy Merrifield | 1M |

Table 3-J. YAQUINA ESTUARY: EAST OF HWY 101
BRIDGE TO HATFIELD MARINE SCIENCE CENTER.

* = between Bridge and the Breakwater on the north side.

| Date | Observer(s) | Abundance |
|----------|--------------|-----------------------|
| 4/28/74 | ? | 2 * |
| 4/29/74 | ? | 1 * |
| 10/2/75 | ? | P * |
| 10/3/75 | ? | P * |
| 10/4/75 | ? | 2 * |
| 10/5/75 | ? | P * |
| 12/28/75 | ? | 2 * |
| 12/30/75 | ? | 1 * |
| 1/17/76 | ? | 1 * |
| 4/12/77 | ? | 1 * |
| 4/17/77 | ? | 2 * |
| 2/14/81 | Paul Reed | 1 at HMSC Boat Dock |
| 3/9/82 | Clay Creech | 1 near HMSC Boat Dock |
| 3/30/82 | Vern Jackson | 1F at Ore-Aqua Foods |
| 1/21/83 | Range Bayer | 1M near Bayfront |
| 3/6/83 | Range Bayer | 1M at Ore-Aqua Foods |
| 3/22/83 | Range Bayer | 1M at Ore-Aqua Foods |
| 4/10/83 | ? | P near HMSC |
| 4/13/83 | ? | P near HMSC |
| 5/1/83 | Range Bayer | 1 at Ore-Aqua Foods |
| 6/7/84 | ? | 2 * |
| 5/5/85 | ? | P * |
| 5/15/85 | ? | 1M * |

Table 3-K. YAQUINA ESTUARY: IDAHO FLATS. This is the embayment on the south side of Yaquina Estuary between the Hatfield Marine Science Center and Idaho Point. In spite of very many observations, I only found one record.

| Date | Observer(s) | Abundance |
|---------|-------------|-----------|
| 1/15/76 | ? | 2 |

Table 3-L. YAQUINA ESTUARY: SALLYS BEND. This is the embayment on the north side of Yaquina Estuary between the Liquefied Natural Gas Tank on McLean Point and Coquille Point. In spite of very many observations, I only found the following records.

| Date | Observer(s) | Abundance |
|---------|-------------|-----------|
| 3/18/75 | ? | 1 |
| 2/26/79 | ? | 1 |
| 4/3/82 | ? | 1 |

Table 3-M. YAQUINA ESTUARY: UNSPECIFIED SITES.

Date Observer(s) Abundance
 4/14-22/1900 B. J. Bretherton 2 ("rare"; does not nest here)(Bayer 1986a:40). In Woodcock (1902:16), Bretherton notes that 2-3 pairs were seen on the ocean here in March of each year.

| | | |
|----------|-------------|---------|
| 8/29/72 | ? | 2F |
| 10/?/72 | ? | 4 |
| 2/?/73 | ? | 4 |
| 11/?/73 | ? | 1 |
| 2/?/74 | ? | 5 |
| 2/16/74 | ? | 3 |
| 3/16/74 | ? | 6 |
| 4/13/74 | ? | 2 |
| 8/1/74 | ? | 1 |
| 12/21/74 | ? | 1 |
| 3/15/75 | ? | 1 |
| 4/12/75 | ? | 4 |
| 4/24/75 | ? | P |
| 5/6/75 | ? | 2 |
| 5/10/75 | ? | 2 |
| 8/29/75 | ? | P |
| 9/13/75 | ? | 1 |
| 1/25/76 | ? | 1 |
| 2/14/76 | ? | 2 |
| 4/10/76 | ? | 6 |
| 4/23/76 | ? | P |
| 3/19/77 | ? | 2 |
| 1/15/79 | ? | P |
| 1/16/79 | ? | P |
| 3/14/79 | ? | 1M & 1F |
| 4/22/79 | ? | 2M & 2F |
| 5/8/79 | ? | 2 |
| 10/20/79 | ? | 1 |
| 10/21/79 | ? | P |
| 10/23/79 | ? | 3M |
| 4/24/80 | ? | 1M & 1F |
| 11/10/80 | ? | P |
| 2/2/81 | Range Bayer | 1M |
| 2/14/81 | ? | P |
| 2/21/81 | ? | P |
| 4/4/81 | ? | 6 |

Table 3-M. UNSPECIFIED YAQUINA SITES continued:

| Date | Observer(s) | Abundance |
|----------|-----------------|-----------|
| 4/15/81 | ? | 2M & 1F |
| 4/16/81 | ? | P |
| 5/9/81 | ? | 1M |
| 5/20/81 | ? | 1 |
| 11/8/81 | ? | 5 |
| 11/11/81 | ? | 2 |
| 11/22/81 | ? | P |
| 3/17/82 | ? | 10 |
| 10/23/82 | ? | 3 |
| 11/22/82 | John Cornely | 3 |
| 3/10/83 | Paul Reed | P |
| 4/8/83 | Paul Reed | P |
| 1/28/84 | ? | P |
| 4/21/84 | T. & C. Regier | P |
| 10/8/84 | ? | P |
| 3/2/85 | Donna Lusthoff | P |
| 5/12/86 | ? | P |
| 2/28/87 | Don Alan Hall | P |
| 7/19/87 | T. & C. Regier | P |
| 11/29/87 | T. & C. Regier | P |
| 1/7/89 | Roy Lowe | 6 |
| 1/16/90 | Roy Lowe | 4 |
| 1/3/91 | Roy Lowe | 2 |
| 2/24/91 | Don Alan Hall | P |
| 12/3/91 | Roy Lowe | 2 |
| 11/28/92 | L. & L. Seabury | P |
| 12/3/92 | L. & L. Seabury | P |
| 12/9/92 | Roy Lowe | 6 |
| 12/11/92 | L. & L. Seabury | P |
| 2/5/93 | L. & L. Seabury | P |
| 2/8/93 | L. & L. Seabury | P |
| 3/6/93 | L. & L. Seabury | P |
| 3/15/93 | L. & L. Seabury | P |

Table 3-N. BEAVER CREEK. We have no Harlequin records in spite of many observations.

Table 3-O. ONA BEACH. In spite of many observations, we have no Harlequin records.

Table 3-P. SEAL ROCKS.

| Date | Observer(s) | Abundance |
|----------|------------------|-----------------------------|
| 12/15/30 | S. G. Jewett | 1M specimen (Bayer 1989:46) |
| 12/15/30 | I. N. Gabrielson | 1F specimen (Bayer 1989:78) |
| 3/10/33 | S. G. Jewett | 1M |
| 10/9/63 | ? | P |
| 4/28/79 | ? | 3 |
| 5/3/79 | ? | 3 |
| 7/11/80 | ? | P |
| 9/20/80 | ? | 1F |
| 10/18/80 | ? | 2 |
| 12/13/80 | ? | 4 |
| 1/24/81 | ? | 4 |
| 1/31/81 | ? | P |
| 2/21/81 | ? | P |
| 7/11/81 | Laimons Osis | 1M |
| 10/4/81 | Laimons Osis | 1M |
| 11/21/81 | Laimons Osis | 1M |

Table 3-P. SEAL ROCKS continued:

| Date | Observer(s) | Abundance |
|----------|-------------------|-----------|
| 12/20/81 | Laimons Osis | 1M |
| 1/30/82 | A. & D. Martin | 3 |
| 1/31/82 | Jan & Rick Krabbe | 2 |
| 2/14/82 | Laimons Osis | P |
| 2/15/82 | Jan & Rick Krabbe | 4 |
| 2/21/82 | Jan & Rick Krabbe | 3 |
| 3/27/82 | Chris Marsh | 7 |
| 4/10/82 | Laimons Osis | 3 |
| 4/18/82 | Jan & Rick Krabbe | 2 |
| 8/8/82 | Laimons Osis | 1F |
| 10/23/82 | Phil Pickering | 2M & 3F |
| 10/24/82 | Jan & Rick Krabbe | 2 |
| 11/21/82 | Laimons Osis | 14 |
| 12/11/82 | Jan & Rick Krabbe | 4 |
| 1/1/83 | Jan & Rick Krabbe | 2M |
| 1/23/83 | Laimons Osis | 3 |
| 2/6/83 | Laimons Osis | 5 |
| 2/11/83 | Dale Snow | 7 |
| 2/19/83 | Laimons Osis | 3M & 3F |
| 3/6/83 | Laimons Osis | 1M & 1F |
| 3/20/83 | Laimons Osis | 1F |
| 3/27/83 | Laimons Osis | 1 |
| 6/4/83 | Laimons Osis | P |
| 6/19/83 | Paul Reed | P |
| 7/17/83 | Laimons Osis | 2 |
| 8/6/83 | Laimons Osis | 2 |
| 9/10/83 | Laimons Osis | 7 |
| 10/1/83 | Laimons Osis | 2 |
| 12/11/83 | Laimons Osis | 1 |
| 4/12/84 | ? | 4 |
| 12/3/84 | Jim Mackie | 1 |
| 1/13/85 | Laimons Osis | 4 |
| 2/10/85 | Laimons Osis | 1 |
| 2/17/85 | Laimons Osis | 3M & 1F |
| 3/3/85 | Laimons Osis | 1 |
| 3/10/85 | Laimons Osis | 2 |
| 3/24/85 | Laimons Osis | 1 |
| 3/31/85 | Laimons Osis | 1 |
| 5/11/85 | Range Bayer | 3 |
| 9/12/87 | Jan & Rick Krabbe | 6 |
| 2/20/88 | ? | 5 |
| 1/12/89 | Kathy Liska | 1 |
| 2/12/89 | Kathy Merrifield | 5 |
| 2/26/89 | Kathy Merrifield | 2 |
| 3/26/89 | Kathy Merrifield | 1 |
| 4/23/89 | Kathy Merrifield | 1M & 1F |
| 6/25/89 | Kathy Merrifield | 2 |
| 8/26/89 | Kathy Merrifield | 1 |
| 9/10/89 | Kathy Merrifield | 2 |
| 10/1/89 | Kathy Merrifield | 2M |
| 11/18/89 | T. & C. Regier | P |
| 11/19/89 | Kathy Merrifield | 1M |
| 12/10/89 | Kathy Merrifield | 2M |
| 12/24/89 | Kathy Merrifield | 1M |
| 1/7/90 | Kathy Merrifield | 1M & 1F |
| 1/21/90 | Kathy Merrifield | P |
| 2/17/90 | Terry Morse | 1M |
| 4/1/90 | Kathy Merrifield | 2M & 2F |
| 4/22/90 | Kathy Merrifield | 1M & 1F |
| 5/13/90 | Kathy Merrifield | 1M & 1F |

Table 3-P. SEAL ROCKS continued:

| Date | Observer(s) | Abundance |
|----------|------------------|-----------|
| 1/5/91 | Kathy Merrifield | 1M & 1F |
| 1/27/91 | Kathy Merrifield | 1M & 1F |
| 2/16/91 | Range Bayer | 2M & 1F |
| 2/28/92 | Don Alan Hall | 2 |
| 3/8/92 | D. & B. Mohler | 2M |
| 4/7/92 | D. & B. Mohler | 5 |
| 4/16/92 | Jean Weakland | 4M & 4F |
| 4/19/92 | Kathy Merrifield | 1M & 1F |
| 7/12/92 | Kathy Merrifield | 1 |
| 7/19/92 | Kathy Merrifield | 1 |
| 7/26/92 | Kathy Merrifield | 1 |
| 12/20/92 | Kathy Merrifield | 1M & 1F |
| 1/3/93 | Kathy Merrifield | 1M |
| 4/10/93 | Kathy Merrifield | 1M & 1F |
| 5/19/93 | L. & L. Seabury | P |
| 5/25/93 | L. & L. Seabury | P |
| 7/11/93 | L. & L. Seabury | P |
| 7/24/93 | L. & L. Seabury | P |
| 8/8/93 | L. & L. Seabury | P |
| 8/10/93 | L. & L. Seabury | P |
| 8/21/93 | L. & L. Seabury | P |
| 8/29/93 | L. & L. Seabury | P |
| 9/5/93 | L. & L. Seabury | P |
| 9/12/93 | L. & L. Seabury | P |
| 9/12/93 | Kathy Merrifield | 2 |
| 9/25/93 | L. & L. Seabury | P |
| 10/3/93 | L. & L. Seabury | P |
| 10/11/93 | L. & L. Seabury | P |
| 10/16/93 | L. & L. Seabury | P |
| 10/17/93 | L. & L. Seabury | P |
| 10/18/93 | L. & L. Seabury | P |
| 10/20/93 | L. & L. Seabury | P |
| 10/30/93 | L. & L. Seabury | P |
| 11/14/93 | L. & L. Seabury | P |
| 11/21/93 | L. & L. Seabury | P |
| 11/22/93 | L. & L. Seabury | P |
| 11/26/93 | L. & L. Seabury | P |
| 11/28/93 | L. & L. Seabury | P |
| 11/29/93 | L. & L. Seabury | P |
| 12/9/93 | L. & L. Seabury | P |
| 12/13/93 | L. & L. Seabury | P |
| 12/27/93 | L. & L. Seabury | P |
| 1/4/94 | L. & L. Seabury | P |
| 1/6/94 | L. & L. Seabury | P |
| 1/20/94 | L. & L. Seabury | P |
| 3/13/94 | Kathy Merrifield | 5M & 4F |
| 3/14/94 | L. & L. Seabury | P |
| 3/18/94 | L. & L. Seabury | P |
| 3/31/94 | L. & L. Seabury | P |
| 4/18/94 | L. & L. Seabury | 1M & 1F |
| 5/18/94 | L. & L. Seabury | 2M |
| 5/29/94 | L. & L. Seabury | 1M & 1F |

Table 3-Q. SEAL ROCKS south to DRIFTWOOD BEACH STATE WAYSIDE.

| Date | Observer(s) | Abundance |
|----------|-----------------|-----------|
| 2/14/93 | L. & L. Seabury | P |
| 2/15/93 | L. & L. Seabury | P |
| 2/17/93 | L. & L. Seabury | P |
| 2/18/93 | L. & L. Seabury | P |
| 2/26/93 | L. & L. Seabury | P |
| 2/27/93 | L. & L. Seabury | P |
| 2/28/93 | L. & L. Seabury | P |
| 3/7/93 | L. & L. Seabury | P |
| 3/16/93 | L. & L. Seabury | P |
| 3/21/93 | L. & L. Seabury | P |
| 3/28/93 | L. & L. Seabury | P |
| 5/2/93 | L. & L. Seabury | P |
| 5/16/93 | L. & L. Seabury | P |
| 6/20/93 | L. & L. Seabury | P |
| 6/21/93 | L. & L. Seabury | P |
| 6/27/93 | L. & L. Seabury | P |
| 7/25/93 | L. & L. Seabury | P |
| 12/5/93 | L. & L. Seabury | P |
| 12/19/93 | L. & L. Seabury | P |
| 12/26/93 | L. & L. Seabury | P |
| 1/9/94 | L. & L. Seabury | P |
| 1/30/94 | L. & L. Seabury | P |
| 2/5/94 | L. & L. Seabury | P |
| 2/6/94 | L. & L. Seabury | P |
| 2/15/94 | L. & L. Seabury | P |
| 2/20/94 | L. & L. Seabury | P |
| 2/23/94 | L. & L. Seabury | P |
| 2/25/94 | L. & L. Seabury | P |
| 2/27/94 | L. & L. Seabury | P |
| 3/16/94 | L. & L. Seabury | P |
| 3/24/94 | L. & L. Seabury | P |
| 3/30/94 | L. & L. Seabury | P |
| 4/9/94 | L. & L. Seabury | 4M & 3F |
| 4/10/94 | L. & L. Seabury | 4M & 3F |
| 4/12/94 | L. & L. Seabury | 4M & 2F |
| 4/17/94 | L. & L. Seabury | 4M & 3F |
| 4/24/94 | L. & L. Seabury | 5M & 4F |
| 5/1/94 | L. & L. Seabury | 4M & 3F |
| 5/2/94 | L. & L. Seabury | 1M & 2F |
| 5/29/94 | L. & L. Seabury | 1M & 1F |

Table 3-R. ALSEA BAY. In spite of many observations, we have few Harlequin records.

| Date | Observer(s) | Abundance |
|---------|----------------------|---------------------|
| 10/6/49 | Fred Evenden, Jr. | P |
| ?/?/66 | Lawrence Gangle, Jr. | 2 |
| 2/21/81 | ? | P |
| 7/11/82 | Jan & Rick Krabbe | 1 at HWY 101 Bridge |

Table 3-S. ECKMAN LAKE. We have no Harlequin records in spite of many observations.**Table 3-T.** YACHATS.

| Date | Observer(s) | Abundance |
|----------|-------------------|-----------|
| 1/25/47 | Fred Evenden, Jr. | 3 |
| 2/1/72 | ? | 3 |
| 4/7/72 | ? | P |
| 3/27/82 | Chris Marsh | 2 |
| 2/12/89 | Kathy Merrifield | 1 |
| 2/26/89 | Kathy Merrifield | 3 |
| 3/26/89 | Kathy Merrifield | P |
| 10/28/89 | Janet Rogers | 1 |
| 2/11/90 | Kathy Merrifield | 1M |
| 1/20/92 | Kathy Merrifield | 1M |
| 10/25/93 | L. & L. Seabury | P |

Table 3-U. CAPE PERPETUA. We have few observations here, so a lack of Harlequin records is not surprising.

| Date | Observer(s) | Abundance |
|---------|--------------|--------------------------------|
| 3/10/42 | S. G. Jewett | 1M specimen (Bayer 1989:204) |
| 5/8/82 | Nancy Brown | 1M & 1F south of Cape Perpetua |

Table 4. Harlequin Duck records for Tillamook County that I have. Note that I have made minimal effort to compile these records, and I have not included USFWS aerial surveys, which have regularly recorded Harlequins in Tillamook County in recent years.

I have searched my through photocopies of Stanley G. Jewett's index cards for individual species that are at the Slater Museum of Natural History at the University of Puget Sound, and my photocopies of Ira N. Gabrielson's 3 x 5 index cards for individual species, the originals of which are at the Archive for the History of Science and Technology (Paul Farber, curator), Department of History, at Oregon State University.

Codes: M=male, F=female.

CASCADE HEAD. We have very few observations and no records of Harlequins here. Also see Salmon River Estuary records (Table 3-A), because some of the records there are at the estuary mouth and are probably in Tillamook County.

OTHER TILLAMOOK COUNTY SITES:

| Date | Site | Abundance |
|-------------|----------------------------|---|
| 9/9/12 | Netarts Bay | 1F specimen (Bayer 1989:217)(also see Jewett 1914:112) |
| 3/16/13 | Netarts (S. G. Jewett) | 1F (also see Jewett 1914:112) |
| 3/18/13 | Netarts (S. G. Jewett) | 3 (also see Jewett 1914:112) |
| 3/19/13 | Netarts (S. G. Jewett) | 3 (also see Jewett 1914:112) |
| 3/20/13 | Netarts (S. G. Jewett) | 1M (also see Jewett 1914:112) |
| 5/15/13 | Netarts (S. G. Jewett) | 2M & 1F (also see Jewett 1914:112) |
| 5/16/13 | Netarts (S. G. Jewett) | 5 (also see Jewett 1914:112) |
| 5/16/13 | Netarts | 2 specimens (Bayer 1989:151, 217)(also see Jewett 1914:112) |
| 5/18/13 | Netarts (S. G. Jewett) | 1 (also see Jewett 1914:112) |
| 4/12/14 | Netarts (S. G. Jewett) | 3 |
| 5/1/16 | Netarts (S. G. Jewett) | 2 |
| 5/2/16 | Netarts (S. G. Jewett) | 3 |
| 9/19/17 | Netarts | 1 specimen (Bayer 1989:151) |
| 5/1-2/21 | Netarts (I.N. Gabrielson) | 1 |
| 5/1/21 | Short Beach (S. G. Jewett) | 3 |
| 8/8/23 | Oceanside (S. G. Jewett) | 3 immatures or females |
| summer 1925 | Trask River | S. G. Jewett includes part of a newspaper clipping (Anonymous 1925). The first paragraph in the article is: "George Russell, the oldest deputy game warden in the service, also has something unusual to report, but it is nothing tragic. On the other hand, his report pleases officials, for it is to the effect that there are several Harlequin duck [sic] on the Trask River not far from Tillamook and that they have been there all summer. The Harlequin duck is quite rare and little is known of its nesting habits. In fact, no nest of this duck has ever been discovered in Oregon to the knowledge of commission officials." The next paragraph: "The duck itself has been rarely seen on the western slope. It usually frequents very high mountains and streams having their source in snow banks. To the very source of these streams the duck usually goes, having a craving for ice water. Ordinarily they spend much of the year in cool retreats of Greenland, Iceland and the arctic wastes of Canada. As these Harlequins have remained near Tillamook all summer, it is presumed they have nested thereabouts." |
| 9/20/35 | Pacific City | 1 specimen (Bayer 1989:198) |

(Table 4 continued on following page)

(Table 4 continued)

| Date | Site | Abundance |
|---------|--------------|--|
| 5/27/40 | Wilson River | S. G. Jewett mentions in his index cards that Alex Walker had found an egg set and had written Jewett about it. Accordingly, I looked through my photocopies of photocopies of Alex Walker's egg notes that are at the Western Foundation of Vertebrate Zoology (WFVZ) in Los Angeles. Alex's son, Kenneth Walker, has the originals and lives at 346 Walnut Drive, Monmouth, Oregon 97361; Kenneth graciously and promptly responded to my request about this nesting record in May 1994. |

The following was hand-written in Alex Walker's notebook of egg notes: "1/7 + D A.W. 1940. Western Harlequin Duck. Tillamook, Oregon (10 miles east, on Wilson River). May 27, 1940. Incubation slight. Photos. Nest under a root of hemlock tree in a sort of cavity made when the earth had been washed out by unusually high water. Nest made only of down and small feathers, lining a slight depression in the ground on the floor of the cavity. Some of the small rootlets of the tree were entwined in the downy rim of the nest, and other rootlets hung down over the entrance to the cavity and these, together with several smooth stones helped conceal the nest from the front. Situated just above ordinary high water mark and about 40 or 50 feet from the edge of the water at its present level. Nest was found yesterday by Burford Wilkerson when he came down a path from a house not far from the upper part of the bank and flushed the incubating bird as he passed by the nest. Today we approached very carefully, and I studied the female on the nest, at a distance of a very few feet. The spots on the head and small bill were very evident. When the bird flushed it flew to the middle of the stream, then came in and stood on the rocky shore a few rods from us. Male not seen, and probably not on the river."

On 17 May 1994, the WFVZ sent me a copy of Walker's typed egg card for this egg set (WFVZ 96,571) and wrote that they had no other egg sets collected in the Oregon Coast Range. The egg card: "LOCALITY: Tillamook, Oregon. 10 miles east on Wilson Riv. DATE: May 27, 1940, 5"x7" photographs, B & W. SET MARK: 1/7-A.W. 1940. NO. EGGS IN SET: seven. IDENTITY: positive. INCUBATION: slight. NEST: in a cavity under the roots of a hemlock tree where the soil had been washed out during periods of high water. Nest made only of down and small feathers lining a slight depression in the ground on the floor of the cavity. Some of the small rootlets of the tree were entwined in the downy rim of the nest. The whole area was covered with small to large water-worn cobble stones. Several large stones helped conceal the nest from the front. Situated just above normal high water mark, about 40 to 50 feet from the Wilson River. Nest discovered the day before by Burford Wilkerson, Science teacher in Tillamook High School. The female was very tame and did not fly to the water until after we had studied her for some time."

This record is not in Gabrielson and Jewett (1940) because the last records they had were in 1935.

| | | |
|----------------|------------------------|--|
| 1/31/44 | Barview (S. G. Jewett) | 3M & 1F |
| 2/27/47 | Garibaldi | 1 specimen (Bayer 1989:151) |
| 2/20/48 | Garibaldi | 2 specimens (Bayer 1989:151) |
| 7/15/58 | Jackson Creek | 1 specimen (Bayer 1989:151) |
| 10/17/58 | Tillamook | 1 specimen (Bayer 1989:151) |
| 11/9/74 | Tillamook Bay | 22 (1975 American Birds 29:107) |
| summer of 1976 | mouth of Tillamook Bay | up to six (1976 American Birds 30:993) |

Table 5. Harlequin Duck records for Lane County that I have. Note that I have made minimal effort to compile these records, but I have searched through my photocopies of Overton Dowell, Jr.'s field notes that had originally been at the Museum of Natural History in the Zoology Department at Oregon State University but are now at the Western Foundation of Vertebrate Zoology in Los Angeles. Dowell did not include Harlequin Duck records in his reports to the Biological Survey (Bayer 1986a:17-20). I have also searched through my photocopies of Stanley G. Jewett's index cards for individual species that are at the Slater Museum of Natural History at the University of Puget Sound. Gabrielson's index cards for species are missing for Lane County and many other counties but may be at the Denver Public Library; I have not searched through my photocopies of photocopies of his journal that are at the Western Foundation of Vertebrate Zoology at Los Angeles because they are not indexed.

Codes:

--Harlequin(s) seen on at least one date connected by an "--".

?=month or day unknown; this may be determined in the future.

M=male.

F=female.

P=species present, but number not given in my notes; the number may be in the observer's original notes.

BOB'S CREEK:

| Date | Observer(s) | Abundance |
|---------|-------------|---|
| 6/18/87 | Ruth Warren | 75 ("always a good place to see these ducks") |

10 MILE CREEK/SQUAW CREEK:

| Date | Observer(s) | Abundance |
|---------|------------------|---|
| 8/20/19 | O. Dowell, Jr. | about 20 ("6 miles N. of Heceta Head near the outlet of Squaw Creek. About 20 were out on the rocks in the morning sunning themselves." O. Dowell, Jr. collected three of them, one of which he noted as being in "downy plumage"; see the following record.) |
| 8/20/19 | O. Dowell, Jr. | 1M & 1F and 1 M juvenile (these specimens are now at Oregon State University Department of Fisheries and Wildlife)(Bayer 1989:167) |
| 3/10/33 | S. G. Jewett | P (Big Creek) |
| 3/10/33 | S. G. Jewett | 3M & 4F (mouth of Squaw Creek) |
| 9/7/33 | S. G. Jewett | "about 30" |
| 10/6/35 | O. Dowell, Jr. | "fairly common" |
| 4/16/39 | O. Dowell, Jr. | 3 |
| 1/28/74 | Mark Egger | 15 |
| 12/8/87 | Anne Decius | 3 |
| 3/2/91 | Kathy Merrifield | 7 |
| 3/31/91 | Kathy Merrifield | 3 |

HECETA HEAD/STRAWBERRY HILL AREA:

| Date | Observer(s) | Abundance |
|----------|------------------|--|
| 11/27/17 | O. Dowell, Jr. | P (3 mi. north of Head. "Furnished by Alep Dowell. Resident, with the exception of the time they are away during the breeding season. These sea ducks are to be found along the rocky section of the coast just south of Ten Mile Creek, N. of Heceta Head. During stormy weather they have been seen at the outlet of Cape Creek near the Lt. House [Heceta Lighthouse]. And a few have been reported from the mouth of the Siuslaw River." (See following specimen.) |
| 11/27/17 | O. Dowell, Jr. | 1M (see preceding comments)(Bayer 1989:217) |
| 4/19/36 | O. Dowell, Jr. | 8 |
| 10/11/36 | O. Dowell, Jr. | P |
| 6/23/73 | Pete Rothlisberg | P |
| 5/22/74 | Pete Rothlisberg | 8 |
| 5/27/74 | Pete Rothlisberg | 3 |

(Table 5 continued on next page)

(Table 5 continued)

HECETA HEAD/STRAWBERRY HILL AREA (continued from previous page):

| Date | Observer(s) | Abundance |
|------------|---------------|--|
| 5/29-31/76 | Robert Olson | P |
| 6/11-13/76 | Robert Olson | P |
| 8/29/81 | Robert Olson | 20 (September 1981 Sandpiper [publication of Yaquina Birders & Naturalists]) |
| 5/31/82 | Robert Olson | 15 |
| 7/?/82 | Robert Olson | 2M & 2F |
| 8/29/82 | Robert Olson | 25 near Milepost 172 of HWY 101 |
| 5/30/83 | Robert Olson | P |
| 7/16/83 | Floyd Schrock | 7 at Bray's Point |

SIUSLAW ESTUARY:

| Date | Observer(s) | Abundance |
|----------|----------------|--|
| 11/27/17 | O. Dowell, Jr. | P (see comment for 11/27/17 in preceding section) |
| 7/10/87 | Range Bayer | 1 at a rocky cove near the estuary mouth (Bayer and Lowe 1988:9, 78) |
| 7/20/87 | Roy Lowe | 1 near the estuary mouth (Bayer and Lowe 1988:51) |
| 11/14/93 | Alice Hoffman | 1M & 1F |

LANE CO. STUDY SKIN SPECIMENS:

| Date | Site | Abundance |
|----------|------------------|------------------------------|
| 3/15/33 | Squaw Creek | 1M & 1F (Bayer 1989:46, 204) |
| 10/6/35 | 5 mi N of Heceta | 1M (Bayer 1989:167) |
| 4/12/36 | Mercer | 1M (Bayer 1989:167) |
| 4/12/36 | Heceta Head | 1M (Bayer 1989:217) |
| 4/19/36 | Heceta Head | 1F (Bayer 1989:167) |
| 12/29/64 | 10 Mile Creek | 1 (Bayer 1989:151) |

Table 6. Harlequin Duck records for Curry County that I have. Note that I have made minimal effort to compile these records. I have searched through my photocopies of Stanley G. Jewett's index cards for individual species that are at the Slater Museum of Natural History at the University of Puget Sound. Gabrielson's index cards for species are missing for Curry County and many other counties but may be at the Denver Public Library; I have not searched through my photocopies of photocopies of his journal that are at the Western Foundation of Vertebrate Zoology at Los Angeles because they are not indexed.

Codes:

?=observer not known.

M=male.

F=female.

AT OR NEAR PORT ORFORD:

| Date | Observer(s) | Abundance |
|------------|------------------|---|
| 11/2/26 | S. G. Jewett | "very common off shore in surf--3 ad. [males] seen at close range" from Gold Beach to Port Orford |
| 1/25/28 | S. G. Jewett | several; 1F specimen (Bayer 1989:46) |
| 2/26/30 | S. G. Jewett | 2M specimens (Bayer 1989:46) |
| 2/28/30 | I. N. Gabrielson | 1F specimen (Bayer 1989:78) |
| 12/13/30 | I. N. Gabrielson | 1M specimen (Bayer 1989:78) |
| 3/16/32 | S. G. Jewett | 3 or more |
| 9/25/32 | S. G. Jewett | 3 |
| 3/13/33 | S. G. Jewett | "12-14 in surf" |
| 3/13&14/33 | S. G. Jewett | 4 specimens (Bayer 1989:46, 151, 204) |
| 1/19/33 | ? | flock of 25 (1933 Bird-Lore 35:111) * |
| 1/9/39 | S. G. Jewett | 3F (misfiled with his Coos County index cards) |
| 11/7/47 | S. G. Jewett | "five or more males and few females seen" |

* Bird-Lore is one of several journals that was a precursor of American Birds and is at Oregon State University Library.

Table 7. Other sources of Harlequin Duck records in Oregon. Harlequins appear to be much more abundant along the north coast of Lane County than in Lincoln County (Table 5), so contacting birders about Harlequin records in Lane County is particularly recommended.

1) Gordon (1984:126-131) lists Harlequins as having "recently fledged young" along the Lane County coast and "adults attending young" in the western Cascades.

As of 28 August 1993, Steve Gordon lives at 1140 West 24th Avenue, Eugene, OR 97405. It is my understanding that he and others have NOT finished analyzing the results of their 4-5 year Breeding Bird Atlas project, but he may have specific unpublished information that may be useful.

2) Contreras (1992) does NOT give a comprehensive index to all citations of Harlequins. The following references are incomplete, but at least give something. They are given in the form: volume (issue): page number. I have not included these citations in this article unless they give records for a specific date and location in Lincoln County.

On p. 29, in Species Finding Guides, Harlequins are listed for 14(2):217, 14(4):395-396 of Oregon Birds.

On p. 34 of Appendix A, Jim Johnson gives the following references to Harlequin Ducks that are only for Volumes 10-12 of Oregon Birds: 10(3&4): 86, 87, 119, 130. 11(4): 173. 12(4):345, 355.

3) Watson (1982:20) lists all Harlequin Duck citations in 1947-1981 issues of Audubon Field Notes and American Birds. There are earlier and later records, but this is the most comprehensive index available. I have not included these citations in this article unless they give records for a specific date and location in Lincoln County.

Note that Audubon Field Notes (along with Bird-Lore) is a precursor to American Birds and is at Kerr Library at Oregon State University; all these have field note sections for Oregon that may contain records of Harlequins. While it may not be feasible to search these for all Harlequin citations, the records for the Christmas Bird Counts should be particularly useful.

4) Gabrielson and Jewett (1940:165-168).

5) Woodcock (1902): the only reference to Harlequins is on p. 16: "Yaquina Bay. Bernard J. Bretherton. Two or three pairs seen on the ocean in March of each year."

6) Scott et al. (1972) and Egger (1980) are the only bibliographies of Oregon birds since Gabrielson and Jewett (1940). But the only primary reference from these more recent bibliographies about Harlequins is Gashwiler (1961).

7) The north Lane County coast has been also been birded by many Eugene birders that share their notes; I have had about a 70% success rate in getting field notes from Lincoln County listers. The latest Lane County list of listers is given in Summers (1994:47).

I believe that there is a Lane County Natural History Society and a Eugene Audubon Society; if they are solicited for bird field notes, they may respond.

8) One of the records in Table 5 is from Ruth Warren's correspondence to me. Since she usually did not relay on her bird field notes to me because she birded mainly in Lane County; she can be contacted at 04613 Meares St., Florence, OR 97439 for additional notes about Harlequins.

Because the rocky areas north of the Siuslaw in Lane County have many Harlequins, it is important to try to get more records for that area; Ruth knows of other members of the Florence Bird Club that may have bird records for that area.

9) Bill Stotz, 1305 Laurel, Florence, OR 97439 might be a good contact for coastal Lane County records.

10) Bob Olson has often led Seatauqua classes and other classes on bird field trips to the Heceta Head of Lane County and has routinely found Harlequins there. Particularly noteworthy are the large numbers of Harlequins that he has found in summer.

Because most of his Harlequin records are in Lane County, I haven't compiled them. Please contact Bob for his records; note that he usually recorded their presence, not their abundance. Bob works at the Hatfield Marine Science Center, Newport, OR 97365.

11) Craig Roberts, 2880 Old Netarts Road W., Tillamook, OR 97141 may be a good contact for Tillamook County records.

E. ACKNOWLEDGMENTS

This compilation is only possible as a result of many observers who have generously shared their observations.

LINCOLN COUNTY observers listed alphabetically include: Range Bayer, Wes Bell, Bureau of Land Management (BLM) staff at Yaquina Head Outstanding Natural Area (some of whom I also list separately), Bernard J. Bretherton, Nancy Brown, Dorothy & George Burt, John Cornely (USFWS), Clay Creech, Pat & Meagan Dickey, Fred Evenden, Jr.; Anthony Floyd, Ira N. Gabrielson, Lawrence Gangle, Jr.; Greg Gillson, Ruth Goodrich, Don Alan Hall, Mark Hedrick, Becky Henry, Vern Jackson, Stanley G. Jewett, Jan & Rick Krabbe, Kathy Liska (BLM), Tom Love, Roy Lowe (USFWS), Donna Lusthoff, Jim Mackie, Chris Marsh, Arnie & Debbie Martin, Kathy Merrifield, Gary Meyer (BLM), Dawson & Bobby Mohler, Nancy Morrissey (USFWS), Terry Morse, Michael Noack (BLM), Laimons Osis, Phil Pickering, Paul Reed, Ted & Claudia Regier, Sue Riemer, Andy Rivinus, Janet Rogers, Floyd Schrock, Lloyd & Luella Seabury, Jamie Simmons, Dale Snow, and Jean Weakland.

I apologize to any Lincoln County observers that I inadvertently have missed.

I am also grateful to Kenneth Walker for his prompt assistance in supplying details about his father Alex Walker's nesting record in Tillamook County.

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