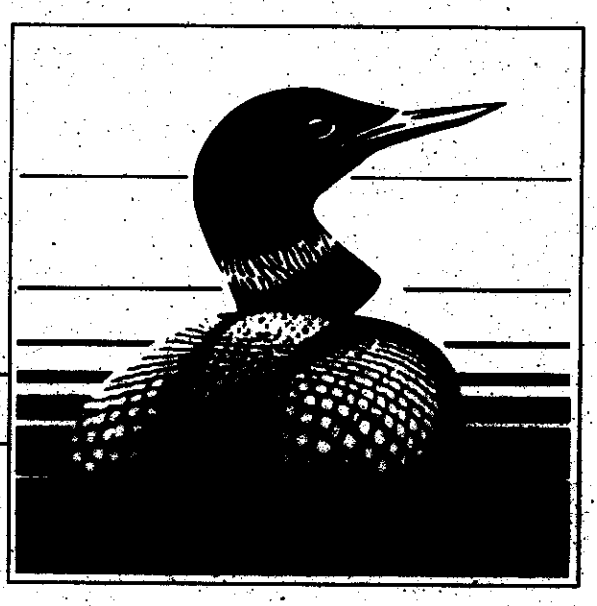
Bird use of the Campbell River estuary Vancouver Island, British Columbia 1982 - 1984

Neil K. Dawe
Ron Buechert
Donald E.C. Trethewey

Pacific and Yukon Region 1995
Canadian Wildlife Service
Environmental Conservation Branch



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Abstract

Campbell River estuary is situated on Discovery Passage on the east coast of Vancouver Island. To determine the abundance and distribution of migratory and resident birds on the Campbell River estuary, weekly surveys were conducted for most of the period from 31 October 1982 to 18 March 1984.

The number of bird species recorded using the study site over the study period was 125. This number includes 47 species of passerines, 28 species of waterfowl, 7 species of raptors, 13 species of shorebirds and 6 species of gulls.

The estuary supported a minimum of 5,689 birds in at least one stage of their life history during the study period.

The most abundant group was the gulls (mostly Glaucous-winged) which dominated the numbers of birds in every season. Passerines and waterfowl (mostly diving ducks) shared approximately, a distant second ranking. All other bird group numbers were relatively minor in comparison. More birds used the area during the winter of 1982-1983 than in any other season during the years of study. Total numbers of birds were lowest in the winter of 1983-1984 and in the summer of 1983.

An annotated species list discusses arrival and departure dates, highest number seen in any one day, habitat use and other details for each of the species.

Concluding comments note human impacts particularly from direct disturbance of the birds that are using the estuary. Just prior to the start of the surveys, a number of islands were constructed; these are discussed with regard to bird use. Suggestions are also made for further study of the avifauna that would complete the picture of bird use of the Campbell River estuary.

Résumé

L'estuaire de la rivière Campbell est situé dans le passage Discovery, sur la côte est de l'île de Vancouver. On y a mené des relevés hebdomadaires pendant presque toute la période allant du 31 octobre 1982 au 18 mars 1984 afin de déterminer le nombre d'oiseaux migrateurs et d'oiseaux résidents et leur répartition.

Les 125 espèces d'oiseaux enregistrées oendant la périods des relevés se répartissent ainsi: 47 espèces de passereaux, 28 espèces de sauvagine, 7 espèces de rapaces, 13 espèces d'oiseaux de rivage et 6 espèces de goélands.

Le groupe le plus abondant était celui des goélands (principalement le Goéland bourgmestre) et ce, en toute saison. Il était suivi, de loin, par un groupe composé à peu près également de passereaux et d'espèces de sauvagine (surtout de canards plongeurs). Tout les autres groupes avairies présents étaient relativement peu nombreux en comparaison de ceux-ci. C'est pendant l'hiver 1982-1983 que les effectifs étaient le plus élevés et pendant l'hiver 1983-1984 et l'été 1983 qu'ils l'étaient le moins.

Une liste annotée des espèces fournit divers renseignements pour chacune: dates d'arrivée et de départ, nombre maximum observé en une journée, utilisation de l'habitat, etc.

En conclusion, on traite des incidences des activités humaines, en particulier de leurs effets directs sur les oiseaux qui fréquentent l'estuaire. Il est question également des îles construites juste avant le début des relevés, en ce qui concerne leur utilisation par led oiseaux. Enfin, on formule des suggestions visant la poursuite de l'étude de utilisation de l'estuaire de la rivière Campbell par l'avifaune.

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Acknowledgements

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This report was prepared under the auspices of the Pacific Coast Joint Venture in partnership with the Mid Island Wildlife Watch Society.

Pamela Whitehead, CWS, assisted with the production of the report.

Michael Dunn, CWS, reviewed the manuscript.

Introduction

Estuaries along coastal British Columbia are important to a diverse fauna, particularly resident and migratory birds (Dawe 1976, 1980, Dawe and Lang 1980, Dawe et al. 1994, Butler and Cannings 1989, Butler et al. 1989, Vermeer et al. 1992). This diverse fauna occurs as a result of two major factors: the variety of habitats that meet on these systems and the productivity of those habitats.

Habitats often associated with typical estuarine ecosystems include marine deep water areas, intertidal sand and gravel flats, cobble beaches, mudflats, spits, river and associated riparian habitats, brackish and saline estuarine marshes with their accompanying dendritic channels, and upland grass, forb, and shrub areas that grade to coastal forests.

This concentration of habitats with its accompanying edges and niches supports a tremendous diversity and abundance of wildlife. For example, inventories from the Little Qualicum River estuary, with an upland area of less than 40 ha, have reported minimums of 14 species of algae, 55 species of fungi, 22 species of bryophytes, 234 species of vascular plants, 29 species of molluscs, 62 orders of arthropods, 15 species of fishes, 4 species of amphibians, 4 species of reptiles, 220 species of birds, and 20 species of mammals (Dawe 1976, 1980, unpublished).

Nutrients and sediments brought down from the watersheds by the rivers are deposited on the deltas providing rich substrates and growing conditions for estuarine marsh plants that, along with marine vegetation such as eelgrass (*Zostera* sp.) and algae, drive the detritus-based estuarine food web. Net primary production of these systems with their attendant marshes and algal beds rival, and in some cases exceed, the production of the tropical rain forests (Ricklefs 1979).

These estuarine ecosystems are important to the survival of both resident and migratory birds. Estuaries act as stepping stones to the millions of birds that migrate along our coast each year providing areas where they can rest and feed during their northern and southern journeys.

In addition, British Columbia's estuaries support Canada's largest wintering populations of waterbirds. Estuaries, in concert with farmlands and freshwater wetlands, form part of a wetlands complex (Eamer 1985) that supports hundreds of thousands of wintering waterbirds. During periods of freezing, however, when farmlands and freshwater marshes are no longer accessible, estuaries become critical habitat to the birds' survival (see Dawe 1980 and Eamer 1985). They are the only ice free areas that have enough food to support the birds over the freezing periods.

In British Columbia, most efforts to document bird-use of estuaries have focused on the larger systems such as the Fraser, Squamish, and Cowichan (Butler and Campbell 1987, Butler and Cannings 1989, Trethewey 1985, Blood et al. 1976); however, the importance of the smaller British Columbia estuaries should not be overlooked (see Butler et al. 1989). Collectively, these smaller system

contribute significantly to the maintenance of our migratory and resident bird populations.

In 1982, British Columbia Forest Products began construction of a dry-land sort on the Campbell River estuary. Construction of the sort resulted in the loss of some of the marsh vegetation and to mitigate the loss of that habitat, the forest company constructed 4 islands in the estuary and planted them with marsh vegetation (see Brownlee et al. 1984). This survey, instigated and designed by the Canadian Wildlife Service, and carried out by the Mitlenatch Field Naturalists, was conducted to determine migratory bird use of the Campbell River estuary and how quickly migratory bird use would occur on the man-made islands. This report documents the results of that study of bird use and their numbers on the Campbell River estuary and the adjacent waters around Tyee Spit, British Columbia over the period 31 October 1982 through 18 March 1984.

In addition, earlier data collected by the CWS as well as observations by other naturalists have been included in this report. The results will be of interest to both the wildlife manager and the birdwatching public who want to know more about the avifauna of the Campbell River estuary.

The Study Area

The Campbell River estuary (50°03'N, 125°15'W) is situated on the east coast of Vancouver Island, British Columbia, just north of the commercial center of Campbell River. It is approximately 56 km northwest of Courtenay (Figure 1).

The surficial geology of this low-relief landscape is predominantly glacial (unconsolidated sands, gravels and tills), glacial marine and fluvial deposits overlain by soils of the Cassidy Series (gravelly loamy sands and sandy loams). Tyee Spit, which protects much of the estuary from Discovery Passage, is classified as coastal beach and is composed of shore-washed sand, gravel and stone (Bell and Thompson 1977). The mean daily temperature at Campbell River airport, ranges from a monthly average of 1.3°C in January to 17.4°C in July; the yearly average is 8.9°C. The area has a mean annual precipitation of 1537 mm including 104 cm of snow (Environment Canada AES records 1941-1970).

The Campbell River and its tributary the Quinsam River bring to the estuary a mean annual discharge of 108 cubic meters per second (Raymond et al. 1985). This flow ranks the Campbell as the third largest river on the east coast of Vancouver Island. The actual flows at any particular time are affected by the John Hart dam. During heavy rains, Nunn's Creek contributes significant freshwater onto the estuary just west of the base of Tyee Spit (Bell and Thompson 1977). The strong tidal currents of Discovery Passage are known to affect a number of parameters on the estuary including salinity and pollution levels.

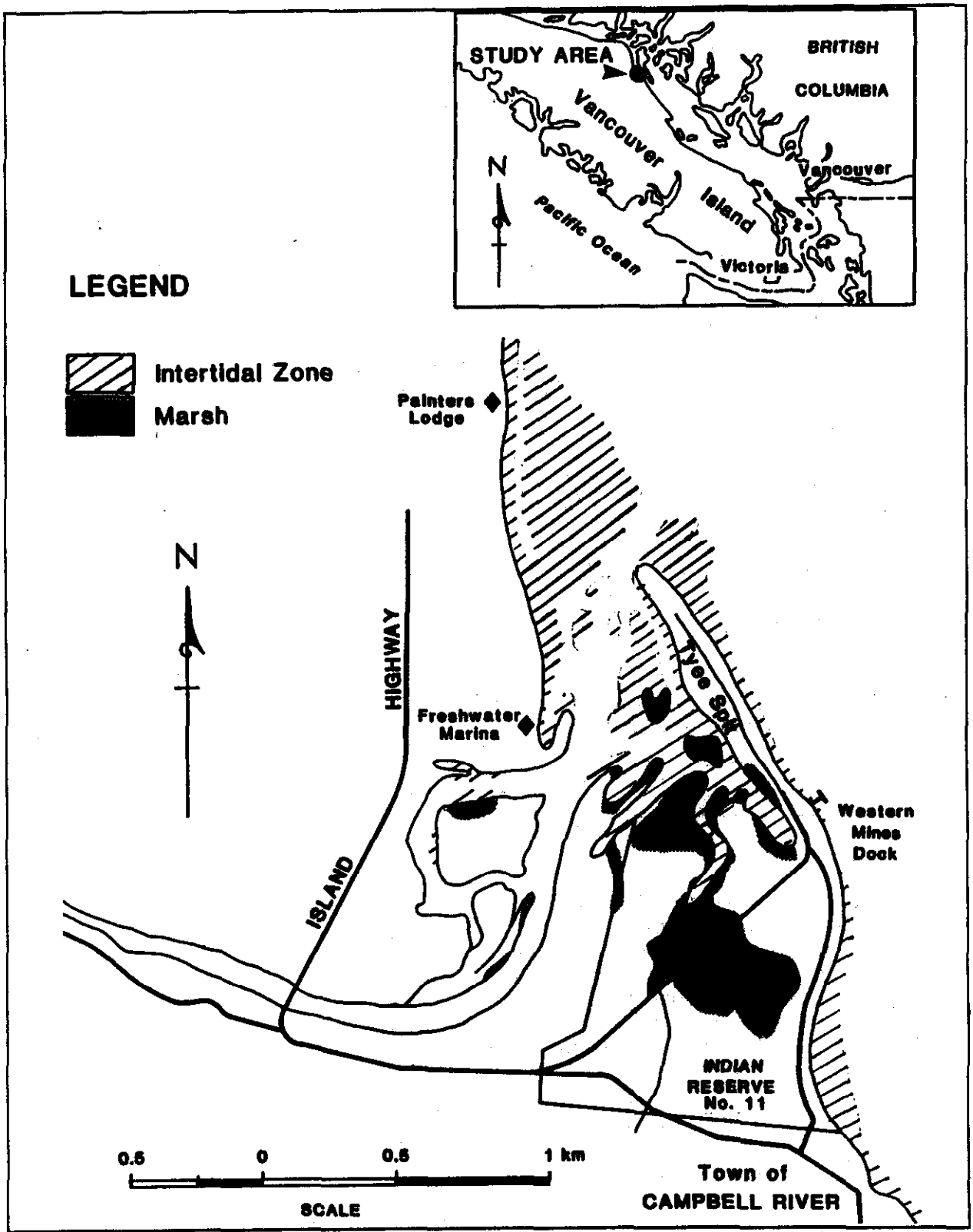
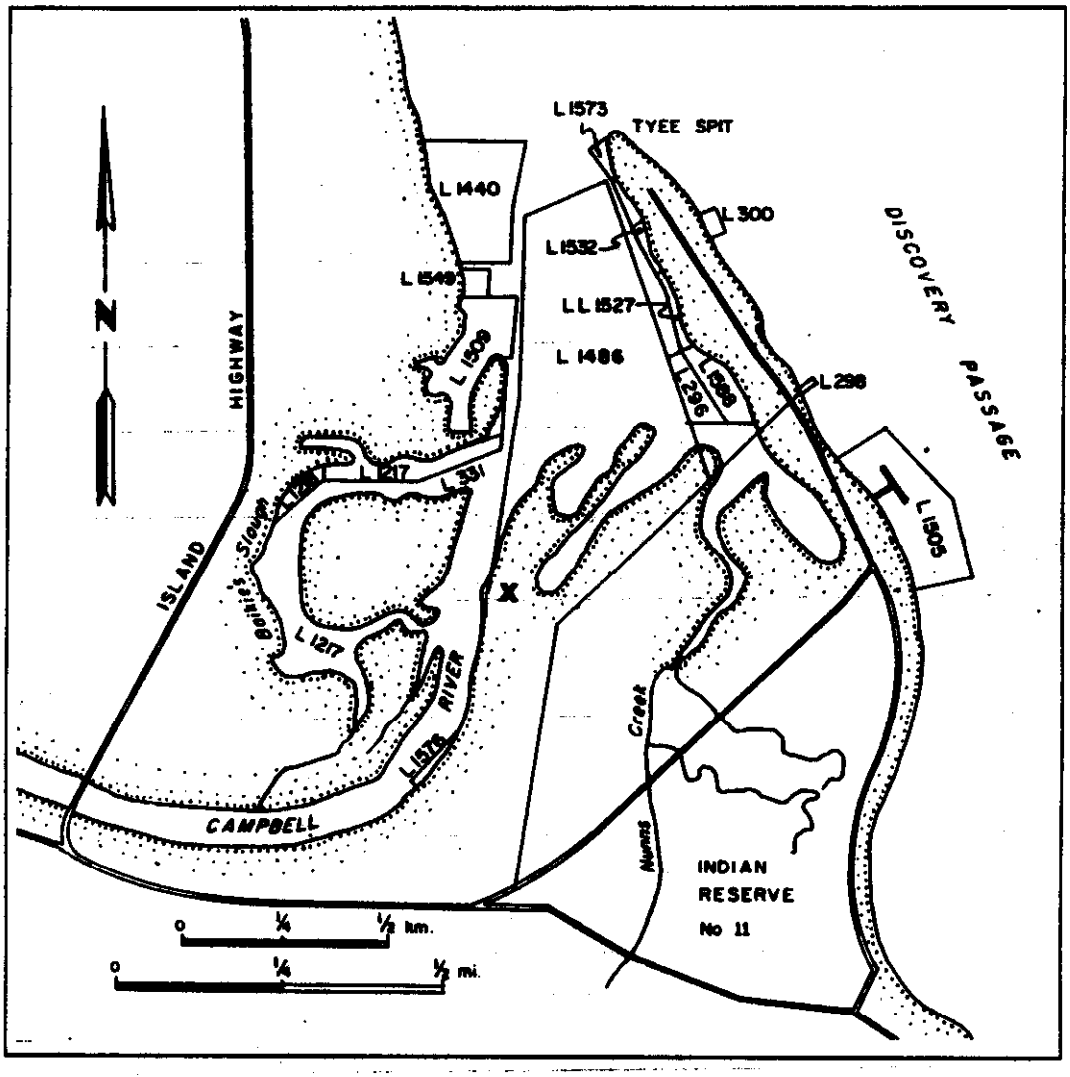


Figure 1. *Location of the Campbell River estuary study area showing intertidal zone, marshes and selected landmarks (modified from Trethewey, in preparation).*



KEY

L 1505. dock, Western Mines Ltd.
L 298. public boat launch, District of Campbell River
L 300. boat launch ramp, (B.C. Forest Products Ltd.)
L 1573. trailer park and marina, Tyee Trailer Park Marina Ltd.
L 1532. float plane moorage, Trans Mountain Airlines Ltd.
L 1527. float plane moorage, Island Airlines Ltd.
L 296. formerly used for gravel extraction
L 1588. log storage
L 1588. sand and gravel storage, redi-mix plant
L 1486. log storage, etc. (B.C. Forest Products Ltd.)
X log dump near new dry land log-sort (B.C. Forest Products Ltd.)

Figure 2. *Some land uses and foreshore leases on the Campbell River estuary (from Bell and Thompson 1977).*

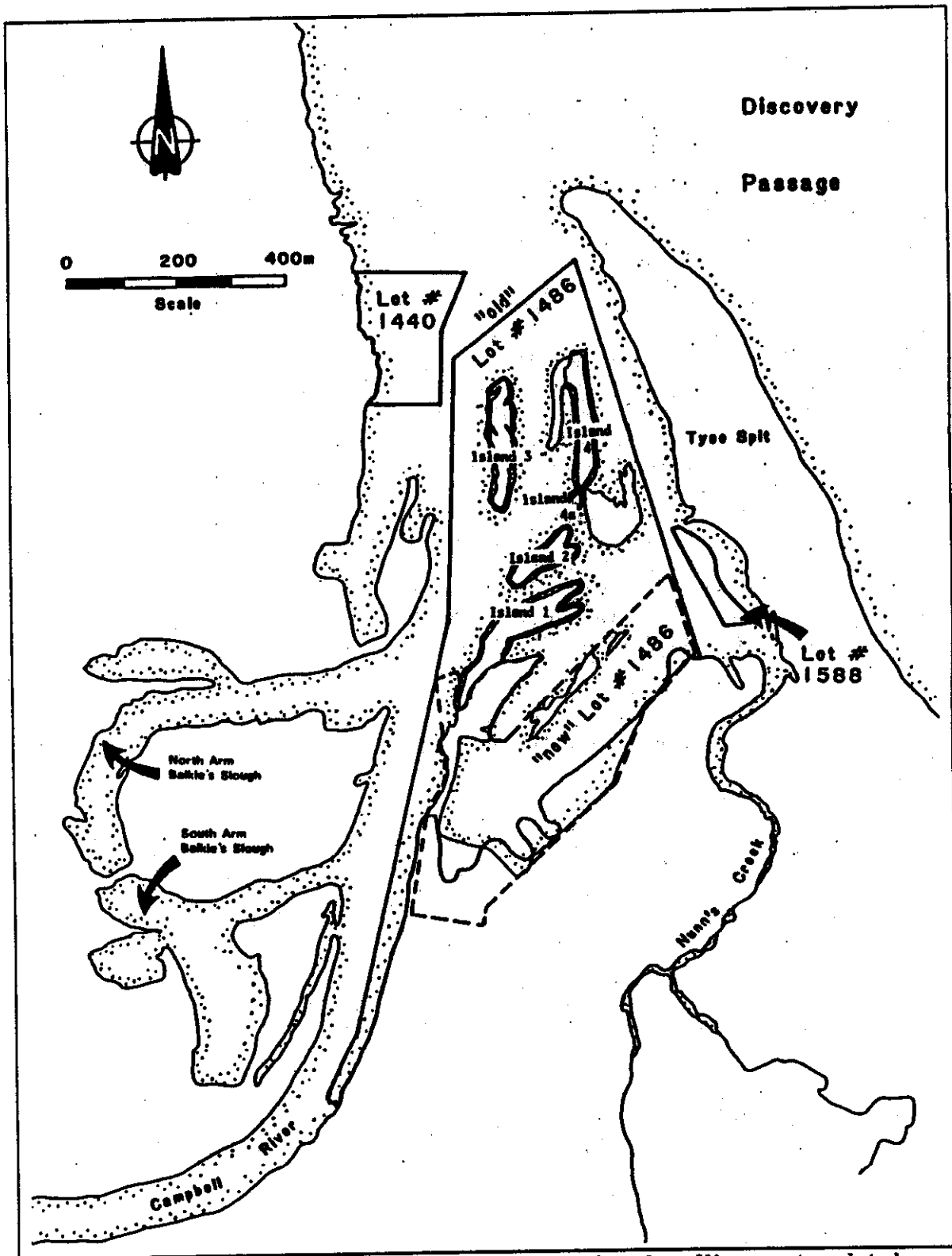


Figure 3. *Campbell River estuary showing log handling water lot leases and location of new artificial islands (from Brownlee et al. 1984).*

The Campbell River estuary is in the Coastal Western Hemlock Biogeoclimatic Zone. It is characterized by dry summers and wet winters. The dominant species on wet ground are Western Red Cedar, Red Alder, Skunk Cabbage and Slough Sedge; Salmonberry dominates the drier understory. For a more detailed description of the vegetation in the study area, see Table 1.

Five species of Pacific salmon, as well as Steelhead, Cutthroat Trout and Dolly Varden Char inhabit the Campbell River system. A hatchery on the Quinsam River releases approximately one million Chinook fry and 1.5 million Coho smolts each year.

The estuary of the Campbell River is used intensively for a number of industrial and commercial purposes (Figure 2). For example, the float plane bases on the estuary are considered to be among the busiest in the world. An overview of the significance of the Campbell River estuary in terms of its environmental and social values, including human activities and development and the impacts on those values is discussed as of 1977 by Bell and Thompson. Recreational values associated with the Campbell river estuary in 1981 were estimated at 103,000 user days per year (Hagen 1987).

The estuary in 1980 had an area of approximately 73 hectares of which 60% was occupied by a log handling and sorting operation (Raymond et al. 1985). By August 1982, prior to the start of this bird use survey, a dry land log-sort had replaced the water-based sorting. This involved the filling of 15 hectares of relatively pristine mud flats, marsh and deeper water (Hagen 1987). At the same time, a program to rehabilitate the estuary had been undertaken which included the disuse of some log booming sites, the removal of woody debris from 23 hectares of the old aquatic sorting grounds and the creation of 4 islands (Figure 3) that were planted with estuarine marsh vegetation to mitigate the loss of marsh habitat that occurred when the dry-land sort was constructed.

Methods and Limitations

The study area was surveyed from 14 viewing stations in order to determine areas of high bird use within the estuary. See Table 1 for a list of the viewing stations and a description of the surrounding habitats based on Kennedy (1982) and Raymond et al. (1985). The locations of the viewing stations used in the study are shown in Figure 4.

Survey participants covered the study area on foot and by car, using binoculars and telescopes to count and record all birds observed from each viewing location.

Weekly surveys were conducted from 31 October 1982 through 18 March 1984. Kay Conway acted as the survey leader, under the direction of Don Trethewey. For a list of participants and survey dates, see Appendix I.

Viewing Station	Landmark	Description of Surrounding Habitat
1	north of campsite and south of Western Mining Company dock	Beach, a narrow intertidal zone, and beyond to deep (marine) waters; tidal marshes are nearby across Spit.
2	between Western Mining dock and public boat ramp	Sand and gravel spit beach, a narrow intertidal zone, and deep water; tidal marshes are just across the Spit.
3	public boat ramp (L 298)	Sand/gravel spit beach,a narrow inter-tidal zone, and beyond to deep water; tidal marshes are across the Spit.
4	Silver King	Sand/gravel spit beach, a narrow intertidal zone, and beyond to the deep water of Discovery Passage.
5	Tyee Trailer Park	Sand/gravel spit beach, intertidal zone widening to the north; beyond it, lies deep water of Discovery Passage.
6	tip of Tyee Spit	Sand/gravel spit beach, several large intertidal areas, deep water beyond; main outflow of river is visible.
7	private dock	Sand/gravel spit beach, tidal channels, new island #4 and intertidal marshes: *Carex lyngbyei*, *Deschampsia cespitosa* and *Deschampsia-Potentilla* communities
8	Island Air floatplane base (L 1527)	Sand/gravel spit beach, shrubs, low island and intertidal marshes: *Carex lyngbyei*, *Deschampsia cespitosa* and *Potentilla-Eleocharis*[1] communities.[2]
9	near the base of Tyee Spit on its western side	Gravel and sand beach, shrubs, and sheltered intertidal marsh communities: *Potentilla pacifica-Eleocharis*[1], *Deschampsia cespitosa*, *Carex lyngbyei*.[2]
10	at the crossing of Spit Road and the tidal stream just east of Nunns Creek	Deschampsia cespitosa marsh covers most of the area; the upland is shrubs. *C. lyngbyei and P. pacifica-Eleocharis*[1] communities occupy the tidal channel.[2]
11	at the crossing of Spit Road and Nunns Creek	Shrubs on the upland, *Deschampsia cespitosa* along the creek; some *C. lyngbyei* indicates brackish influence.[2]
12	near the dry land log-sort (BCFP) built on recently filled portions of marsh	Intertidal marsh communities of *Carex lyngbyei* and *Deschampsia cespitosa*; pockets of *Typha latifolia* marsh indicates freshwater dominance there.[2]
13	at the tip of point near centre of the estuary (Figure 4)	Large intertidal zone fringed by marsh communities, mostly *Carex lingbyei*, with patches of *P. pacifica-Eleocharis*[1] and *D. cespitosa*; new islands are nearby.[2]
14	near the main channel of the Campbell River, down stream from the BCFP log dump	Open water fringed by intertidal marsh communities: *Carex Lyngbyei*, *P. pacifica-Eleocharis*[1] and across the river *Deschampsia cespitosa*.

Note[1]: Areas typified by *Potentilla pacifica-Eleocharis* by Kennedy (1982) are typified by *Juncus arcticus-Potentilla pacifica* in Raymond et al. (1985).

Note[2]: Viewing stations 8 to 13 might be influenced by their proximity to patches of tidal shrub community typified by *Myrica gale*.

Table 1. ***Habitat types near viewing stations used during the Campbell River estuary bird survey, 31 October 1982 through 18 March 1984 (see also Figure 4).***

Figure 4. *Air photo of the Campbell River estuary showing the viewing stations used during the surveys.*

The numbers of birds recorded are considered to be generally accurate for the areas surveyed but are undoubtedly conservative due to inherent limitations (see Dawe 1982). Poor visibility due to weather, and birds underwater or shielded by vegetation during the period of observation would lead to an underestimation of the numbers of birds recorded. The data are based on observations at a particular point in time and do not necessarily reflect the total bird use of the area under observation. For example, birds dependent on the estuary only for a few days during spring and autumn migration could be missed altogether if

Species	Number	Season	Species	Number	Season	Species	Number	Season
RTLO	9	Win 82	COHA	1	Win 82	BASW	54	Aut 83
PALO	59	Spr 83	NOGO	1	Win 82	STJA	2	Sum 83
COLO	23	Aut 82	RTHA	1	Aut 83	NOCR	433	Win 82
HOGR	12	Win 82	MERL	1	Aut 90	CORA	11	Sum 83
RNGR	16	Spr 83	LGPL	2	Sum 83	CBCH	7	Sum 83
EAGR	3	Win 82	SEPL	4	Win 82	BUSH	2	Spr 83
WEGR	9	Aut 83	KILL	14	Aut 82	BRCR	1	Sum 83
DCCO	29	Aut 82	GRYE	1	Aut 83	BEWR	1	Spr 83
PECO	29	Win 82	WATA	1	Aut 83	WIWR	1	Win 82
GBHE	28	Win 82	WHIM	2	Aut 83	GCKI	200	Win 83
TRUS	28	Win 82	SPSA	1	Sum 83	RCKI	2	Sum 83
MUSW	1	Win 82	SURF	40	Sum 83	SWTH	13	Sum 83
GWFG	1	Aut 83	WESA	62	Spr 83	HETH	1	Win 82
SNGO	1	Spr 83	LESA	1	Sum 83	AMRO	104	Spr 83
BRAN	7	Spr 84	DUNL	5	Spr 83	VATH	1	Aut 83
CAGO	25	Win 83	SBDO	3	Aut 83	CEWA	5	Aut 83
WODU	1	Aut 82	COSN	1	Aut 83	NOSH	1	Aut 82
GWTE	38	Aut 83	BOGU	358	Spr 83	EUST	889	Aut 83
MALL	42	Sum 83	MEGU	303	Spr 83	OCWA	1	Sum 83
NOPI	17	Sum 83	RBGU	22	Win 82	YEWA	7	Sum 83
BWTE	9	Aut 83	CAGU	1	Spr 83	YRWA	4	Aut 83
CITE	2	Spr 83	HEGU	421	Win 82	COYE	3	Sum 83
NOSL	3	Aut 83	GWGU	1001	Win 82	WETA	1	Aut 83
AMWI	200	Aut 83	BLKI	233	Aut 82	RSTO	4	Sum 83
CANV	2	Win 83	CATE	2	Sum 83	SAVS	7	Spr 83
GRSC	26	Aut 82	COMU	15	Aut 83	FOSP	8	Spr 84
LESC	22	Aut 83	PIGU	7	Win 82	SOSP	9	Aut 83
HADU	28	Win 82	MAMU	18	Sum 83	GCSP	3	Aut 83
OLDS	9	Aut 83	RODO	34	Sum 83	WCSP	2	Spr 83
BLSC	8	Win 83	BTPI	6	Sum 83	DEJU	32	Win 82
SUSC	59	Win 83	ANHU	1	Spr 83	SNBU	2	Aut 82
WWSC	19	Aut 82	RUHU	9	Spr 83	RWBL	11	Spr 83
COGO	71	Win 83	BEKI	7	Sum 83	YHBL	1	Spr 83
BAGO	33	Aut 82	DOWO	1	Aut 82	BRBL	41	Spr 83
BUFF	83	Aut 82	HAWO	1	Aut 82	BHCO	1	Aut 83
HOME	17	Sum 83	NOFL	2	Win 82	PUFI	8	Sum 83
COME	58	Win 83	PIWO	4	Sum 83	HOFI	16	Sum 83
RBME	17	Win 82	WIFL	2	Sum 83	RECR	2	Sum 83
TUVU	3	Sum 83	PSFL	2	Spr 83	PISI	20	Win 82
OSPR	1	Sum 83	TRSW	26	Spr 83	AMGO	7	Sum 83
HAWK	1	Sum 83	VGSW	8	Sum 83	EVGR	3	Aut 83
BAEA	62	Sum 83	CLSW	25	Spr 83	HOSP	7	Spr 83
						Total	5689	

Table 2. *Estimated minimum numbers of birds dependent on the Campbell River estuary 31 October 1982 through 18 March 1984, based on the maximum number of each species observed on migratory bird surveys. For species names, see Appendix II.*

observation periods occurred on either side of their arrival and departure. Also, data were not collected at night; however, low tides on the study area during the winter months occur mostly during the night. Thus, in winter, observations were not made when the intertidal areas and algal beds were exposed, i.e. at times when they would likely be used by birds such as dabbling ducks.

Survey data were summarized using BASIC programs written by Allan Keller, CWS, and modified for seasonal summaries and statistics by the senior author (see Appendices III and IV). The summarized data were analyzed and much of the first draft of the report written by Ron Buechert under contract to the Mid Island Wildlife Watch Society. His contribution was reviewed and edited by the senior author.

Results and Discussion

Bird Use of the Estuary

Over the study period, 125 species of birds were identified in the Campbell River estuary. A total of 42,279 birds was recorded over the study period.

To estimate the minimum number of birds dependent on the Campbell River estuary, the maximum single day bird numbers for each species were summed (Table 2). A minimum of 5,689 birds depended on the Campbell River estuary for some aspect of their life history.

Habitat Use

Bird use of habitat was not directly recorded in this study. However, the approximate location of each bird is recorded as the number of the viewing station from which the surveyor made the observation. Of the 14 viewing stations defined (Table 1 and Figure 4), the area visible from station 13 near the centre of the estuary received the most bird use (22%) followed by stations 8 (17%), 6 (13%) and 7 (12%) on west side of Tyee Spit. The areas around stations 11 (1%) and 10 (2%) on Spit Road ranked lowest in bird use. The major areas of use by birds during the winter-spring periods of 1973, 1974 and 1975 combined are shown for comparison in Figure 5 (from Trethewey, in preparation).

Birds seen using the newly constructed islands were always included with the other data for each station (This affects stations 7, 8 and 13). To those records a note was often added stating where the bird was seen, but it is not known whether this was done consistently by all the surveyors. A total of 1725 birds representing 15 species were seen using the newly constructed islands during the study period: 723 Glaucous-winged Gulls, 310 unspecified gulls, 208 Bonaparte's Gulls, 153 Northwestern Crows, 133 Mew Gulls, 92 European Starlings, 20 Herring Gulls, 18 Trumpeter Swans, 16 Western Sandpipers, 14 Mallards, 11 Bufflehead, 9 unspecified scaups, 5 Killdeer and 3 Great Blue Herons. Bird use of the islands was highest during the spring of 1983.

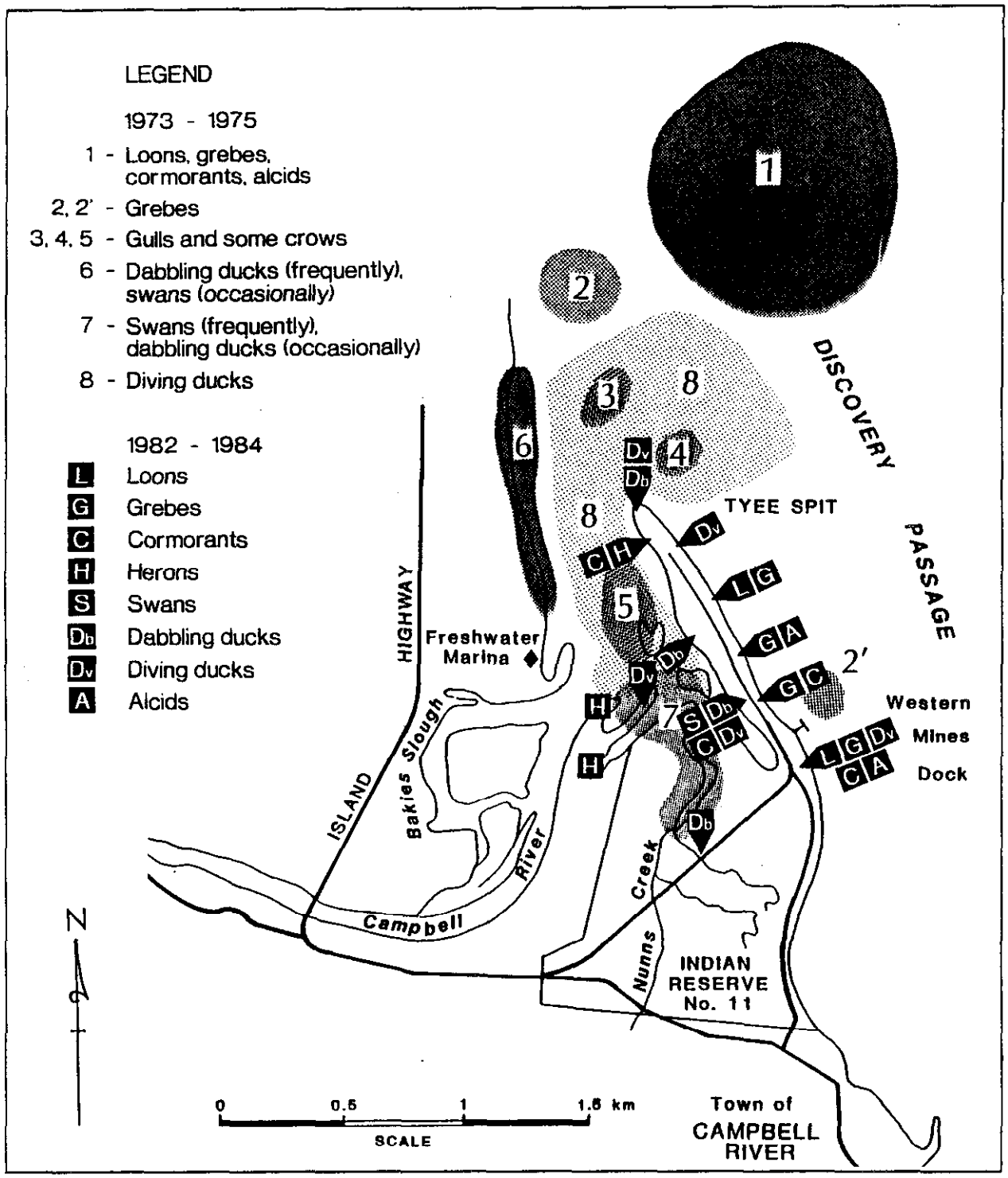


Figure 5. *Areas of high bird use on the Campbell River estuary: numbered shaded areas represent the winter-spring periods of 1973 to 1975 (modified from Trethewey in preparation); black boxes mark viewing stations where birds of the group indicated by the letter were seen most from October 1982 to March 1984.*

Seasonal Numbers

In every season the number of gulls seen was greater than all the other birds combined.

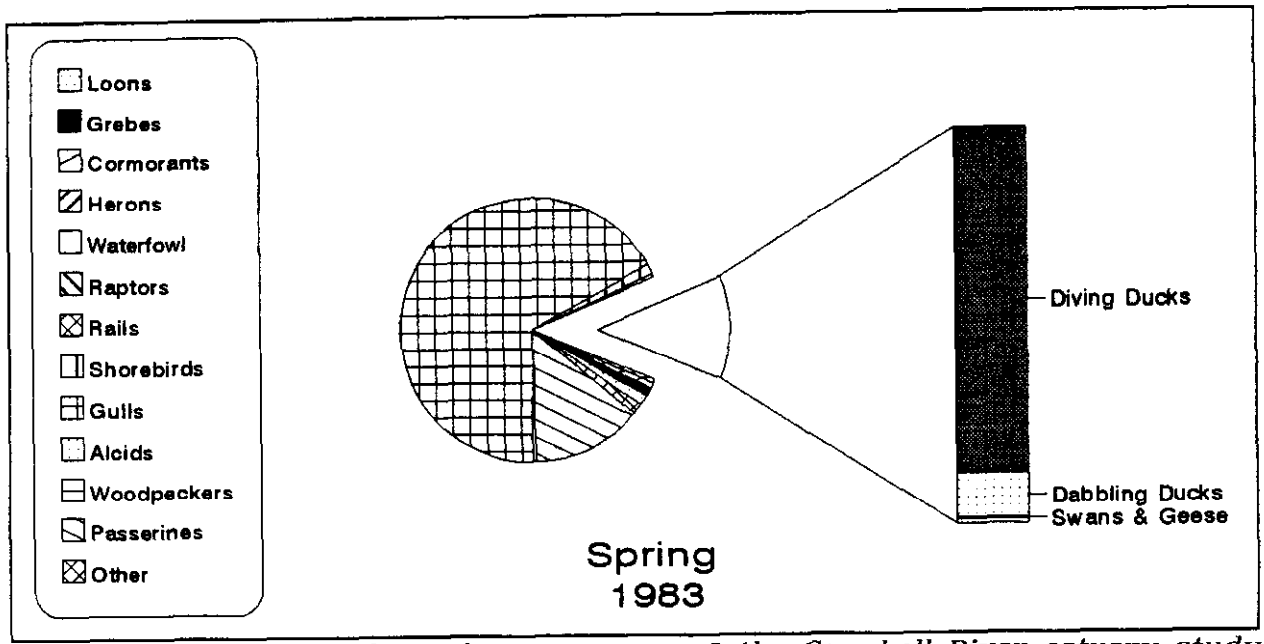


Figure 6. *Proportional species group use of the Campbell River estuary study area, spring 1983.*

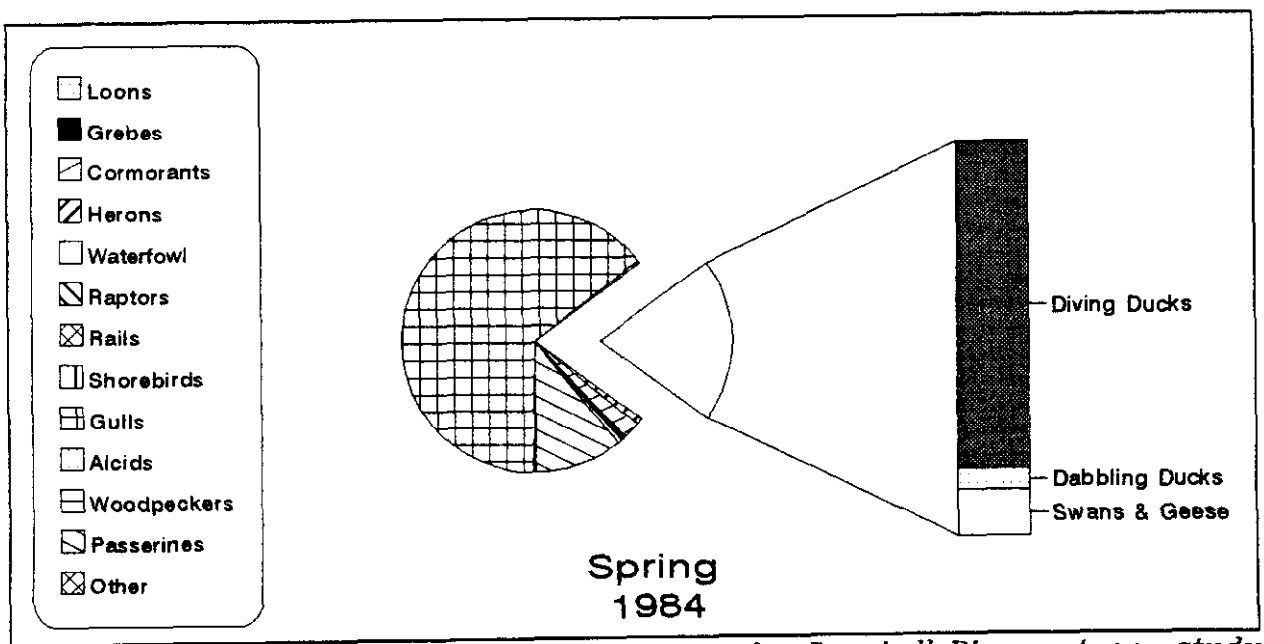


Figure 7. *Proportional species group use of the Campbell River estuary study area, spring 1984.*

Spring: Figures 6 and 7 show the proportions of species group use on the estuary in the spring of 1983 and the spring of 1984 respectively. In 1983, the passerines ranked second after the gulls and the waterfowl were third; the seasonal total was 7355 birds. In spring 1984, the number of waterfowl counted was higher than the tally of passerines. The total number of all birds seen in spring 1984 was only 855 because there were only 2 surveys made in that season.

Summer: Figure 8 shows the proportions of species group use on the estuary in the summer of 1983. Next to the gulls, the passerines were by far the most prominent group. Summer had a total of 5665 birds recorded.

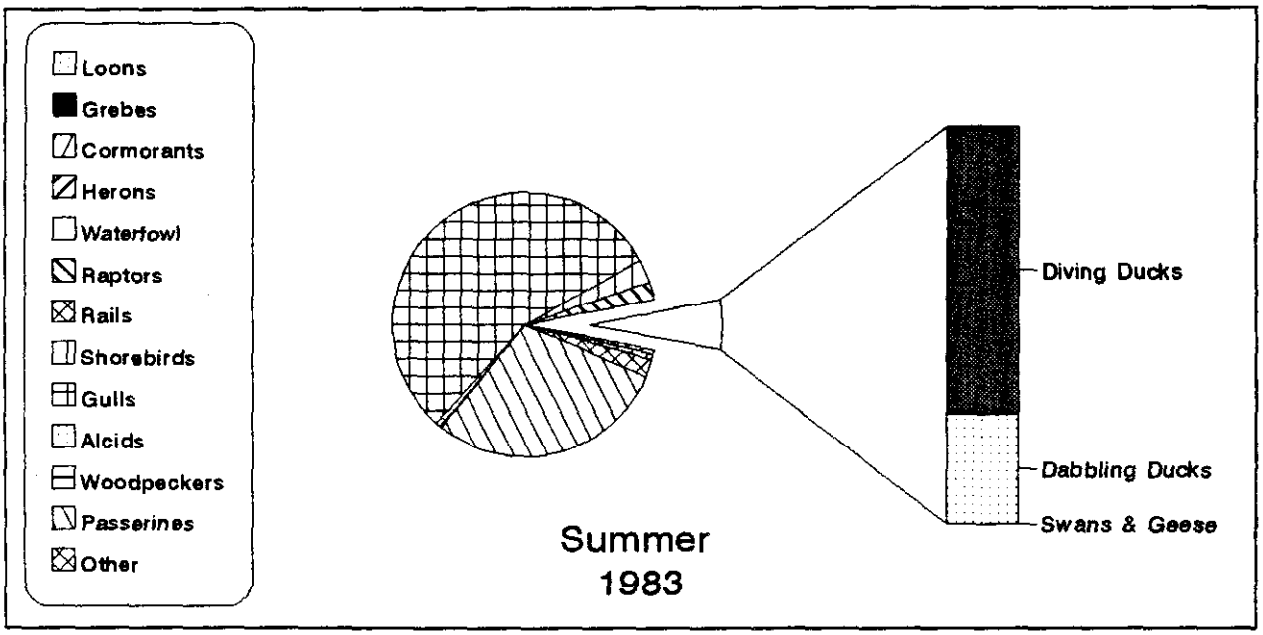


Figure 8. *Proportional species group use of the Campbell River estuary study area, summer 1983.*

Autumn: Figures 9 and 10 show the proportions of species group use on the estuary in the autumn of 1982 and the autumn of 1983 respectively. In 1982 waterfowl were the second highest user group with passerines ranking third; the seasonal total of all birds counted was 4044. The situation was reversed in 1983; after the gulls, the passerines were the most abundant bird group. The total number of birds counted in the autumn of 1983 was 7475.

Winter: Figures 11 and 12 show the proportions of species group use on the estuary in the winter of 1982-1983 and the winter of 1983-1984. After the gulls, waterfowl (mostly diving ducks) were the dominant group followed by passerines. The total of 11,469 birds counted during the winter of 1982-1983 was the highest of the 7 seasons surveyed. The total for the winter of 1983-1984 was 5416 birds, much less than the previous winter.

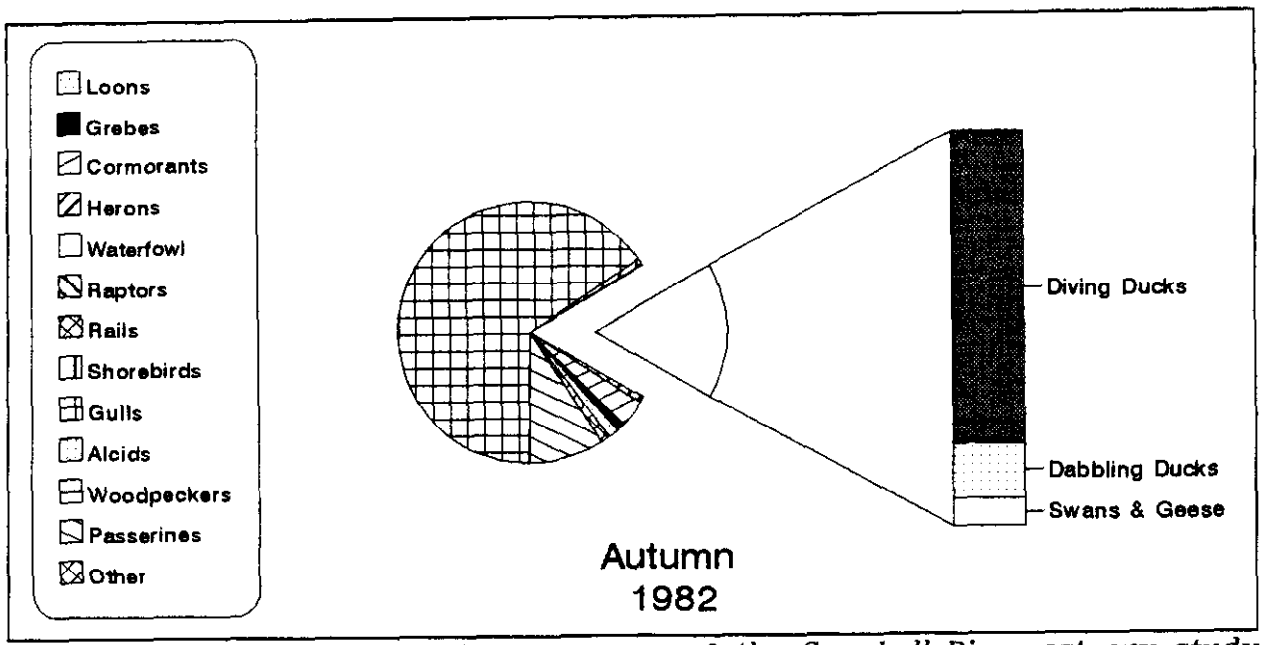


Figure 9. *Proportional species group use of the Campbell River estuary study area, autumn 1982.*

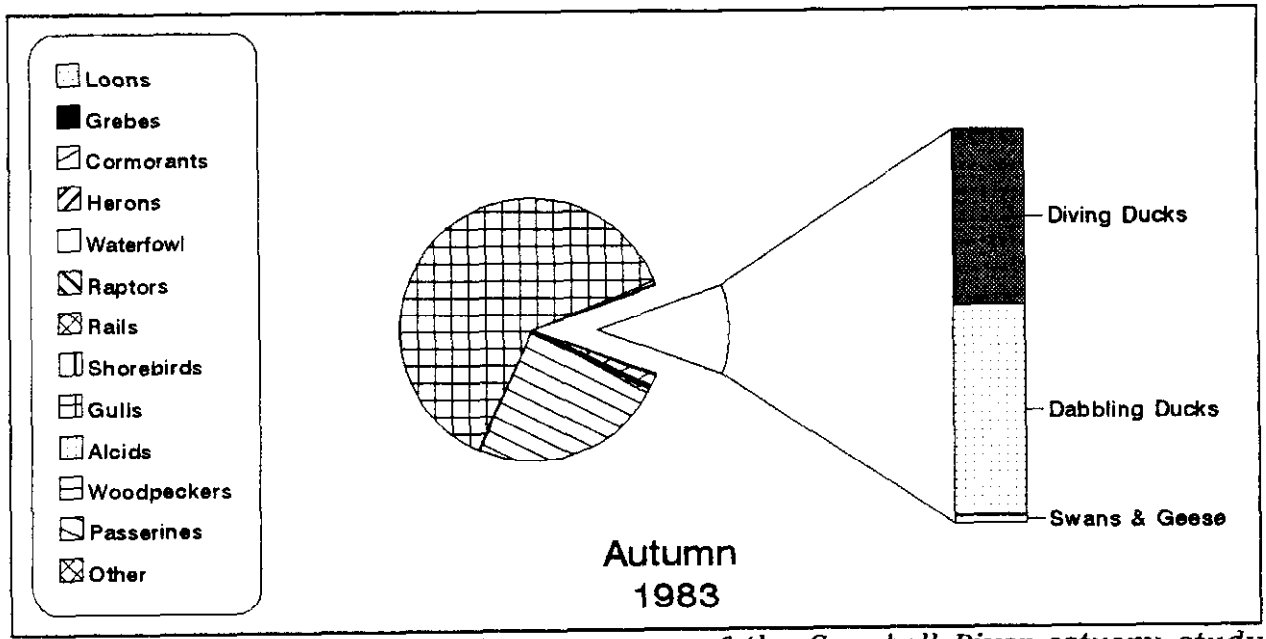


Figure 10. *Proportional species group use of the Campbell River estuary study area, autumn 1983.*

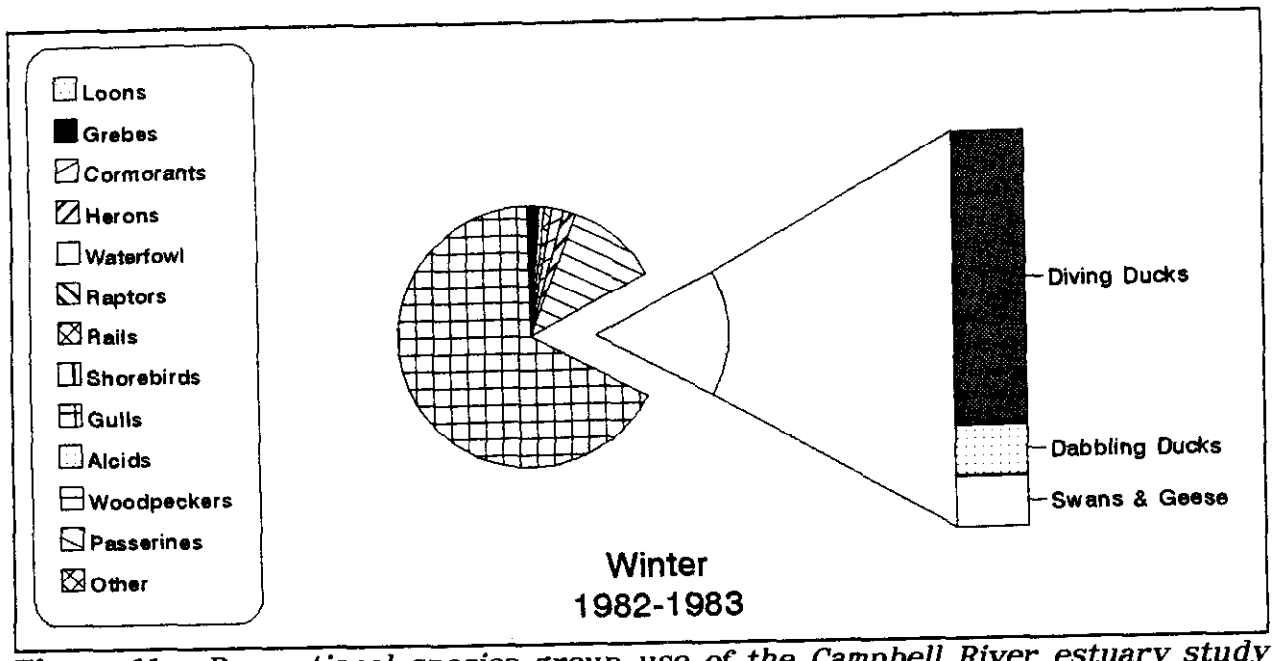


Figure 11. *Proportional species group use of the Campbell River estuary study area, winter 1982-1983.*

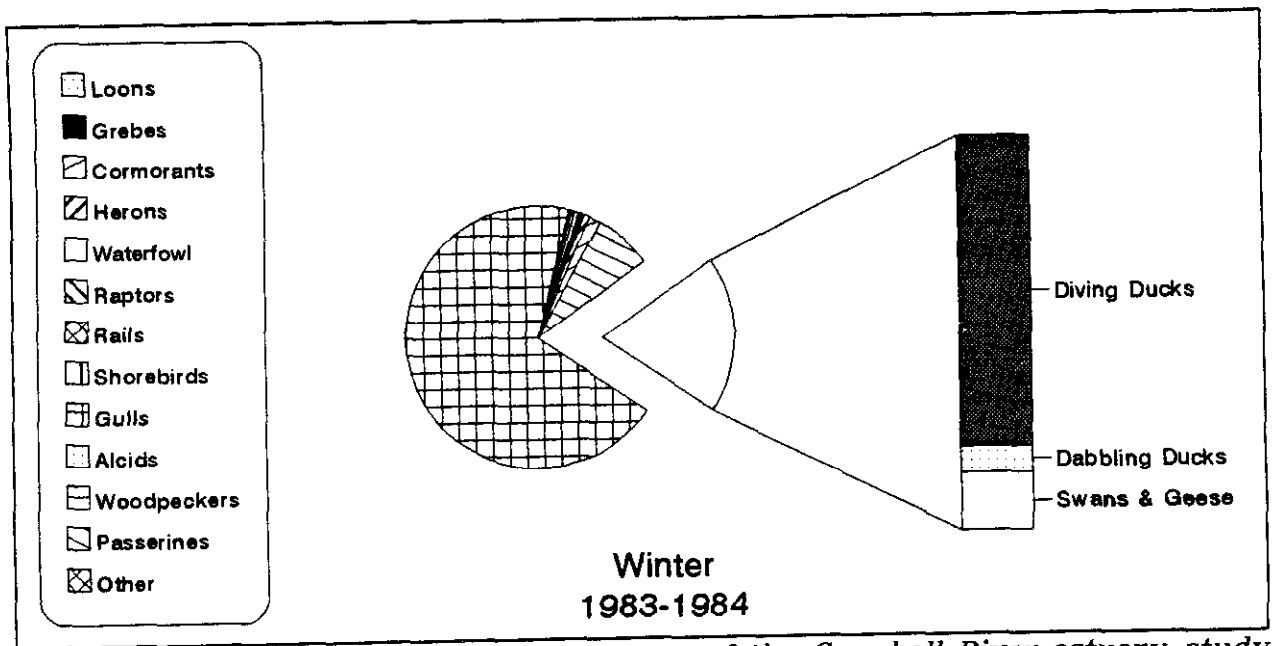


Figure 12. *Proportional species group use of the Campbell River estuary study area, winter 1983-1984.*

Species Composition

The following annotated species list includes summarized data from the survey period. Species groups are presented in taxonomic sequence. Within each group or subgroup, species are discussed in decreasing order of highest use of the estuary during the survey.

Loons: Three species of loons were recorded over the study period: the Common Loon, Pacific Loon and Red-throated Loon. Seasonal fluctuations in the numbers of all loons, the Common Loon and the Pacific Loon are shown in Figure 14. A combined total of 276 birds was observed (<1% of all birds) over the study period. Habitat use by loons during 1982 to 1984 (Figure 13) was similar to the 1973 to 1975 period (Figure 5).

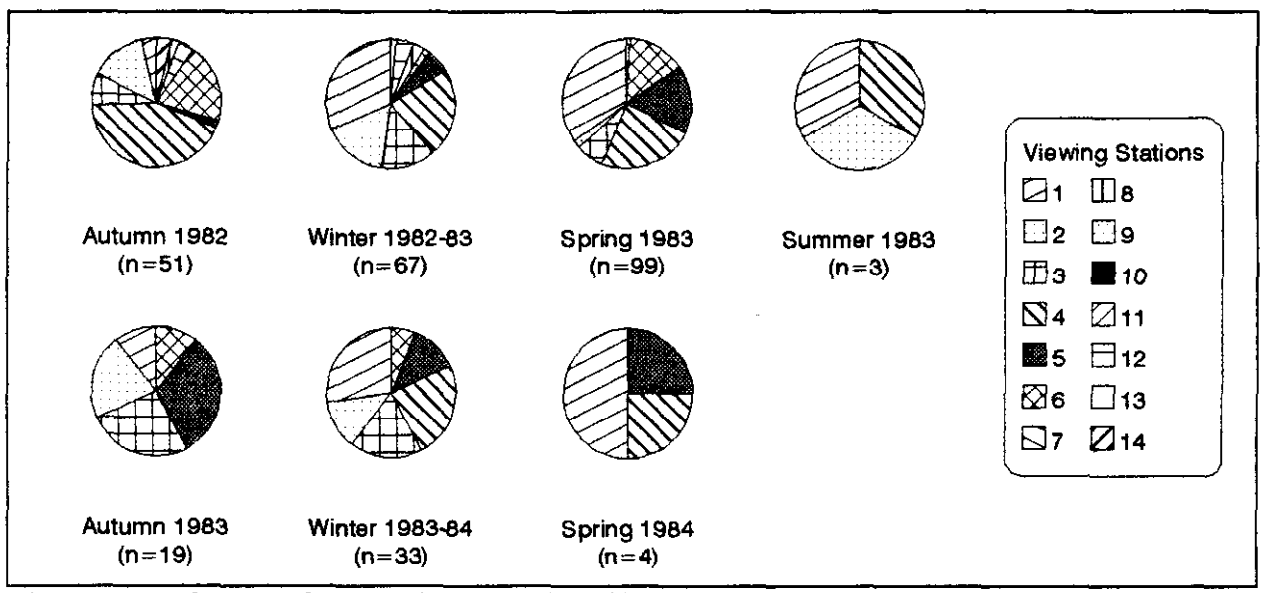


Figure 13. *Seasonal variations in the distribution of loons on the Campbell River estuary, autumn 1982 to spring 1984.*

Common Loon numbers totalled 135 birds over the study period (49% of all loons). The earliest arrival date was 30 October 1983 and the latest departure date was 23 April 1983. This species was seen most in autumn and winter and not at all in summer; a peak of 23 Common Loons was seen on 13 November 1982. Seasonal fluctuations in numbers of Common Loons are included in Figure 14. Nearly all of the loons of this species were seen from viewing stations 1 to 6 which overlook the deeper waters of Discovery Passage to the east and northeast of Tyee Spit but 6 birds were seen on the inner estuary (stations 7, 8, 12, 13 and 14).

A total of 127 Pacific Loons was seen (46% of all loons). The species was noted in every season but its presence was sporadic; the only period its frequency of occurrence was above 50% was from 5 December 1982 to 8 January

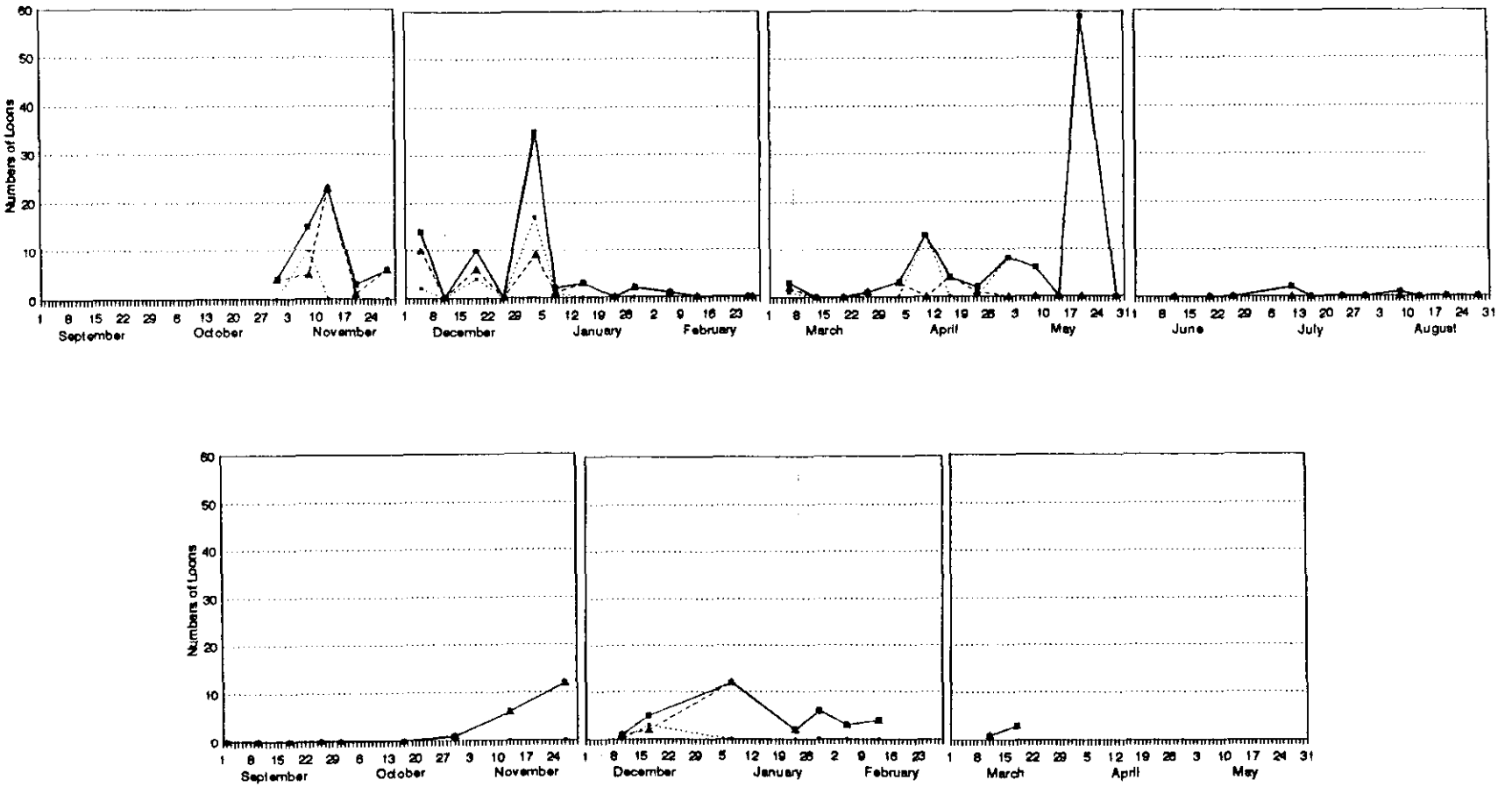


Figure 14. *Seasonal fluctuations in numbers of Common Loons (dashed line), Pacific Loons (dotted line) and all loons combined (solid line) on the Campbell River estuary, October 1982 to March 1984.*

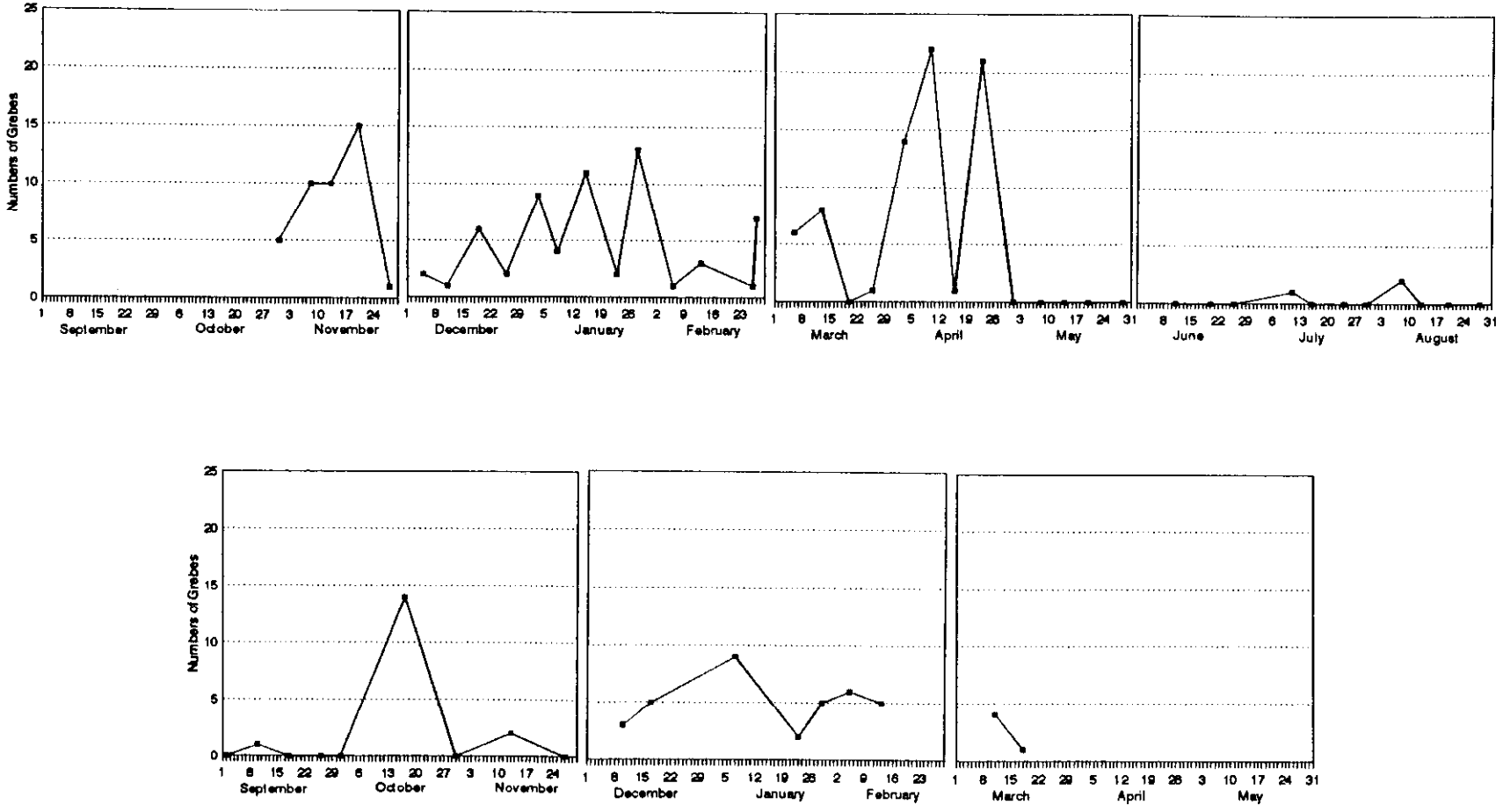


Figure 15. *Seasonal fluctuations in numbers of all grebes combined on the Campbell River estuary, October 1982 to March 1984.*

1983. Most of the birds were seen in spring; a peak number of 59 birds was recorded on 20 May 1983 (Figure 14). All of the Pacific Loons were observed in or near deep water (from stations 1 to 6).

We recorded a total of 12 Red-throated Loons: 2 birds on 5 December 1982, 9 birds on 3 January 1983 and 1 bird on 23 April 1983. Like the other species of loons, they were seen mainly east of Tyee spit. The only exception was 2 Red-throated Loons recorded near the dry land log-sort (station 12) in the heart of the estuary.

Grebes: Four species of grebes were recorded: Red-necked, Horned, Western and Eared; their combined total was 236 birds (<1% of all birds). Seasonal fluctuations in the numbers of grebes are shown in Figure 15. The locations where grebes were seen is combined for all 4 species in Figure 16. The data in the 1973 to 1975 study suggest similar habitat use at that time (Figure 5).

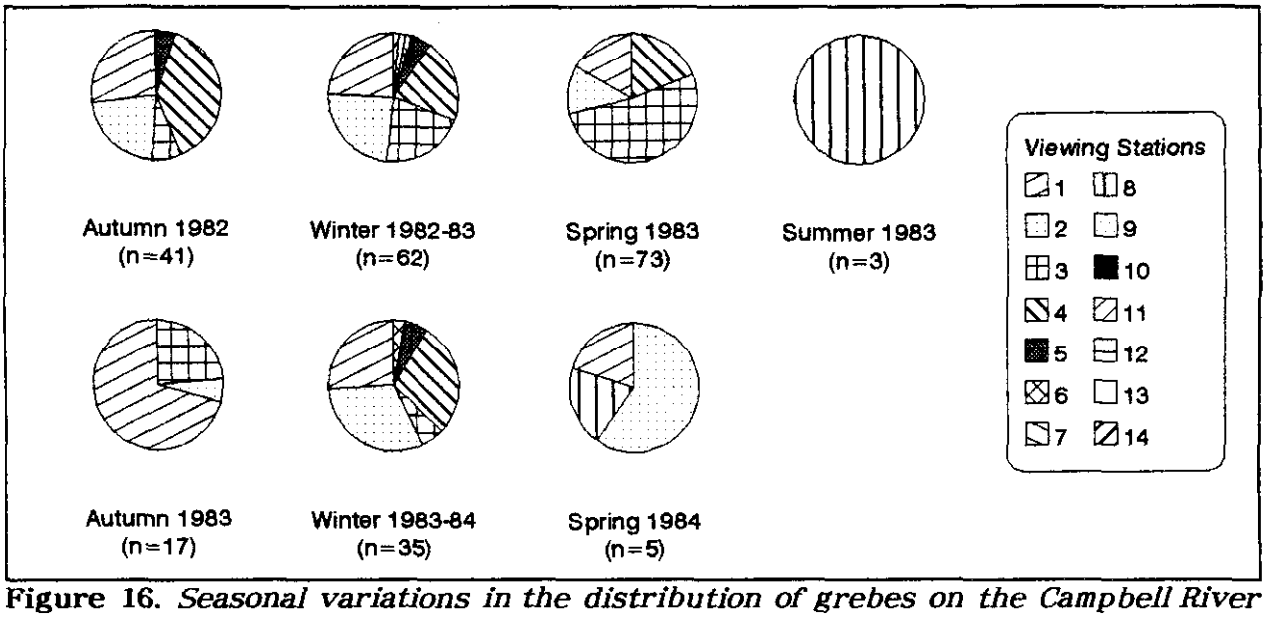


Figure 16. *Seasonal variations in the distribution of grebes on the Campbell River estuary, autumn 1982 to spring 1984.*

The Red-necked Grebe was the most abundant of the grebes with a total of 133 birds seen (56% of all grebes). During the periods from the earliest arrival on 17 October (1983) to the latest departure on 23 April (1983), the likelihood of spotting a Red-necked Grebe was 50% or greater on any day surveyed. In addition, 3 birds were observed during the summer of 1983. The peak number of 16 birds was recorded on 10 April 1983 and again on 23 April 1983. All of the Red-necked Grebes were seen in or near deep water (from stations 1 to 5) except 3 birds recorded on the inner estuary (at station 8) in spring 1984.

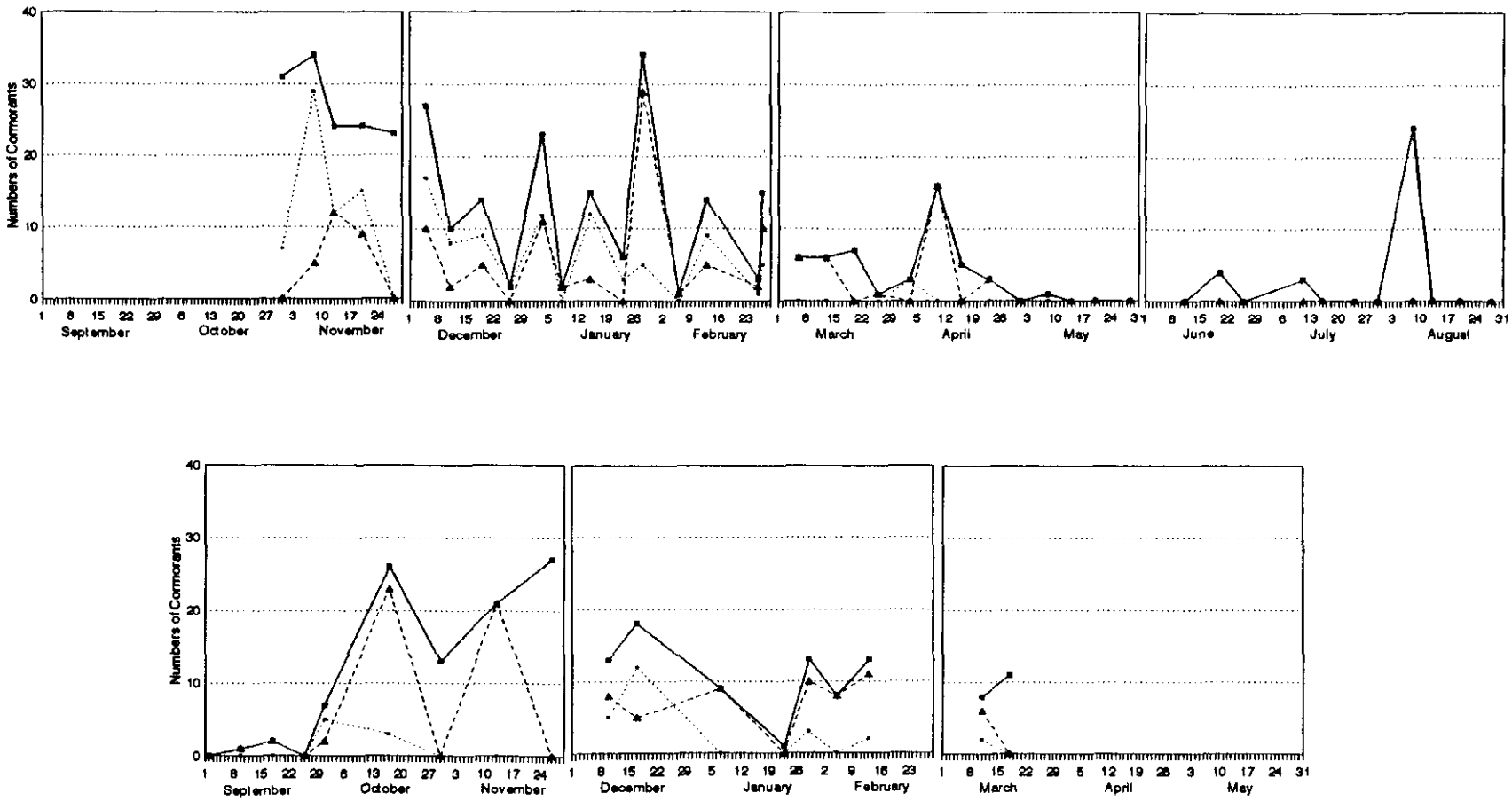


Figure 17. *Seasonal fluctuations in numbers of Double-crested Cormorants (dotted line), Pelagic Cormorants (dashed line) and all cormorants combined (solid line) on the Campbell River estuary, October 1982 to March 1984.*

A total of 76 Horned Grebes was seen (32% of all grebes). The earliest arrival was 10 September (1983) and the latest departure on 23 April (1983). Most Horned Grebes were seen in winter; a peak number of 12 birds was recorded on 28 January 1983. All but 1 of the birds seen in the study period were using the deep water east of Tyee Spit.

A total of 23 Western Grebes was counted. Occurrence was sporadic during the periods between the earliest arrival on 8 November (1982) and the latest departure on 23 April (1983). The peak number was 9 birds seen on 17 October 1983. All but 1 of the Western Grebes was spotted in or near deep water on the east side of Tyee Spit.

We saw a total of 4 Eared Grebes over the study period: 3 birds on 27 February 1983 and 1 bird on the 6 March 1983. They were all seen to the east of Tyee Spit (stations 1, 3 and 4).

Cormorants: Two species of cormorants were recorded with a combined total of 572 birds (1% of all birds). The total includes 146 birds (26% of all cormorants) reported simply as cormorant species; this is significant to the arrival and departure dates because in summer all of the cormorants seen were not identified to species. Figure 18 indicates the viewing stations where cormorants were seen; for comparison, the areas used by cormorants in the winter-spring periods from 1973 to 1975 are shown in Figure 5.

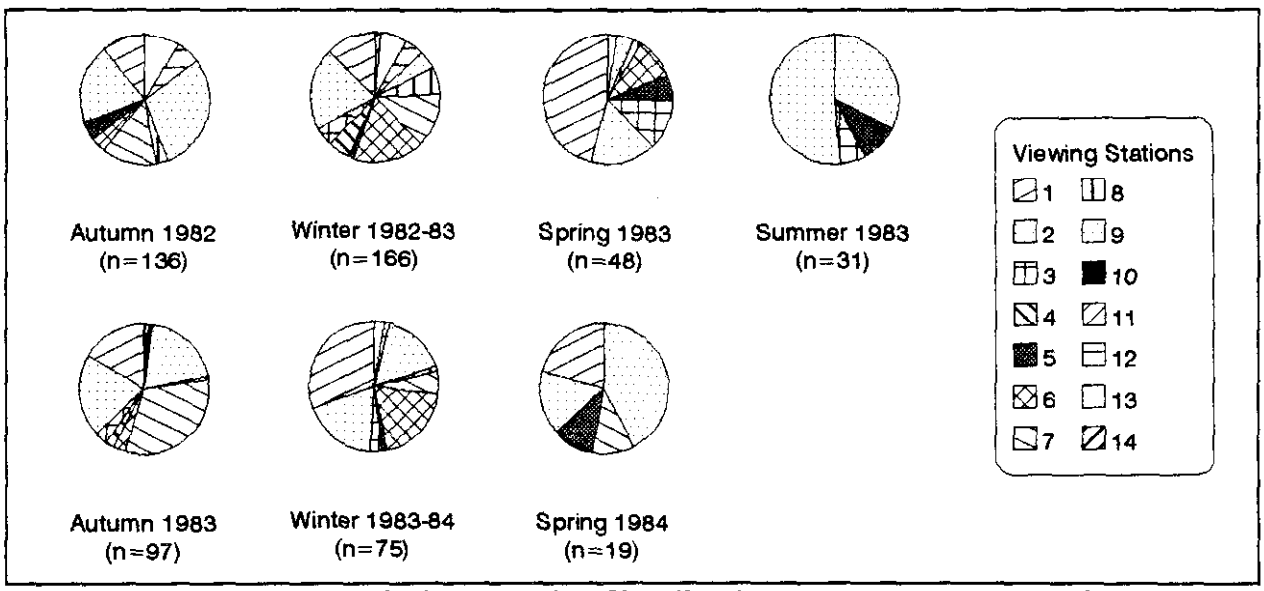


Figure 18. *Seasonal variations in the distribution of cormorants on the Campbell River estuary, autumn 1982 to spring 1984.*

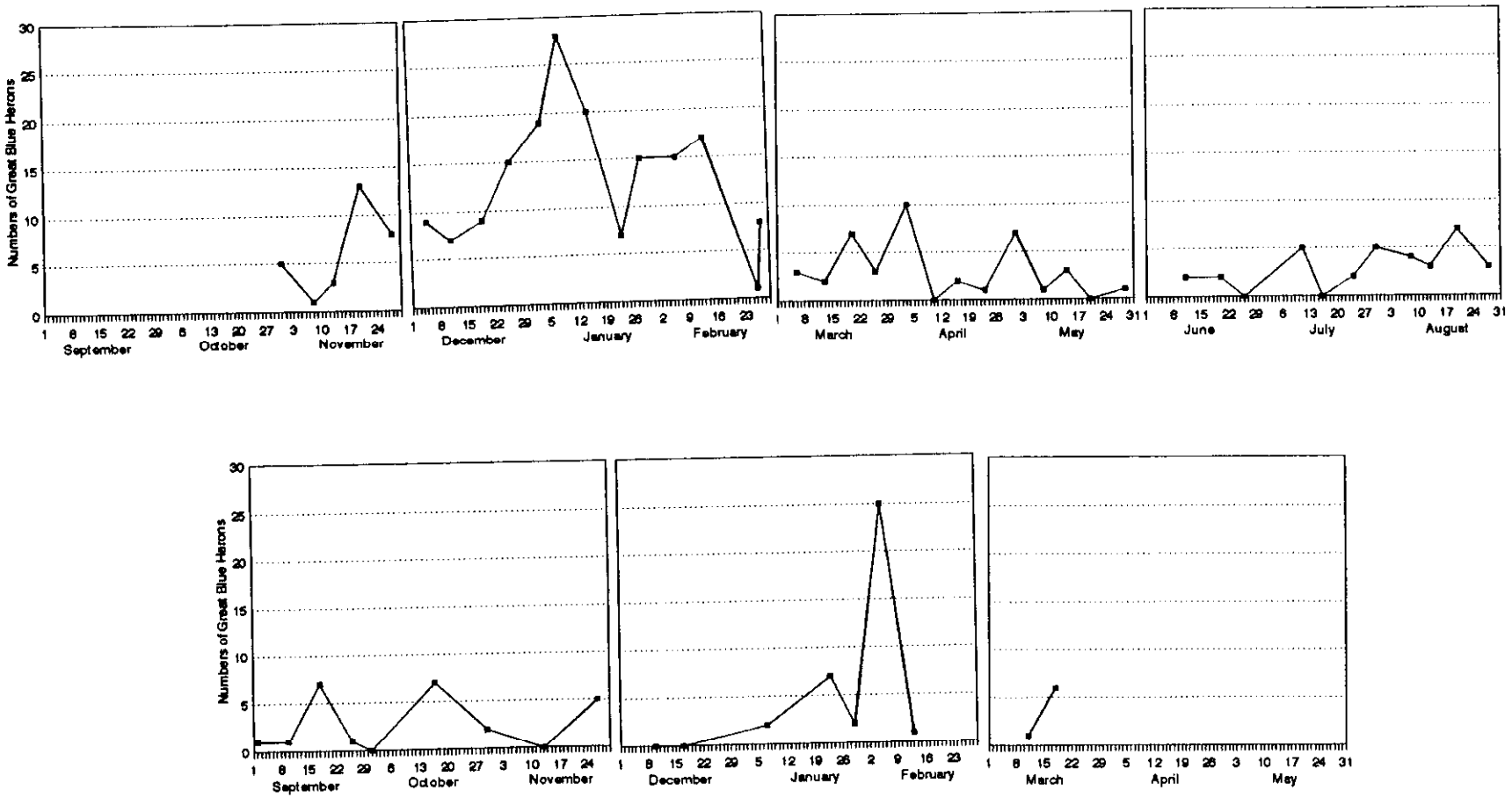


Figure 19. *Seasonal fluctuations in numbers of Great Blue Herons on the Campbell River estuary, October 1982 to March 1984.*

Of the cormorants identified, the Pelagic was the most abundant with a total of 245 observed (43% of all cormorants). The earliest arrival was on 10 September (1983) and the latest departure was on 8 May (1983). The birds were most abundant in winter and autumn with a peak of 29 recorded on 28 January 1982. For seasonal fluctuations in Pelagic Cormorant numbers see Figure 17. The area where most of the birds were seen was in or near the deep water to the east and north of Tyee Spit (stations 1 to 6), but many came onto the inner estuary possibly to loaf on logs.

The total number of Double-crested Cormorants recorded was 181 birds (32% of all cormorants). Earliest arrival was on 1 October (1983) and latest departure was on 3 April (1983). The Double-crested Cormorant was seen mostly in winter (58%); its numbers peaked at 29 birds on 8 November 1982 (Figure 17). The area where most of the birds were seen was in or near the deep water to the east and north of Tyee Spit (stations 1 to 6), but the inner estuary was also used extensively, perhaps for loafing and drying.

Herons: The Great Blue Heron was the only species of heron reported over the study period; a total of 341 birds were seen (<1% of all birds). Although they were seen in every season, herons occurred in the greatest numbers in winter (61%) when a peak of 28 individuals was recorded on 8 January 1983 (Figure 19). The areas used by the Great Blue Heron varied over time without any obvious seasonal cycle (Figure 20); most favoured were the sites near the dry land log-sort (station 12, 18%), near the main channel of the river (station 14, 18%), and on the western side of Tyee Spit (station 7, 18%).

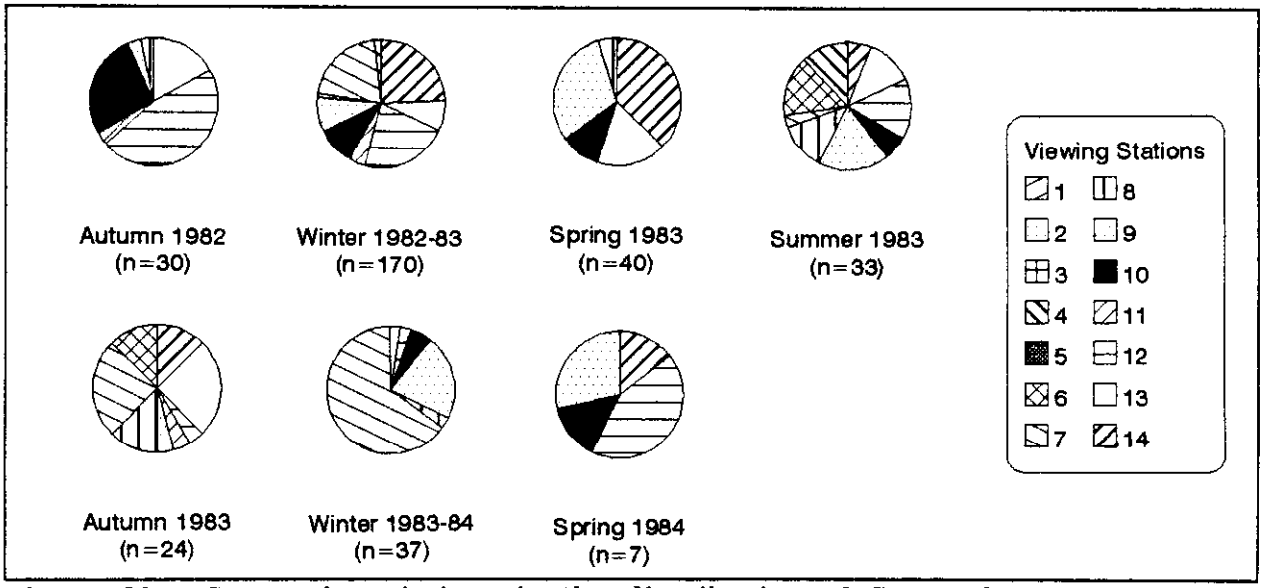


Figure 20. *Seasonal variations in the distribution of Great Blue Herons on the Campbell River estuary, October 1982 to March 1984.*

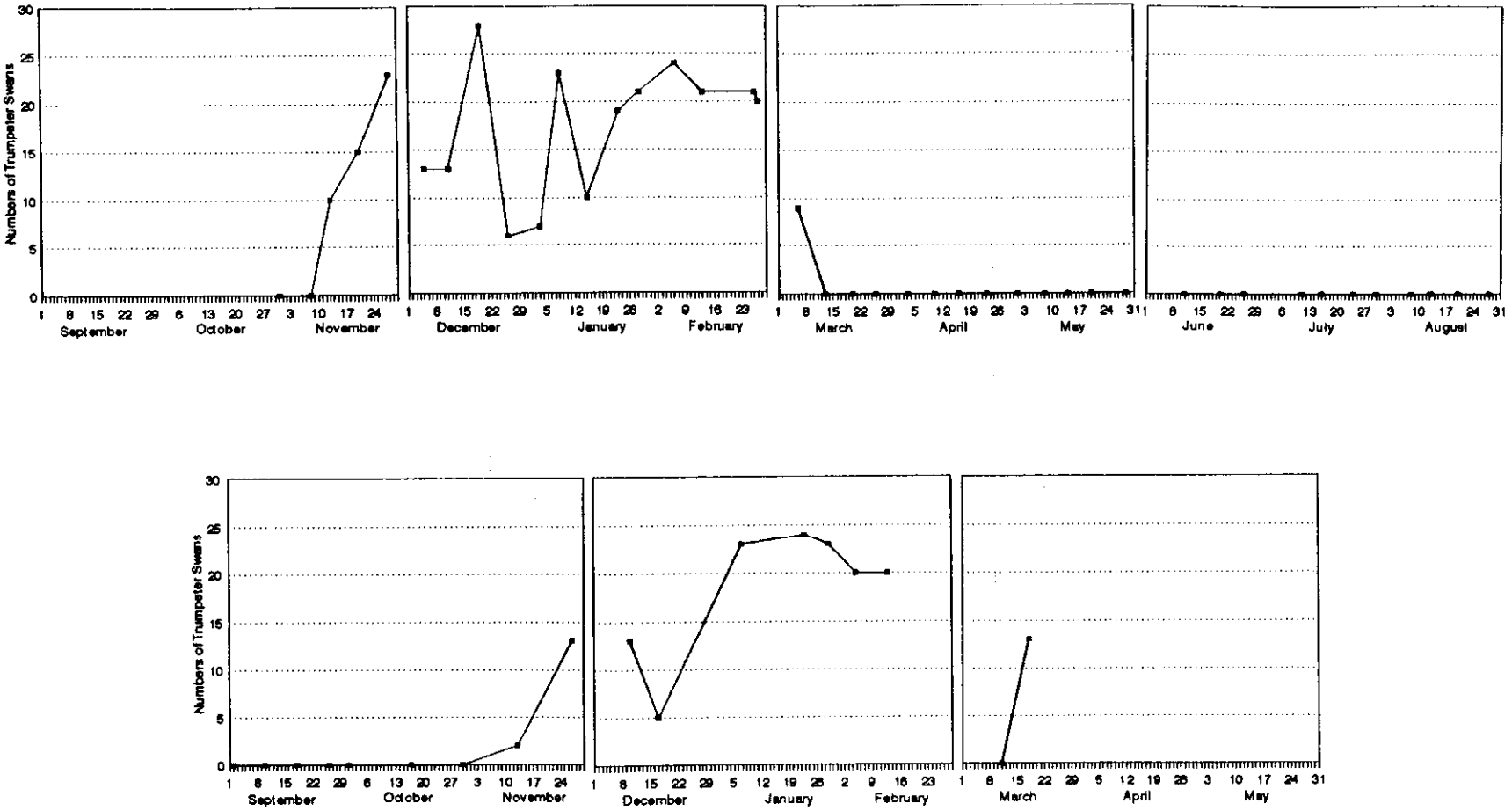


Figure 21. *Seasonal fluctuations in numbers of Trumpeter Swans on the Campbell River estuary, October 1982 to March 1984.*

Swans: Two species of swans were identified during the survey. The Trumpeter Swan, with a total of 439 birds (1% of all birds), accounted for all but one of the swans seen. In the periods between the earliest arrival on 13 November (1982) and the latest departure on 18 March (1984), the Trumpeter Swan had a frequency of occurrence of 93% on the surveys. Most of the swans were observed in winter (81%) with a peak of 28 birds occurring on 19 December 1982 (Figure 21). The swans were seen from every viewing station inside the estuary (stations 6 to 14, Figure 22); their preferred habitat was west of Tyee spit near the outflow and tidal channels of Nunns Creek (station 9, 55% of swans; station 10, 13%; station 8, 11%). This was the same area where the birds were seen most during 1973 to 1975 period (Figure 5).

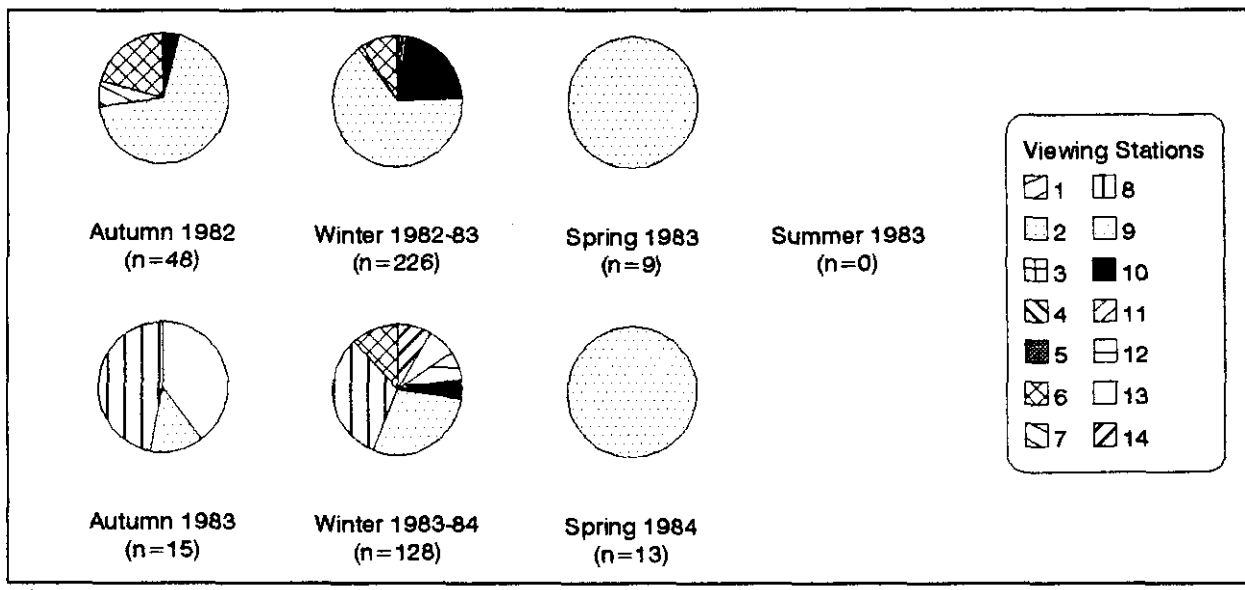


Figure 22. *Seasonal variations in the distribution of Trumpeter Swans on the Campbell River estuary, autumn 1982 to spring 1984.*

One Mute Swan was recorded on 19 December 1982 from station 12.

Geese: Four goose species with a combined total of 41 birds (<1% of all birds) were recorded during the study period. The Canada Goose was the most abundant; observers tallied 31 birds (76% of all geese). However, the species was present only intermittently: 2 birds on 26 December 1982, 2 birds on 13 March 1983 and 2 birds on 8 May 1983. In addition, 25 birds were observed from station 7 flying over the estuary on 23 January 1983. Most of the other birds were seen west of Tyee Spit (stations 8, 9 and 13).

We saw 7 Brant on 18 March 1984 to the east of Tyee Spit (station 5).

The Greater White-fronted Goose was recorded twice; 1 bird on 10 September 1983 and 1 bird on 1 October 1983. Both sightings were made from near the tip of Tyee Spit (stations 6 and 7).

One Snow Goose was seen on 13 March 1983 from near the dry land log-sort (station 12).

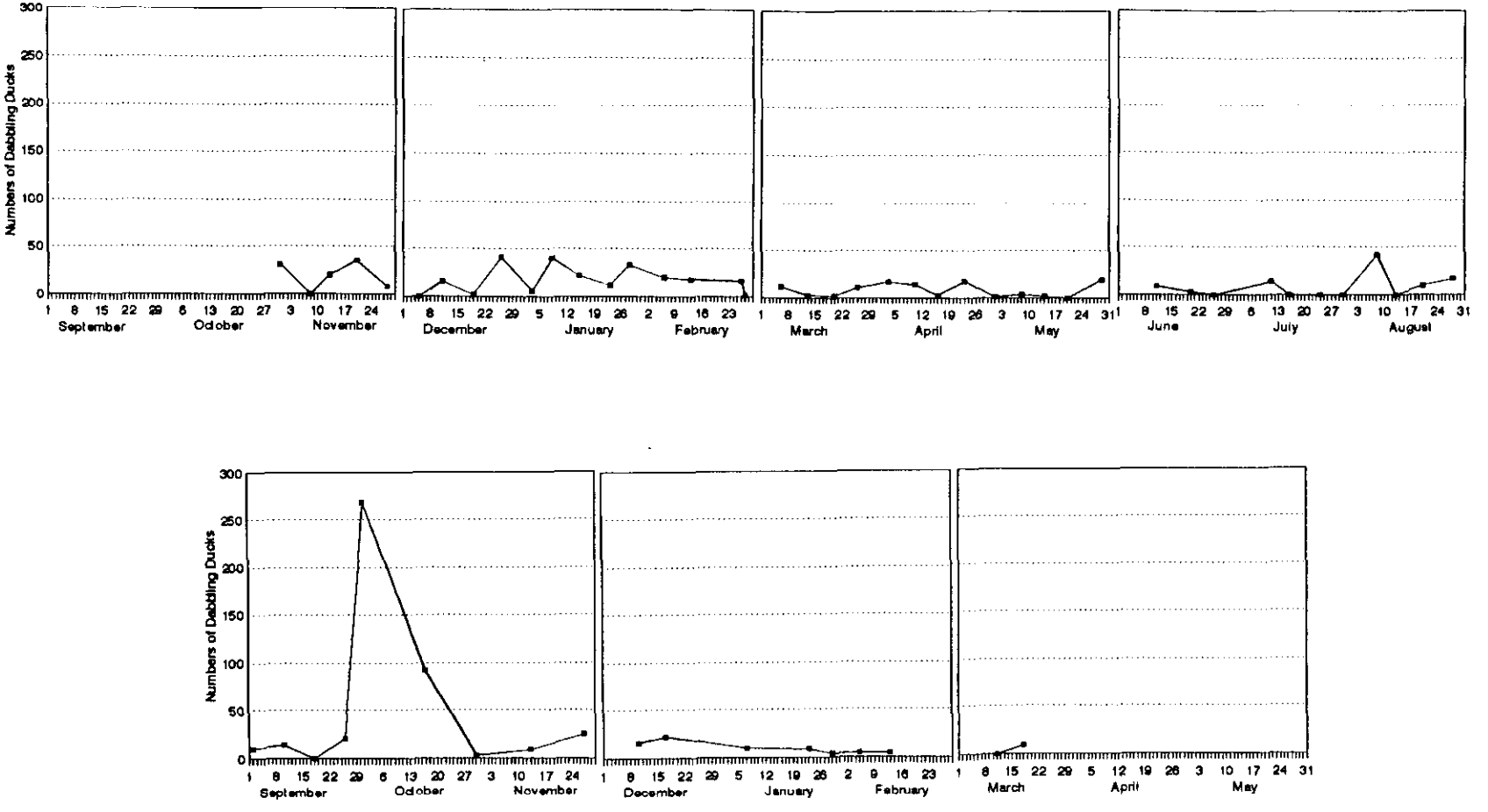


Figure 23. *Seasonal fluctuations in numbers of dabbling ducks on the Campbell River estuary, October 1982 to March 1984.*

Dabbling Ducks: During the study period, 8 species of dabbling ducks were recorded representing a combined total of 1045 birds (2% of all birds). The most abundant was the Mallard and the American Wigeon ranked second. The remaining species (together comprising < 12% of dabbling ducks) were: Green-winged Teal, Northern Pintail, Blue-winged Teal, Northern Shoveller, Cinnamon Teal and Wood Duck. Dabbling ducks were present in every season but always fewer than 50 birds except on 1 October 1983 when numbers climbed to a peak of 268 due to the arrival of 235 dabblers, visible from the tip of Tyee Spit (American Wigeons and Green-winged Teals, station 6). A similar peak, if it occurred in 1982, would have passed shortly before the first bird survey. Fluctuations in dabbling duck numbers are shown in Figure 23. The birds seen from the west side of Tyee Spit and Nunns Creek (stations 8, 9 and 10) together account for most of the dabbling ducks (Figure 24). Much of the remainder occurred in the inner part of the Campbell River estuary (stations 7 to 14); relatively few ducks were seen in or near deep water (stations 1 to 5).

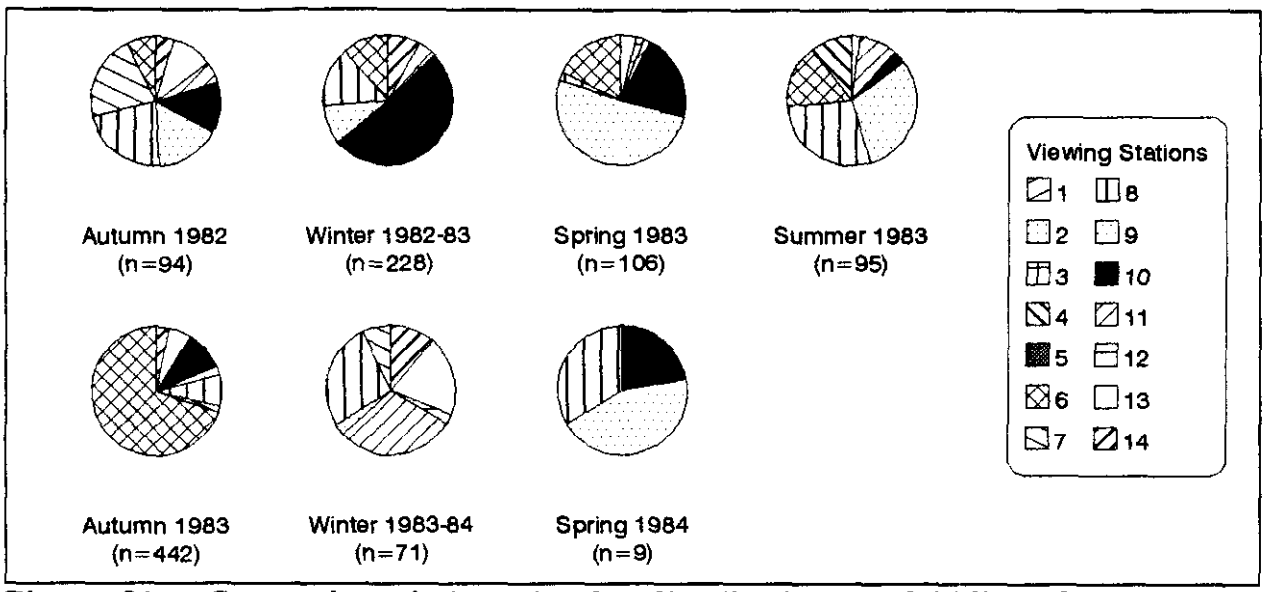


Figure 24. *Seasonal variations in the distribution of dabbling ducks on the Campbell River estuary, autumn 1982 to spring 1984.*

Mallard numbers totalled 615 birds over the study period (59% of dabbling ducks). This species was present in every season with an overall frequency of occurrence of 75%. Fluctuations in numbers are shown in Figure 25. The largest proportion was recorded in winter (47%) but the peak of 42 birds was seen in summer on 8 August 1983. This duck occurred mostly west of Tyee Spit near the tidal streams of Nunns Creek; stations 10, 9 and 8 together tallied 63% of the Mallards. They were also observed from every other station that overlooks the inner estuary (Figure 26); none at all were seen in the deep water east of Tyee Spit.

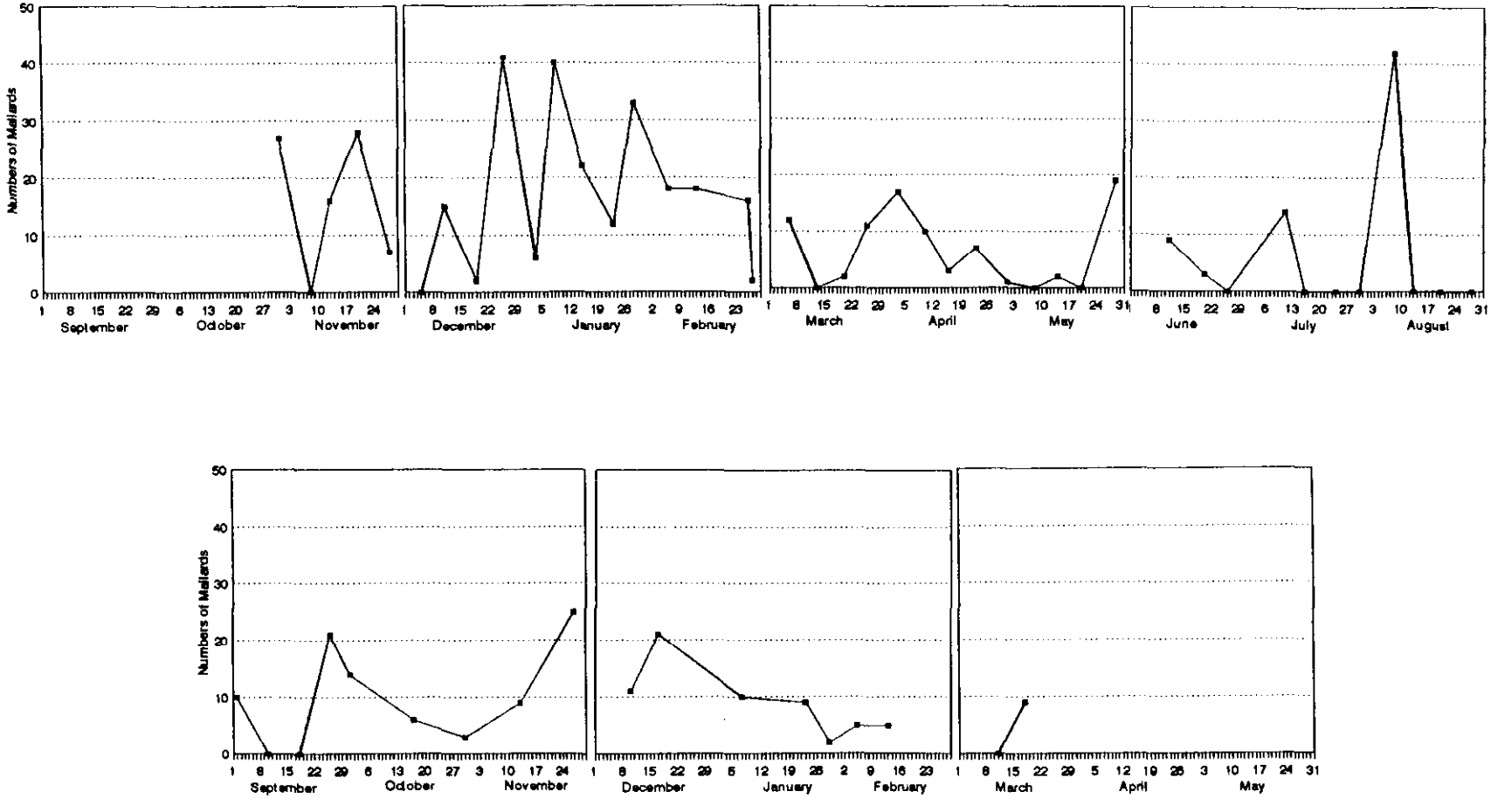


Figure 25. *Seasonal fluctuations in numbers of Mallards on the Campbell River estuary, October 1982 to March 1984.*

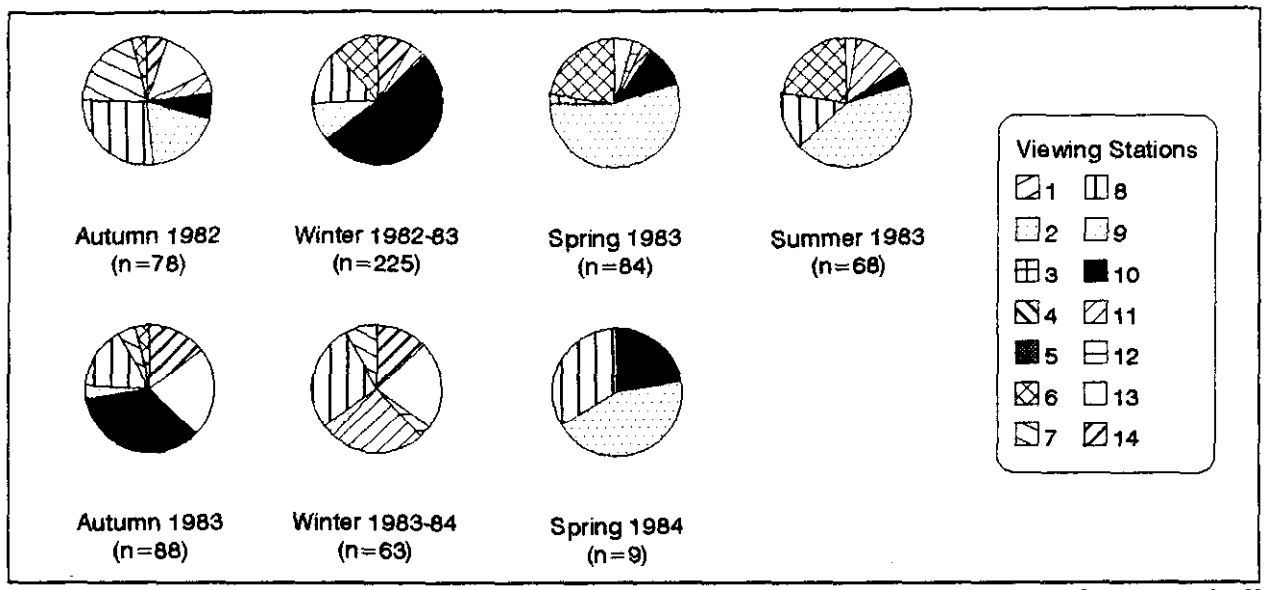


Figure 26. *Seasonal variations in the distribution of Mallards on the Campbell River estuary, autumn 1982 to spring 1984.*

The American Wigeon was the second most abundant dabbling duck with a total of 296 birds recorded (28% of dabbling ducks). They were present intermittently in every season but most of them were seen together; the peak number was 200 birds observed on 1 October 1983 from the tip of Tyee Spit (station 6) and the second largest number was 70 birds seen from the same location about 2 weeks later, on 17 October 1983. Other records are from west of Tyee Spit: 4 birds seen on 13 November 1982, 4 birds on 20 November 1982, 3 birds on 10 December 1983, 2 birds on 29 January 1984, 2 birds on 6 February 1983 and 1 bird on 8 May 1983 (stations 8,9,10,11; see Figure 28). The only summer record was 10 wigeons seen on 10 August 1983 in or near the deep water east of Tyee Spit (station 4).

Three species of teal were recorded with a combined total of 75 birds that includes 7 birds recorded simply as teal species.

The most abundant was the Green-winged Teal; a total of 53 were seen over the study period (5% of dabbling ducks). The earliest arrival was recorded on 1 October 1983-38 birds; 35 of them were seen from the end of Tyee Spit (station 6). The latest departure was 10 April (1983). All of the birds, other than the group of 35, occurred at various locations in the inner estuary (stations 7, 9, 10, 11, 12 and 14).

We tallied a total of 13 Blue-winged Teals during the survey: 9 birds on 17 October 1983 west of Tyee Spit (station 8, identification uncertain), 2 birds on 23 April 1983 from station 10 and 2 birds on 8 May 1983 from station 9.

Two Cinnamon Teals were reported on 23 April 1983 from close to the tidal channels near Nunns Creek (station 10).

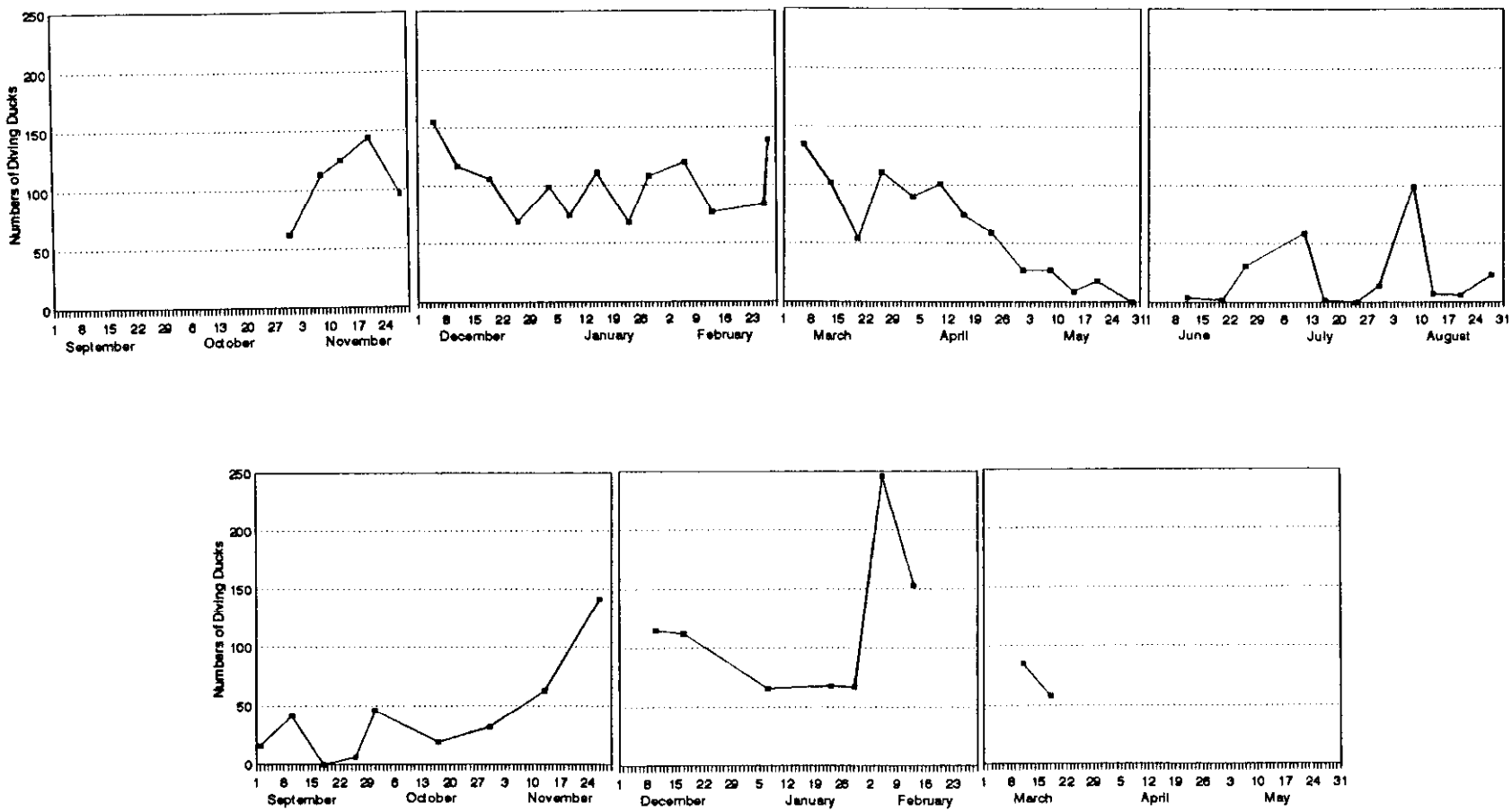


Figure 27. *Seasonal fluctuations in numbers of diving ducks on the Campbell River estuary, October 1982 to March 1984.*

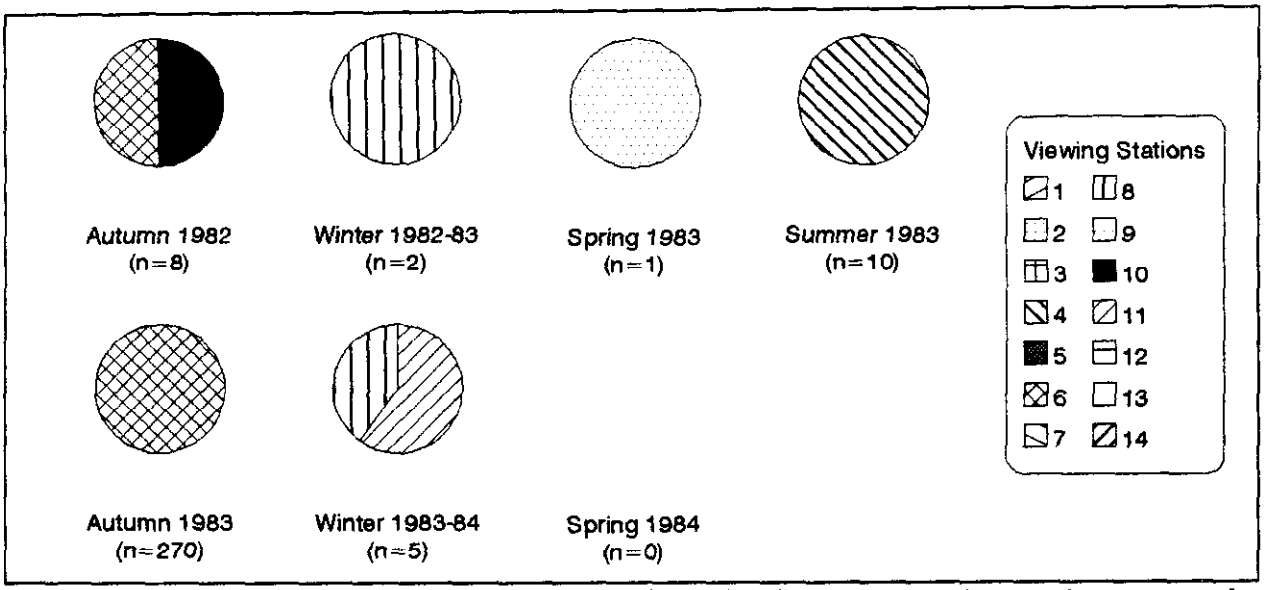


Figure 28. *Seasonal variations in the distribution of American Wigeon on the Campbell River estuary, autumn 1982 to spring 1984.*

Northern Pintail numbers totalled 51 birds (5% of dabbling ducks). The earliest arrival date was 28 August 1983 and the latest departure date was 17 October 1983. During this period, pintails were observed on 4 of the 7 surveys (frequency of occurrence = 57%) but the species was not seen at all outside of this period. All of the birds were seen between the area west of Tyee Spit and the tidal channels near Nunns Creek (stations 7, 8, 9 and 10).

We saw a total of 4 Northern Shovellers over the study period: 3 birds on 1 October 1983 and 1 bird on 8 May 1983. All were seen west of Tyee Spit (stations 9 and 7).

One Wood Duck was seen on 28 November 1982 near Nunns Creek (station 11).

Diving Ducks: During the course of the study, 14 species of diving ducks were recorded with a combined total of 4256 birds (10% of all birds). The most numerous by far was the Bufflehead. The Common Merganser was the second most abundant followed by the Common Goldeneye, Surf Scoter, Harlequin Duck and Red-breasted Merganser. The remaining species (together comprising approximately 8% of all diving ducks) in decreasing order of abundance were: Barrow's Goldeneye, Greater Scaup, Oldsquaw, Hooded Merganser, White-winged Scoter, Lesser Scaup, Black Scoter and Canvasback. In addition, 32 diving ducks were not fully identified.

Diving ducks were observed in every season; the highest numbers were seen in winter (51%) when there was at least 66 birds present on or near the estuary (Figure 27). Numbers were generally low from May through October. The peak number of 246 birds (mostly goldeneyes, mergansers, scoters and

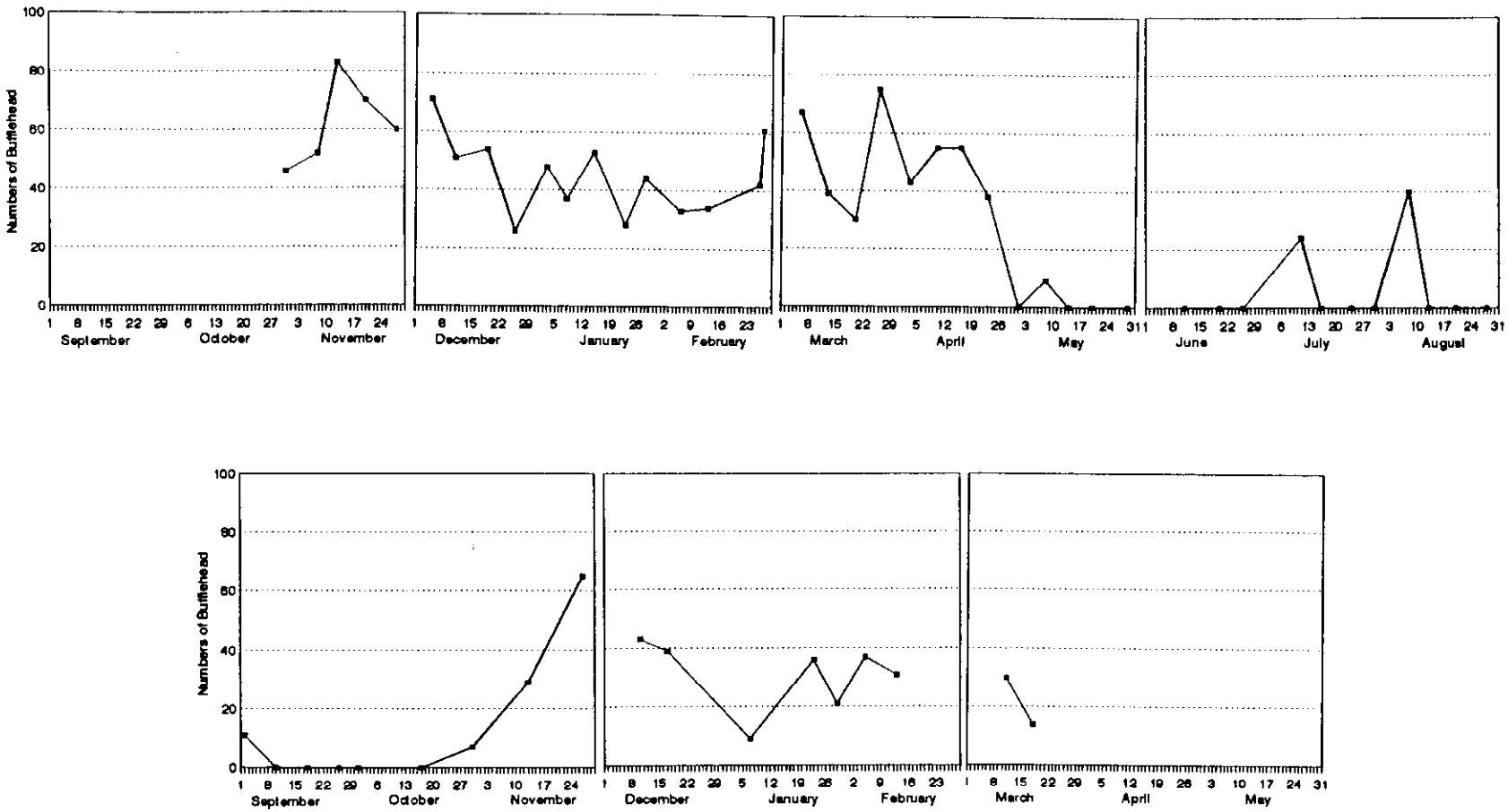


Figure 29. *Seasonal fluctuations in numbers of Bufflehead on the Campbell River estuary, October 1982 to March 1984.*

Bufflehead) was seen on 5 February 1984 and secondary peaks were recorded in late November or early December of both years.

Diving ducks were seen from all 14 viewing stations but the areas where they were seen most varied with the seasons (Figure 30). In autumn they were most visible from the tip of Tyee Spit (station 6, 20%) and from of the centre of the inner estuary (station 13, 17%). In winter, habitat use was very dispersed; the largest segment of the population was seen east of Tyee Spit (e.g. station 5, 15%). By spring the abundance was highest near the base of Tyee Spit looking westward into the intertidal marshes of *Carex*, *Juncus* and *Deschampsia* (station 9,19%) and also near the centre of the estuary (station 13, 20%). Numbers of diving ducks in summer were again highest near the tip of Tyee Spit (station 6, 36%). Over the entire 2 years of the study, the area visible from station 13 in the centre of estuary received the most use (14%).

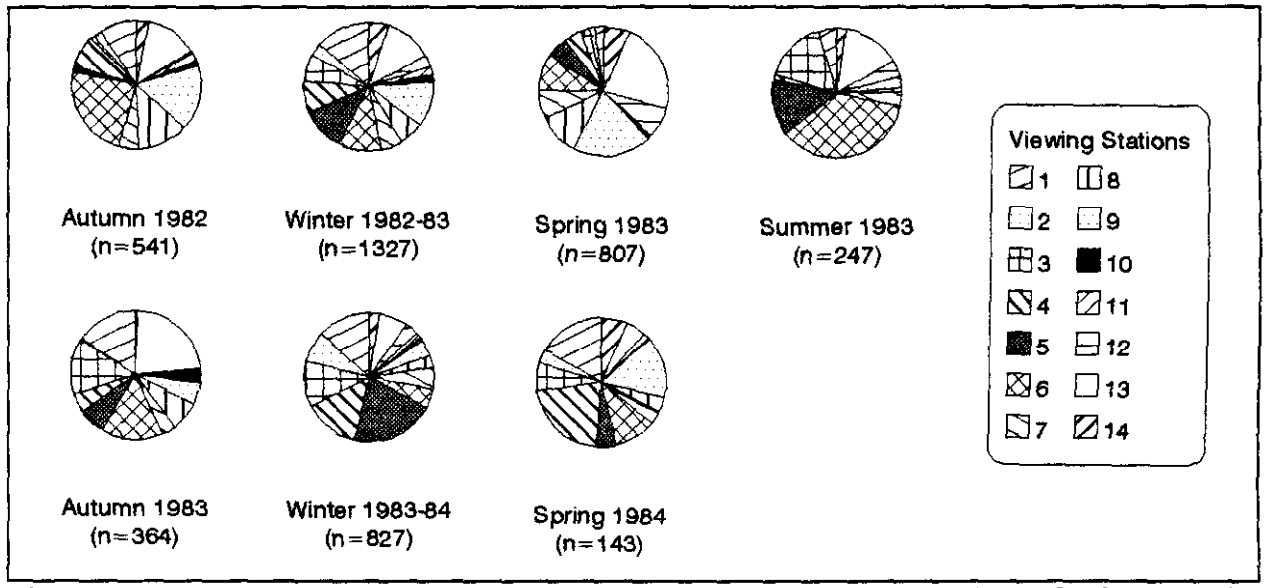


Figure 30. *Seasonal variations in the distribution of diving ducks on the Campbell River estuary, autumn 1982 to spring 1984.*

We saw a total of 1740 Bufflehead (41% of all diving ducks). From the earliest arrival on 30 October (1983) to the latest departure on 8 May (1983), the species was present almost continuously (frequency of occurrence: 98%). Outside of this period, significant numbers of birds, likely nonbreeders, were seen on 11 July 1983, 8 August 1983 and 2 September 1983 (Figure 29). Most Bufflehead were seen in winter (46%) but the peak number of 83 birds was recorded on 13 November 1982. Birds were observed from every station but the proportions were different in each season (Figure 32). In autumn their abundance was highest near the centre of the estuary (station 13), in winter the birds were dispersed throughout the inner and outer portions of the estuary, and in spring their numbers were highest west of the base of Tyee Spit (station 9). Almost all of the birds in summer were seen east and north of Tyee Spit (stations 3 to 6).

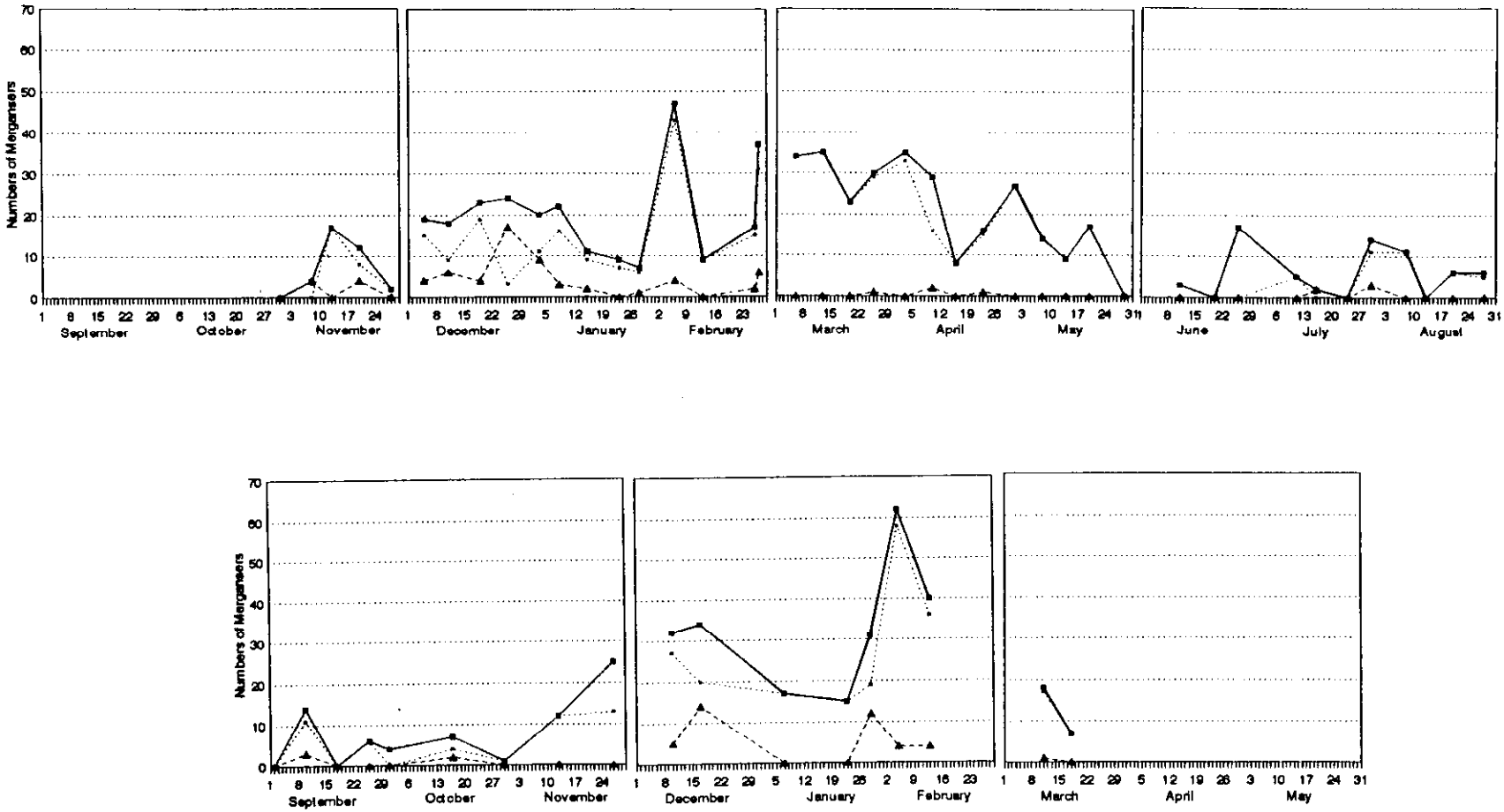


Figure 31. *Seasonal fluctuations in numbers of Common Mergansers (dotted line), Red-breasted Mergansers (dashed line) and all mergansers combined (solid line) on the Campbell River estuary, October 1982 to March 1984.*

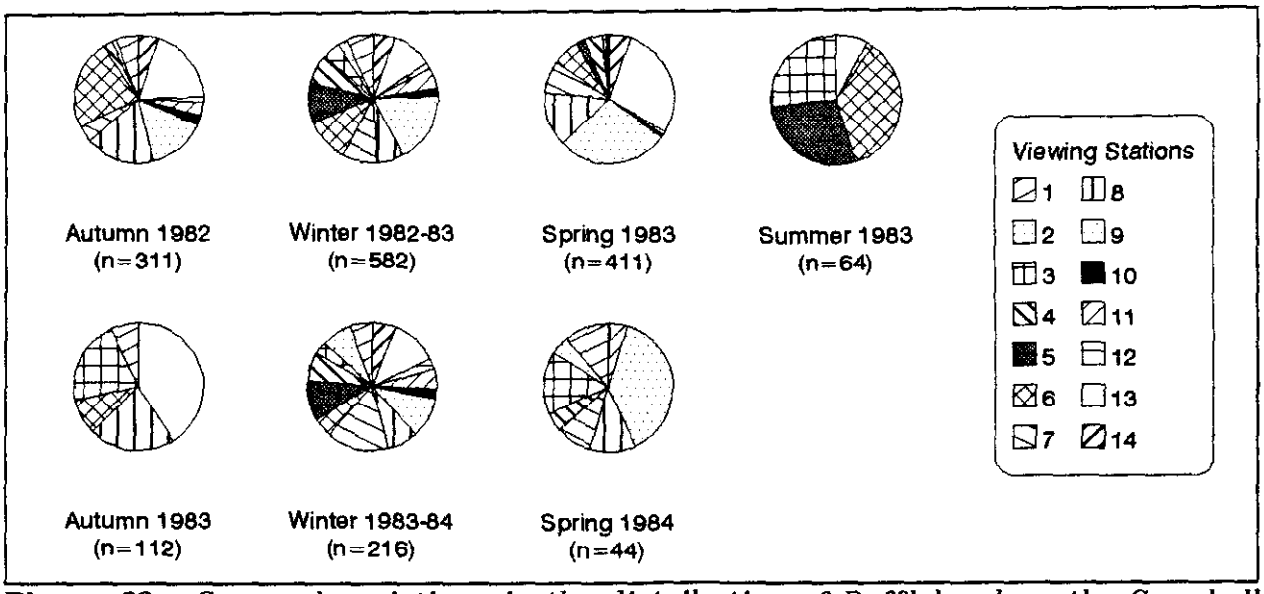


Figure 32. *Seasonal variations in the distribution of Bufflehead on the Campbell River estuary, autumn 1982 to spring 1984.*

Three species of mergansers were seen: the Common Merganser, the Red-breasted Merganser and the Hooded Merganser. The Common Merganser was the most abundant of the 3 and the second most numerous species of diving duck with a total of 784 birds recorded (18% of all diving ducks). It was present in every season of the study; the frequency of occurrence varied from 60% over the summer-autumn period to 97% through winter and spring. In the winter-spring period 85% of all of the Common Mergansers were seen. Interestingly, the peak numbers recorded were one year apart: 43 birds on 6 February 1982 and 58 birds on 5 February 1983 (Figure 31). Over the whole study period, this duck was seen most from the centre of the estuary (Station 13, 27%). For seasonal variations in the areas used, see Figure 33.

Red-breasted Merganser numbers totalled 120 birds (3% of all diving ducks). The species was noted in every season (Figure 31). However, other than in winter, the counts were always below 5 birds and the frequency of occurrence was low, (25% on average). Most of the birds were seen in winter (81%); the peak of 17 birds was recorded on 26 December 1982. The viewing stations that the Red-breasted Merganser was seen from were different in each season (Figure 34).

We saw a total of 56 Hooded Mergansers. They occurred in every season in roughly equivalent numbers; the lowest numbers were in winter. Most of the birds were tallied on 3 separate days: 17 birds on 26 June 1983 seen from station 13; 12 birds on 27 November 1983, 10 of which were observed from station 10; and 11 birds on 10 April 1983 seen from station 13.

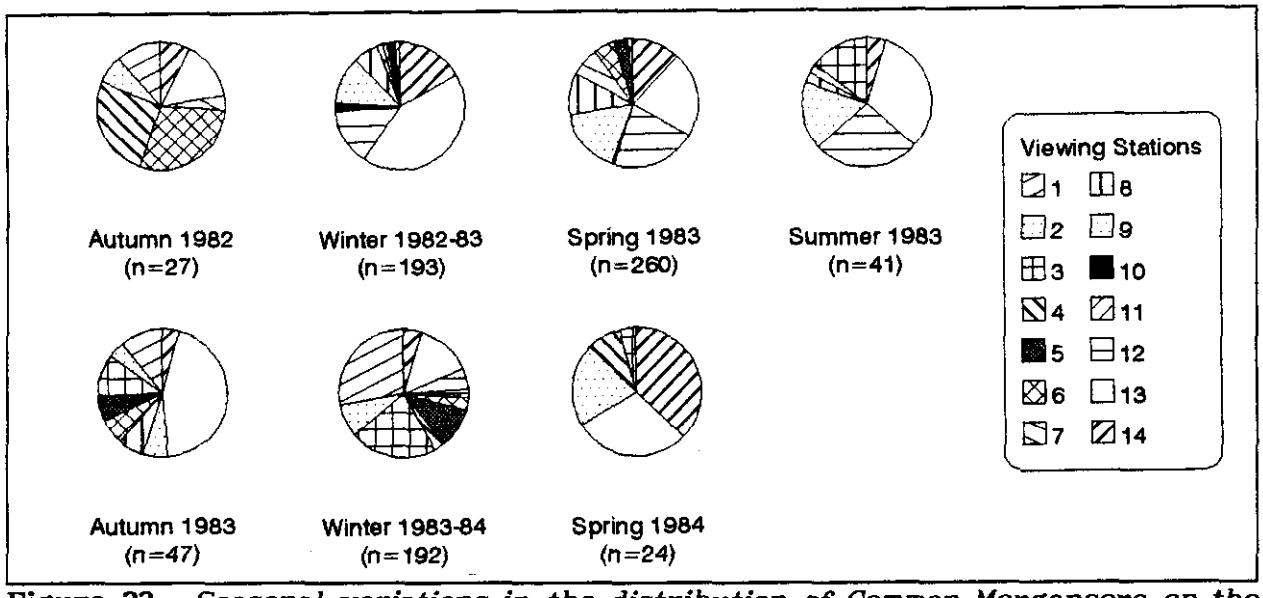


Figure 33. *Seasonal variations in the distribution of Common Mergansers on the Campbell River estuary, autumn 1982 to spring 1984.*

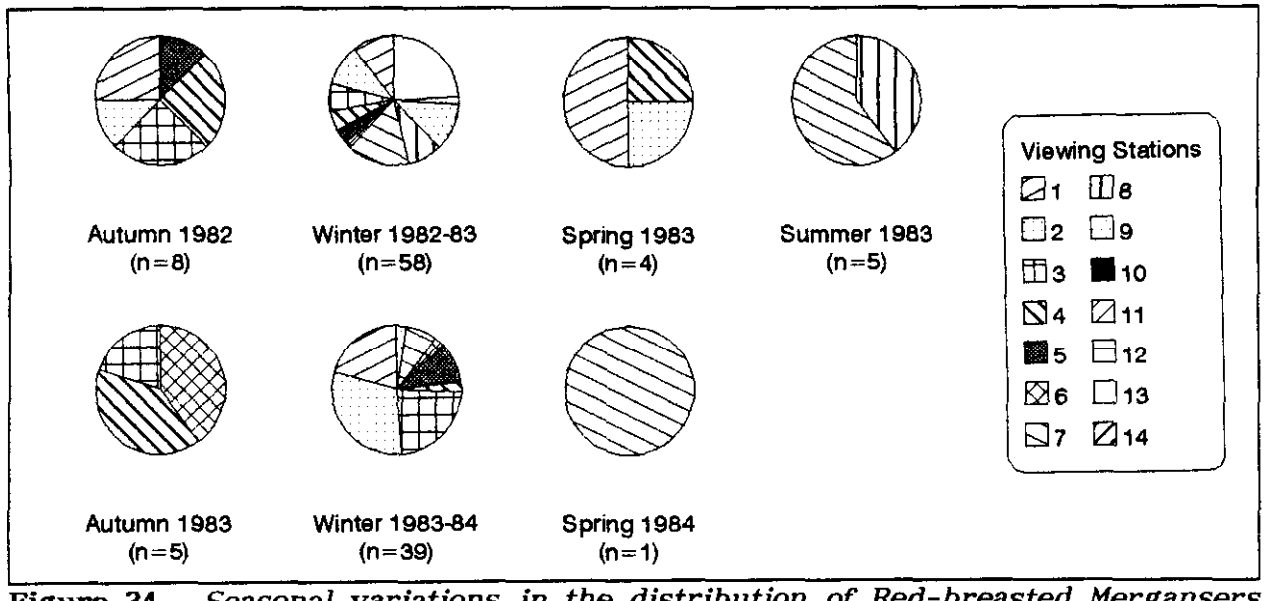


Figure 34. *Seasonal variations in the distribution of Red-breasted Mergansers on the Campbell River estuary, autumn 1982 to spring 1984.*

Two species of goldeneyes were seen plus 4 birds that were reported simply as goldeneye species. The Common Goldeneye was more than 3 times as numerous as the Barrow's Goldeneye. Seasonal fluctuations in the numbers of both are shown separately in Figure 36.

The Common Goldeneye ranked third in abundance among the diving ducks with a total of 431 birds seen (10% of all diving ducks). From the earliest arrival on 1 October (1983) to the latest departure on 23 April (1983), its frequency of occurrence over both seasons was 82%. The numbers present fluctuated (Figure 36); the peak number recorded was 71 birds on 5 February 1983. The Common Goldeneye was seen most in or near the deep water east and north of Tyee Spit (stations 1 to 5 and especially station 6). Seasonal variations in the distribution of the Common Goldeneye are shown in Figure 35.

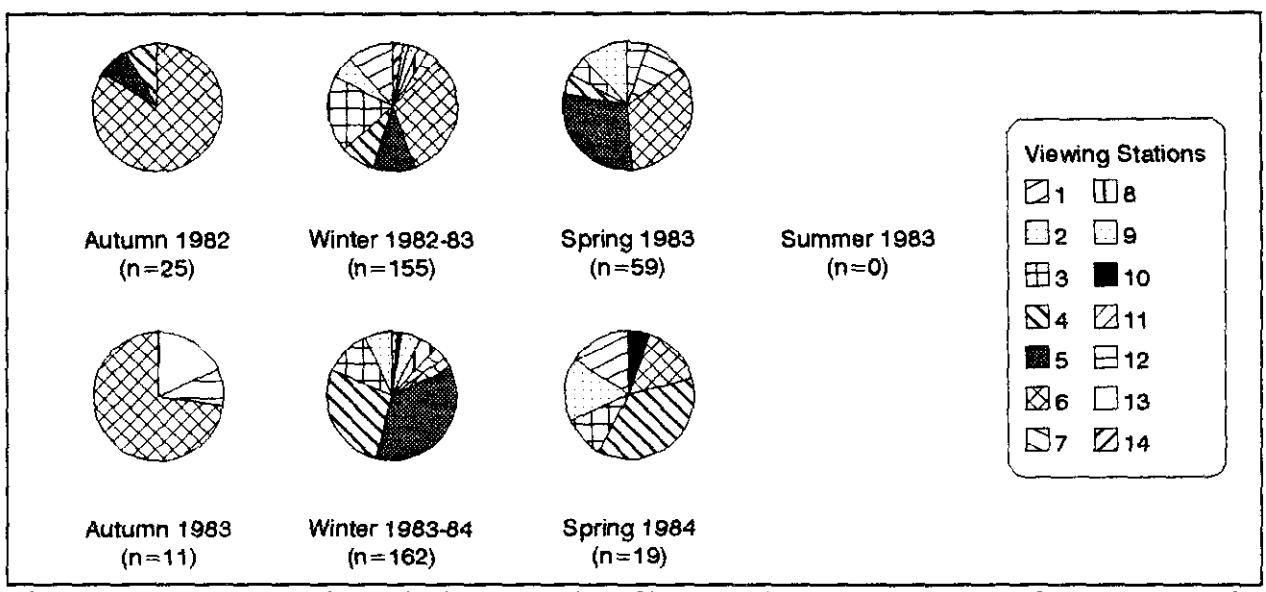


Figure 35. *Seasonal variations in the distribution of Common Goldeneye on the Campbell River estuary, autumn 1982 to spring 1984.*

The total number of Barrow's Goldeneye reported over the study period was 83 birds. There was apparently some confusion in separating Barrow's from Common goldeneyes by one of the teams (Kay Conway, pers. comm.). Thus, we suggest that the following information be used with caution. It has been summarized as it was reported to allow comparison with any future studies; however, doubt could be removed by simply referring to these records as goldeneye species. Apparent Barrow's Goldeneye presence was sporadic from the

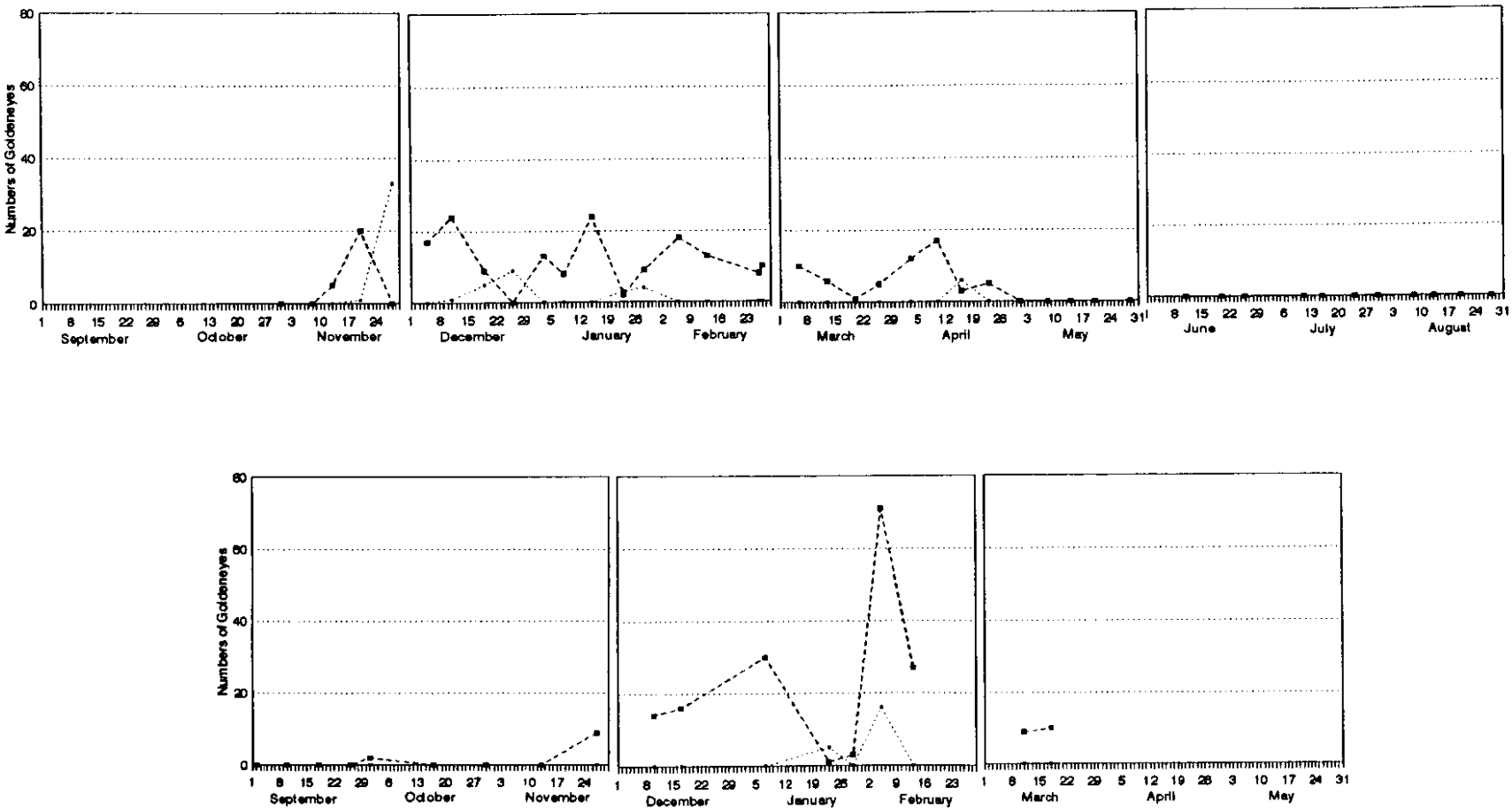


Figure 36. *Seasonal fluctuations in numbers of Common Goldeneye, (dashed line) and Barrow's Goldeneye (dotted line) on the Campbell River estuary, October 1982 to March 1984.*

earliest arrival on 20 November 1982 to the latest departure on 16 April 1983. It was reported most in late autumn and in winter (93%; Figure 36); when a peak number of 33 birds was recorded on 28 November 1982, the number of Barrow's Goldeneye reported exceeded the number of Common Goldeneye. Most Barrow's Goldeneye were reported from east and north of Tyee Spit (especially the areas visible from station 6) but the species was also reported near the dry land log-sort (station 12) and at other locations (Figure 37).

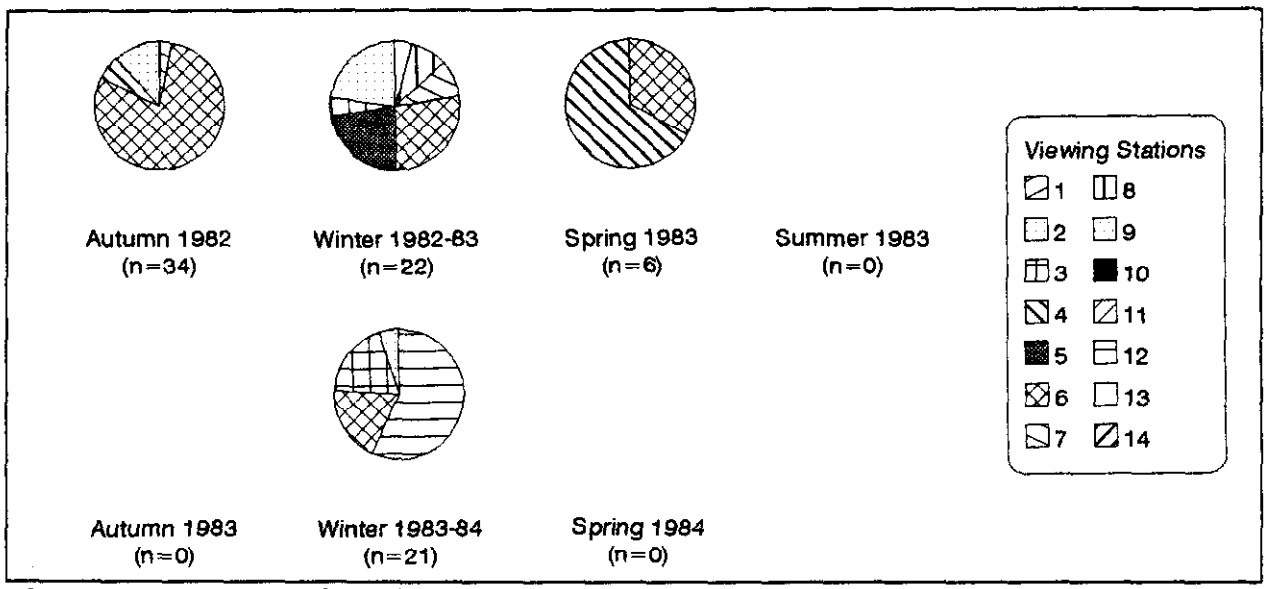


Figure 37. *Seasonal variations in the distribution of Barrow's Goldeneye on the Campbell River estuary, autumn 1982 to spring 1984.*

Three species of scoters, the Surf Scoter, White-winged Scoter and Black Scoter, were recorded with a combined total of 472 birds seen, including 7 birds identified simply as scoter species.

Surf Scoter numbers accounted for 85% of all scoters and ranked it fourth among diving ducks (9% of all diving ducks). It was present in every season but it was most abundant in winter (59% of the total seen); the peak of 59 birds was recorded on 5 February 1983. The lowest frequency of occurrence was in autumn (20% and 22%) in both years of the study. Erratic daily fluctuations in the numbers present on the estuary obscured all but the most general seasonal patterns (Figure 38). The majority of Surf Scoters were seen in or near deep water to the east and north of Tyee Spit (stations 1 through 6; Figure 39) however there were some seen from the inner side of the Spit (station 7).

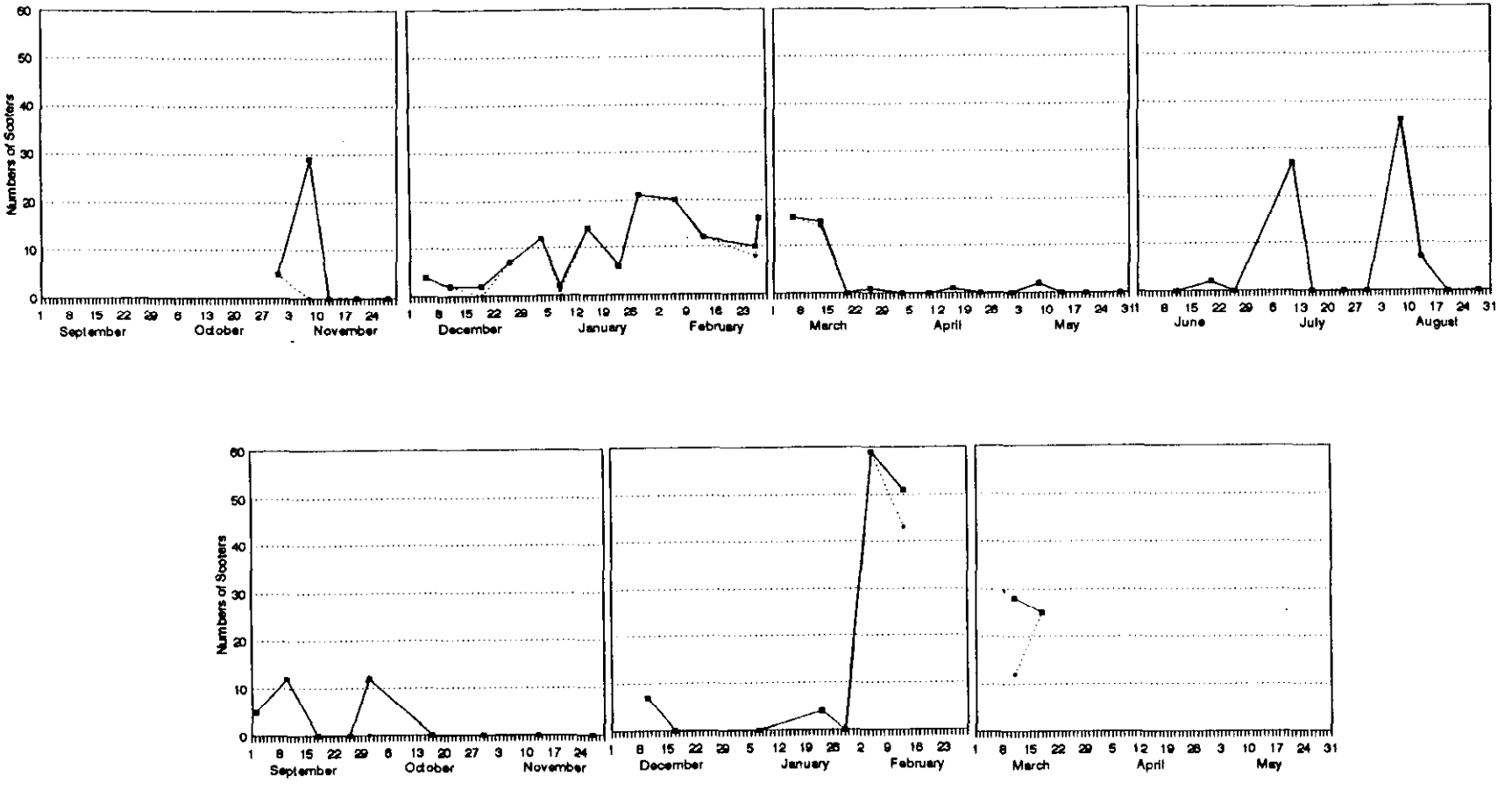


Figure 38. *Seasonal fluctuations in numbers of Surf Scoters (dashed line) and all scoters combined (solid line) on the Campbell River estuary, October 1982 to March 1984.*

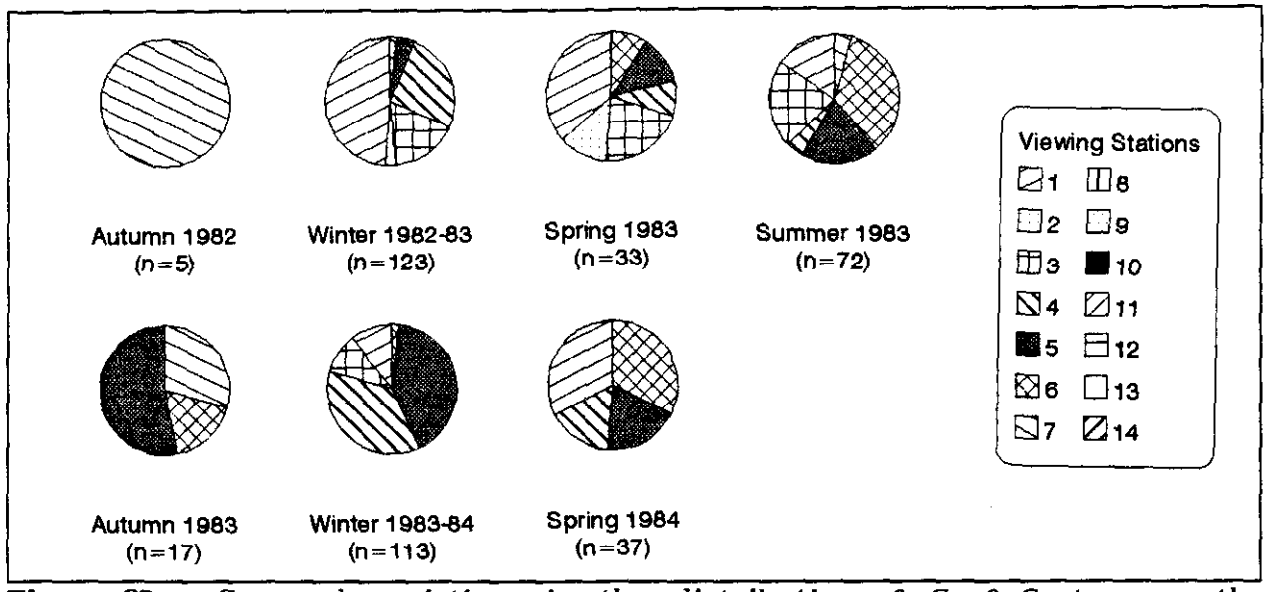


Figure 39. *Seasonal variations in the distribution of Surf Scoters on the Campbell River estuary, autumn 1982 to spring 1984.*

The White-winged Scoter had a relatively minor presence on the Campbell River estuary; a total of 52 birds was counted over the study period (11% of all scoters). This contrasts with the Fanny Bay area where the White-winged Scoter was the most numerous scoter and the second most abundant diving duck (Dawe et al. 1995). In Campbell River the earliest arrival was 1 October (1983) and the latest departure was 26 March (1983). Unlike the Surf Scoter, the White-winged Scoter was most abundant in autumn (60%) and spring; its abundance was low in winter and it was not present at all in summer. The peak was 19 birds recorded on 8 November 1982 from station 4. The White-winged Scoter used the outer, east side of Tyee Spit but unlike other scoters, this species concentrated its activity (69%) near viewing station 4.

We saw a total of 13 Black Scoters over the study period: 3 birds on 8 November 1982 from station 8, 2 birds on 26 February 1983 from stations 1 and 5 and 8 birds on 13 February 1984 from station 6.

Harlequin Duck numbers totalled 350 birds (8% of all diving ducks). The species was present in every season; nonbreeding summer birds make the migration dates difficult to determine (Figure 40). Abundance was highest in winter (47% of the total) and autumn (36%) when a peak of 28 birds was recorded on 5 December 1982. Numbers were lowest in spring (3% of the total). The probability of seeing a Harlequin Duck on the estuary was high (frequency of

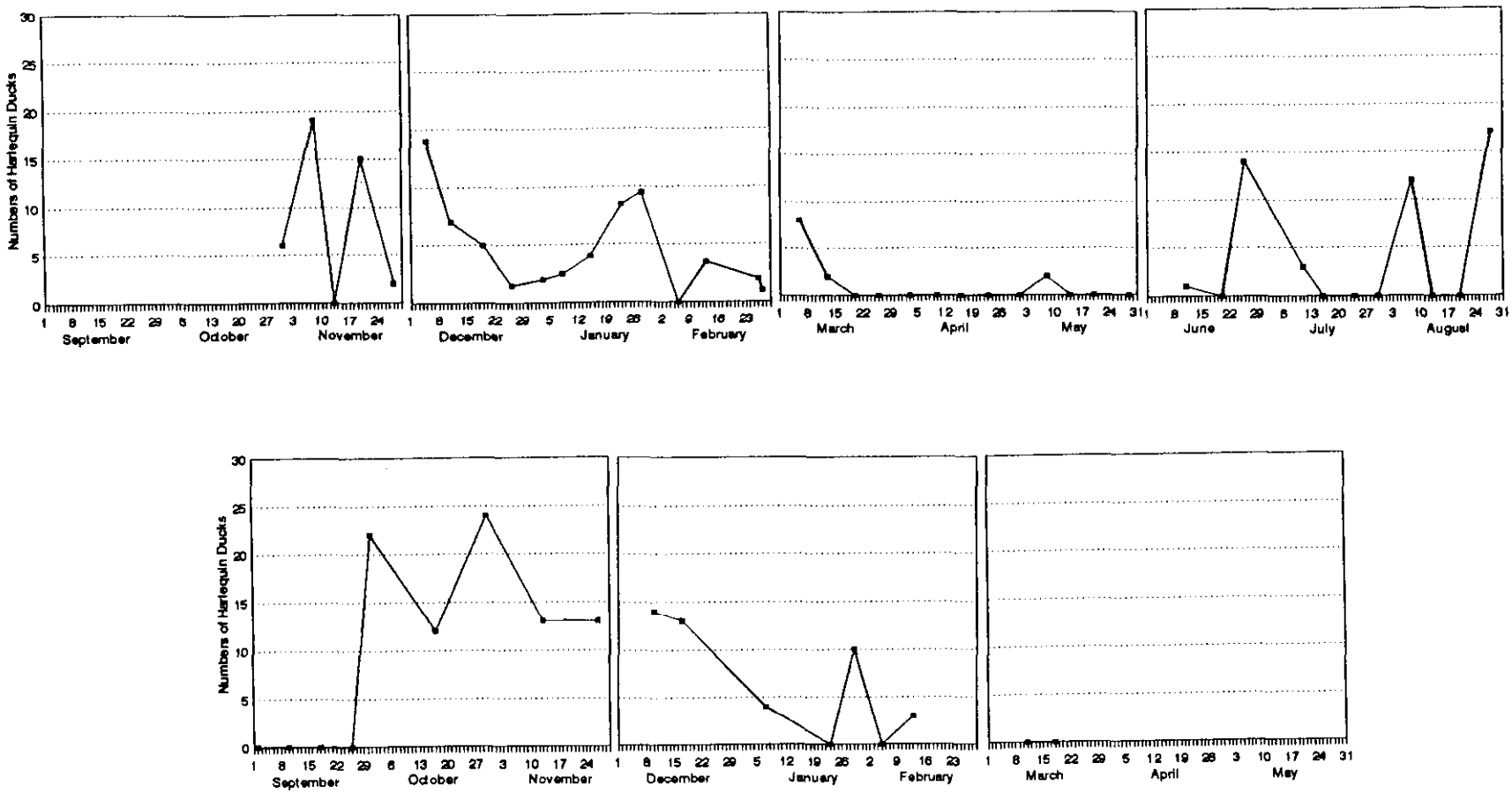


Figure 40. *Seasonal fluctuations in numbers of Harlequin Ducks on the Campbell River estuary, October 1982 to March 1984.*

occurrence from 45% to 92%) except during March, April, May and September (frequency of occurrence from 0% to 20%). This cycle is similar to that noted on the Cluxewe River estuary to the north but it contrasts with patterns noted in the area from Comox Harbour to Deep Bay and on the Englishman River estuary to the south where numbers typically peaked in April around the time of the herring spawn (Dawe et al. 1995, Campbell et al. 1990, Dawe et al. 1994). Almost all of the birds seen were in or near deep water east of Tyee Spit (stations 1 to 6) with a preference for the area near the base of the Spit (40% of the total throughout the study were recorded at station 1; Figure 41). Only 4 birds were seen on the inner estuary; 3 of them were near the main channel of the Campbell River (station 14) on 28 August 1983.

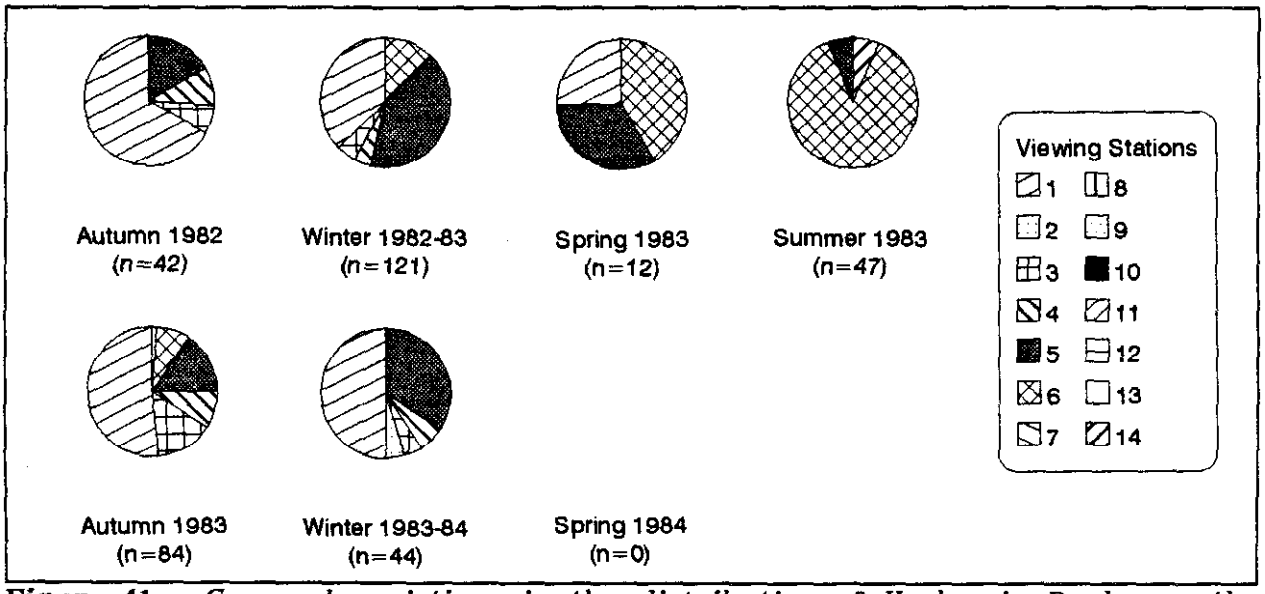


Figure 41. *Seasonal variations in the distribution of Harlequin Ducks on the Campbell River estuary, autumn 1982 to spring 1984.*

A total of 112 scaups of 2 species were reported during the study period including 15% that were identified simply as scaup species. The Greater Scaup was the most numerous with a total of 67 birds counted (60% of all scaups). The earliest arrival was 1 October (1983) and the latest departure was 18 March (1984). Most of the Greater Scaups were counted in one 8-day period: 20 birds on 13 November 1982 and 26 birds on 20 November 1982. The area used most was the shallow waters west of the base of Tyee Spit (near station 8).

Over the study period we saw a total of 28 Lesser Scaups (25% of all scaups): 22 birds on 27 November 1983, 6 birds on 17 December 1983. Most were seen from the centre of the inner estuary (10 birds near station 13); the remainder were seen in or near the shallow waters at the base of Tyee Spit (station 9).

We recorded a total of 58 Oldsquaw. The earliest arrival was on 13 November 1983 when the peak of 9 birds occurred; the latest departure was 13 March (1983). This species was most abundant in winter (64%). All of the birds were seen around Tyee Spit on the deep-water side (stations 1 to 6 and near the tip (stations 6 and 7).

Two Canvasbacks were observed on 23 January 1984 near the deep water east of the base of Tyee Spit (station 1).

Raptors: The total number of raptors seen was 231 (approximately 0.5% of all birds) recorded as 7 species. The Bald Eagle was by far the most abundant. The other species (together amounting to less than 5% of the raptor total) were the Turkey Vulture, Red-tailed Hawk, Merlin, Osprey, Cooper's Hawk, and Northern Goshawk as well as 2 birds recorded as hawk species.

A total of 219 Bald Eagles was tallied (95% of raptors). The species was present in every season with a frequency of occurrence that ranged from 44% to 100% over the study period. Numbers reached their highest levels in summer (over 50% of the total was seen in the 1 summer of the study) when the peak of 62 birds was seen on 11 June 1983. The Bald Eagle was observed from every viewing station; however, it was more numerous in the inner part of the estuary, west of Tyee Spit (stations 7 to 14; Figure 42).

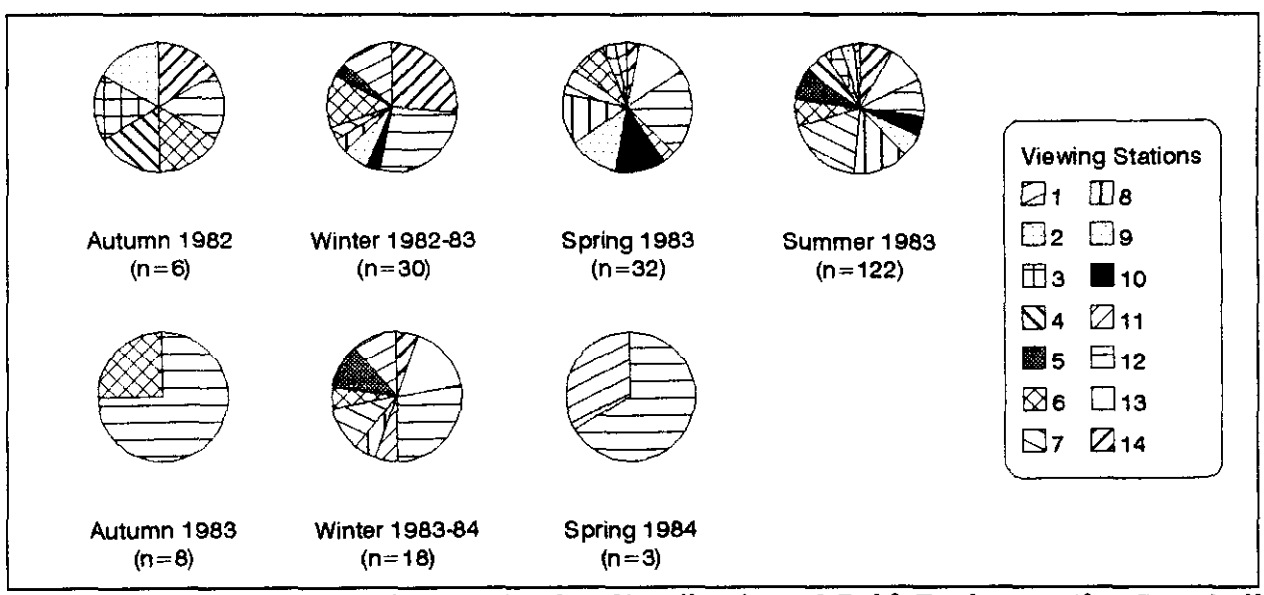


Figure 42. *Seasonal variations in the distribution of Bald Eagles on the Campbell River estuary, autumn 1982 to spring 1984.*

The Turkey Vulture was the second most abundant raptor with a total 3 birds seen on 28 August 1983 from near the dry land log-sort (station 12).

The Red-tailed Hawk was recorded on 2 occasions: one individual on 28 January 1983 and one bird on 17 October 1983. Both were observed near the tidal stream that adjoins Nunns Creek (station 10).

The Merlin was also reported twice: one bird on 26 June 1983 seen near the tidal stream that adjoins Nunns Creek (station 10), and one bird on 17 October 1983 observed from near the dry land log-sort (station 12).

There was 1 record for the Osprey; a lone bird was seen 30 July 1983 from the centre of the estuary (station 13).

We saw 1 Cooper's Hawk on 27 February 1983 near Nunns Creek (station 11).

There was 1 Northern Goshawk seen on 5 December 1982 near the main stream of the Campbell River (station 14).

Shorebirds: In total, 371 shorebirds (< 1% of all birds) were seen on the Campbell River estuary. This total represents at least 13 species of which the Killdeer, Western Sandpiper and Surfbird were the most abundant. The other species, present in equivalent numbers, together accounted for 7% of the shorebird total: Common Snipe, Dunlin, Semipalmated Plover, Short-billed Dowitcher, Lesser Golden-Plover, Whimbrel, Greater Yellowlegs, Wandering Tattler, Spotted Sandpiper and Least Sandpiper. The total also includes 15% of all shorebirds recorded simply as shorebird species.

The largest numbers of shorebirds were seen in summer (43% of the total) even though only 1 summer was surveyed. Seasonal fluctuations in numbers of all shorebirds combined are shown in Figure 43. One peak on 8 May 1983 represents the arrival of 62 Western Sandpipers. The only other period when shorebird numbers rose above 20 was in August when the numbers of Western Sandpipers, Surfbirds and unidentified shorebirds were relatively high. Most shorebird use of the estuary was centred around the tip of Tyee Spit (especially station 6; 35% of all shorebirds were seen from there). The west side of Tyee Spit (stations 8 and 9) and the centre of the estuary (station 13) were also good places to spot shorebirds (Figure 44).

A total of 133 Killdeer was reported. Despite its proportionally low numbers much of the time, the species ranked as the most abundant shorebird (36% of all shorebirds) because its frequency of occurrence in every season was the highest (60% over the study period). Seasonal fluctuations in the numbers of Killdeer were minimal (Figure 43); abundance was highest in winter (37%) but a peak number of 14 was recorded on 31 October 1982 and another peak of 13 birds was reported on 8 August 1983. This plover was seen in many locations around the estuary; most of the birds we saw were using the area around the tip of Tyee Spit and to the west (stations 5 to 9; Figure 45).

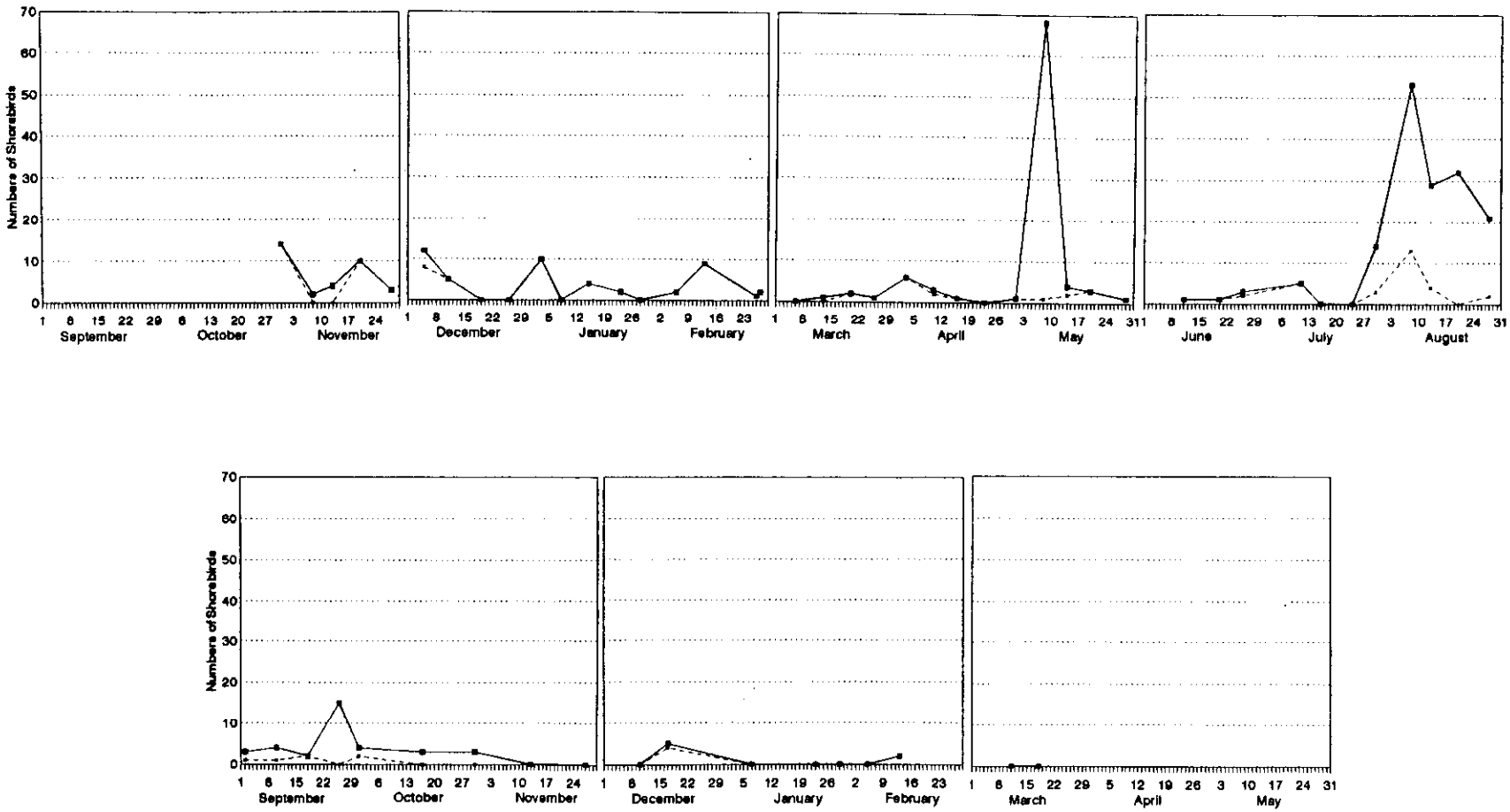


Figure 43. *Seasonal fluctuations in numbers of Killdeer (dashed line) and all shorebirds combined (solid line) on the Campbell River estuary, October 1982 to March 1984.*

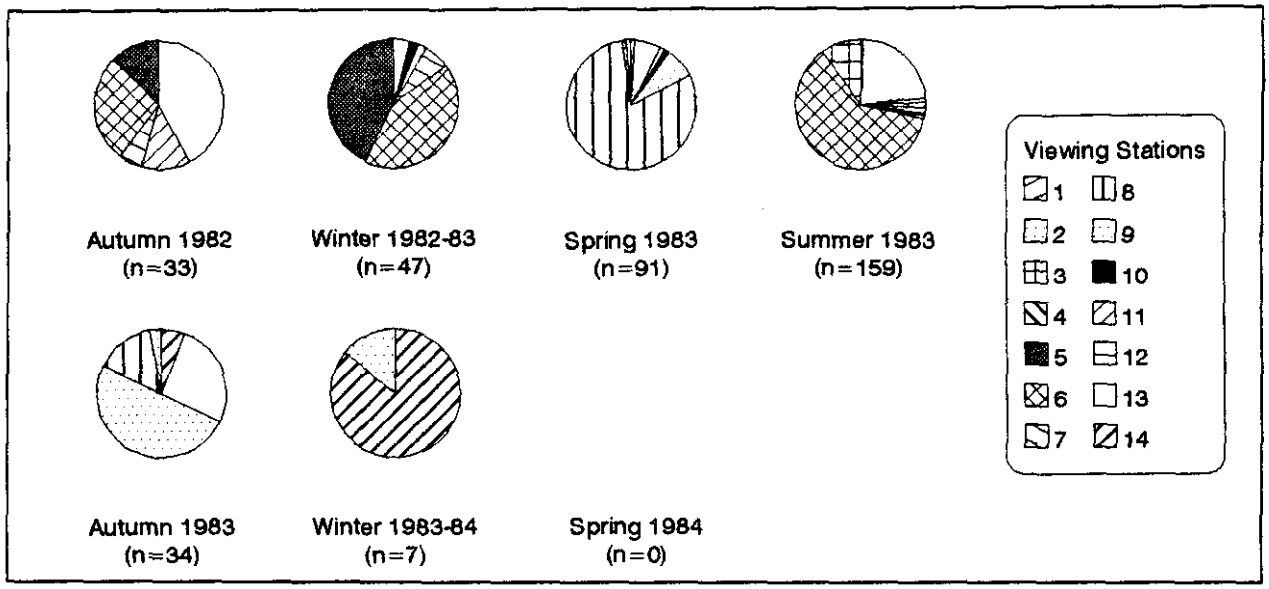


Figure 44. *Seasonal variations in the distribution of shorebirds on the Campbell River estuary, autumn 1982 to spring 1984.*

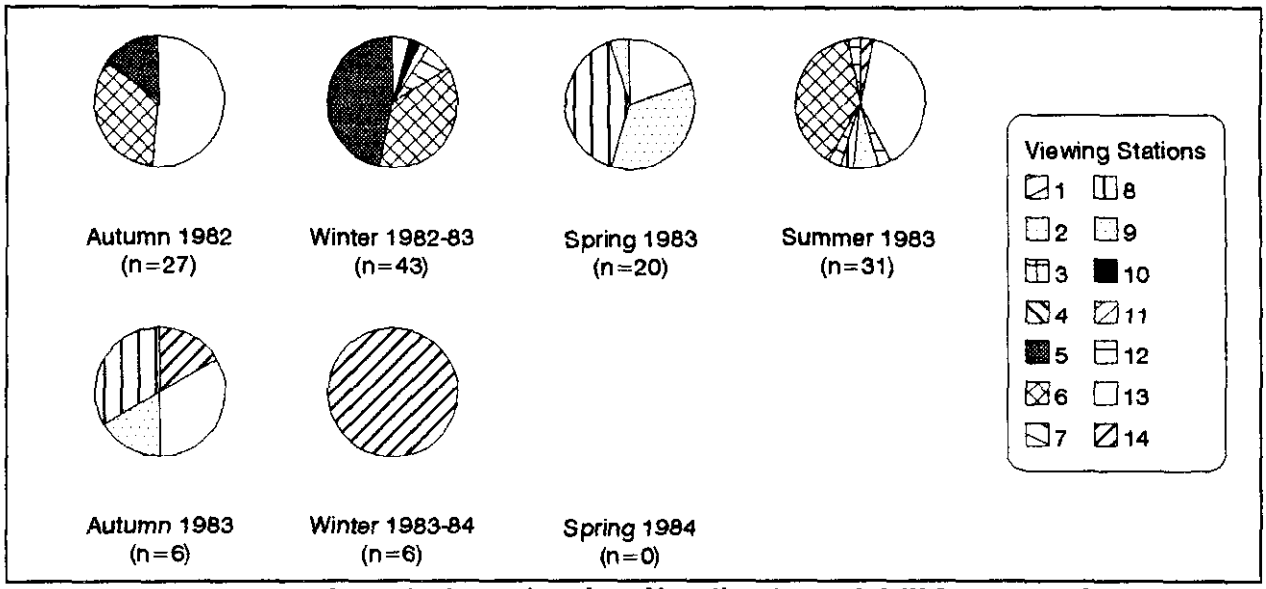


Figure 45. *Seasonal variations in the distribution of Killdeer on the Campbell River estuary, autumn 1982 to spring 1984.*

The total number of Western Sandpipers reported was 114 birds, ranking the species second in abundance among the shorebirds (32% of all shorebirds). Spring migration was marked by the appearance of 60 birds on 8 May 1983 visible from the west side of Tyee Spit (station 8) and 1 bird seen from each of station 6 and station 14 on the same day. The autumn migration was more dispersed: 11 birds on 30 July 1983, 25 birds on 13 August 1983, 15 Birds on 28 August 1983 and 1 bird on 10 September 1993. The major stopping points were near the tip of Tyee Spit (station 6) and near the centre of the estuary (station 13).

The Least Sandpiper was identified only once; a single bird was noted on 28 August 1983 near the tip of Tyee Spit.

The third most abundant shorebird was the Surfbird. A total of 40 were seen, all on 8 August 1993, near the tip of Tyee Spit (station 6, 20 birds), on the east side of the Spit (station 3, 15 birds) and near the centre of the estuary (station 13, 5 birds).

We saw a total of 6 Common Snipes, one bird on each of the following dates: 13 November 1982, 13 March 1983, 10 April 1983, 2 September 1983, 1 October 1983, 17 December 1983. They were seen near Nunns Creek and the adjacent tidal channels (stations 9, 10 and 11), from the centre of the estuary (station 13) and near the main channel of the Campbell River (station 14).

Five Dunlin were counted on 8 May 1983 from the west side of Tyee Spit (station 8).

Four Semipalmated Plovers were observed on 5 December 1982 near the tip of Tyee Spit (station 6). This is 1 of only a few wintering reports of this species in the Strait of Georgia (Campbell et al. 1990).

A total of 4 Short-billed Dowitchers were reported: 1 bird on 28 August 1983 near the dry land log-sort (station 12) and 3 birds on 17 October 1983 from the west side of Tyee Spit (station 8).

Two Lesser Golden-Plovers were seen on 28 August 1983 near Nunns Creek.

Two Whimbrels were seen on 10 September 1983 in the centre of the estuary (station 13).

The only record for the Greater Yellowlegs during the study was of a single bird seen on 1 October 1983 from Tyee Spit near the tidal marshes and flats west of the base of the Spit (station 9).

One Wandering Tattler was seen 2 September 1983 on the deep-water side of Tyee Spit near the base (station 2).

A single Spotted Sandpiper was observed on 26 June 1983 near the centre of the estuary (station 13).

Gulls and Terns: As a group, the gulls accounted for more than half the birds seen in every season; the total was 27,362 gulls (65% of all birds). Six species of gulls were recorded on the Campbell River estuary during the study. Of the gulls identified, the Glaucous-winged was by far the most abundant; Bonaparte's Gull, Mew Gull and Herring Gull were also present in large numbers at times. Other species noted were Ring-billed Gull and California Gull. Nine per cent of all gulls were reported simply as gull species. Although weekly fluctuations in the numbers of gulls were large, a seasonal pattern was evident (Figure 47). Numbers built up to the peak of 1,267 birds counted on 28 January 1983, mainly because many Herring Gulls joined the crowds of Glaucous-winged Gulls already present. In the winter of 1983-1984 this pattern was repeated with a lesser peak; 42% of all gulls were seen in the 2 winters. The locations where gulls were seen most are described for each species; some are shown in Figures 46, 48, 50 and 51.

We identified a total of 20,851 Glaucous-winged Gulls (76% of all gulls); over the study period this one species accounted for almost half (49%) of all birds seen. Described by Campbell et al. (1990) as *the* "sea gull" of the coast, the Glaucous-winged Gull was seen in every season; season fluctuations in numbers are shown in Figure 47 for comparison with the total numbers of all gulls. The two highest peaks occurred one year apart: 1001 birds seen on 6 February 1983 and 986 birds seen on 5 February 1984. The areas used were diverse (Figure 46) and they changed with the seasons; this gull used the inner estuary most (stations 7 to 14). The only exception was during the summer when gull activity was centred generally around the tip and outer, eastern edge of Tyee Spit; feeding opportunities for the birds are created by recreational fishing.

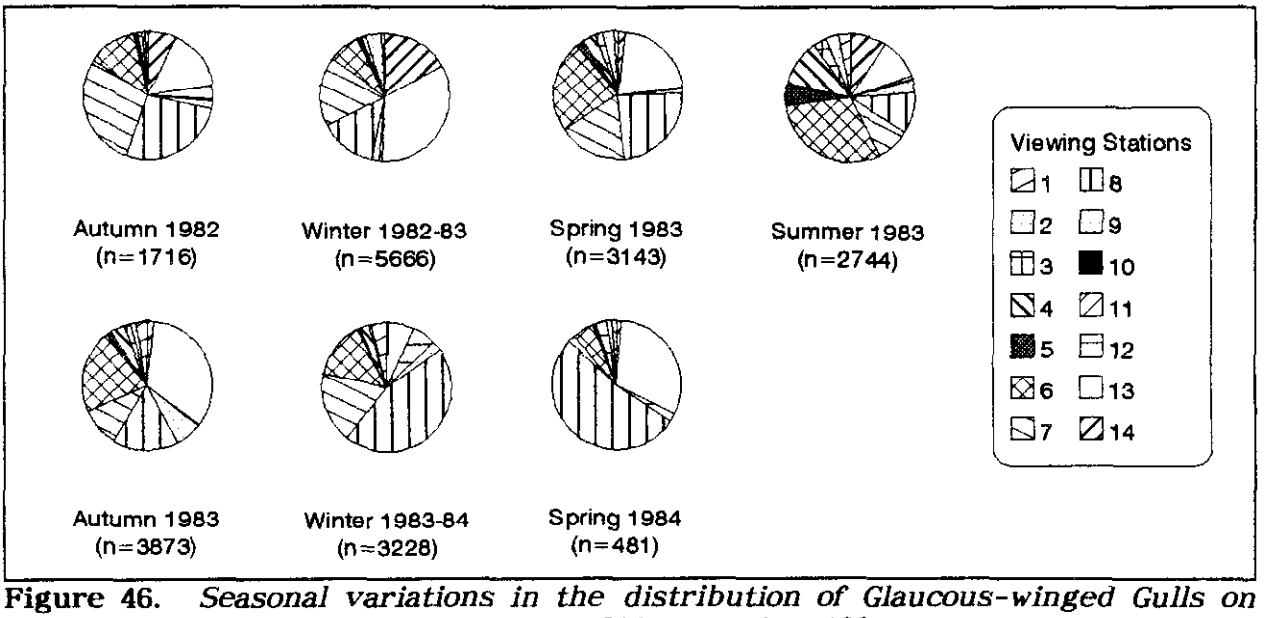


Figure 46. *Seasonal variations in the distribution of Glaucous-winged Gulls on the Campbell River estuary, autumn 1982 to spring 1984.*

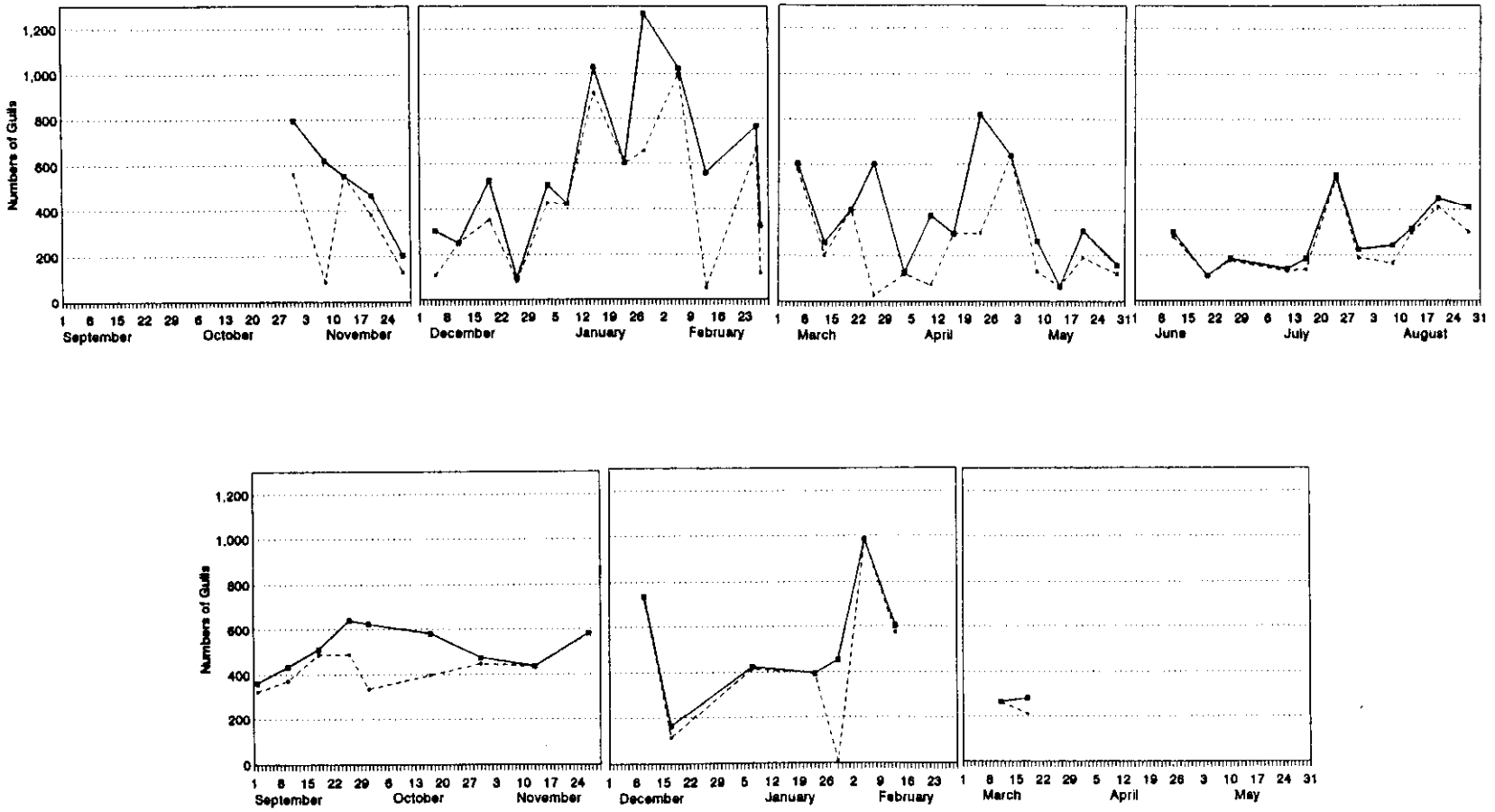


Figure 47. *Seasonal fluctuations in numbers of Glaucous-winged Gulls (dashed line) and all gulls combined (solid line) on the Campbell River estuary, October 1982 to March 1984.*

Of the identified gulls, the Bonaparte's Gull ranked second in abundance, with a total of 1332 birds (19% of all gulls). The earliest arrival was on 23 April 1983 when the peak of 358 birds were seen. From the middle of May, the species was present almost continuously but numbers remained low (below 80 birds) until the autumn migration when a peak of 213 birds was observed on 1 October 1983. The latest departure was 30 October 1983 (Figure 49). During the migrations, Bonaparte's Gulls were seen mostly around the centre of the estuary, at the dry land log-sort and near the main stream of the river (stations 13, 12 and 14; Figure 48) but during the summer the area used most was near the tip of Tyee Spit.

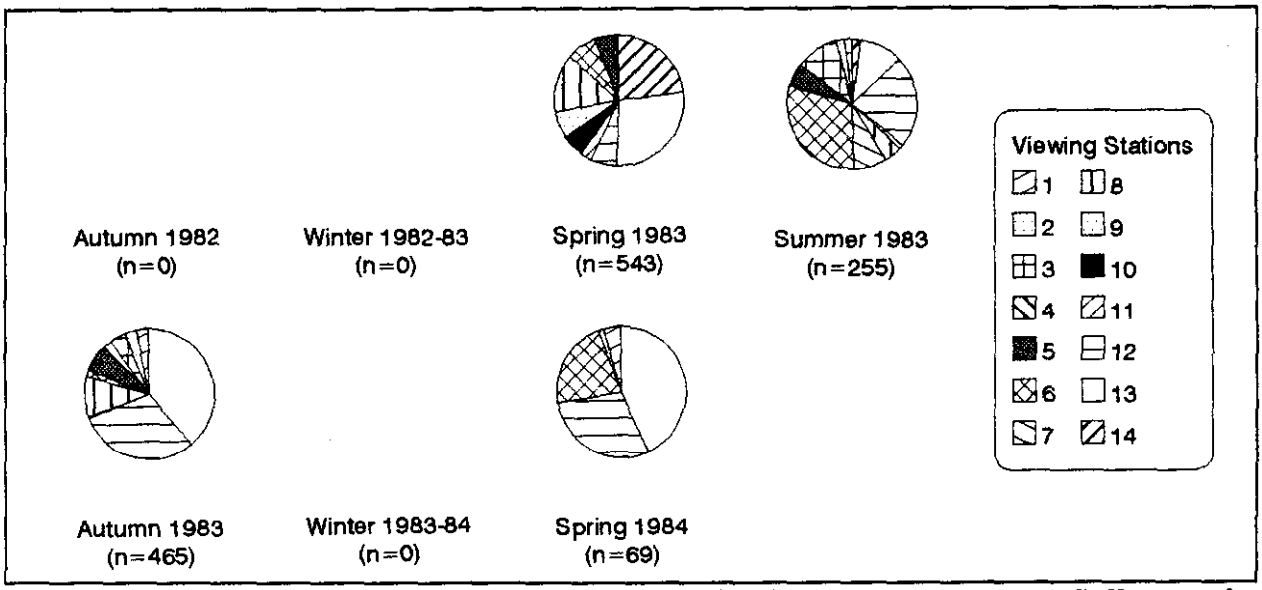


Figure 48. *Seasonal variations in the distribution of Bonaparte's Gulls on the Campbell River estuary, autumn 1982 to spring 1984.*

The third most abundant gull was the Mew Gull; a total of 1311 birds were tallied (5% of all gulls). The species was present in every season but in summer only 7 birds were seen. Numbers began to swell on 28 August 1983; during autumn migration the maximum number observed was 137 birds on 17 October 1983. Thereafter sightings were again sporadic until the beginning of the spring migration which was marked by the presence of 303 gulls on 10 April 1983 (Figure 49). The Mew Gull was seen most near the centre of the estuary and near the dry land log-sort (stations 13 and 12; Figure 50).

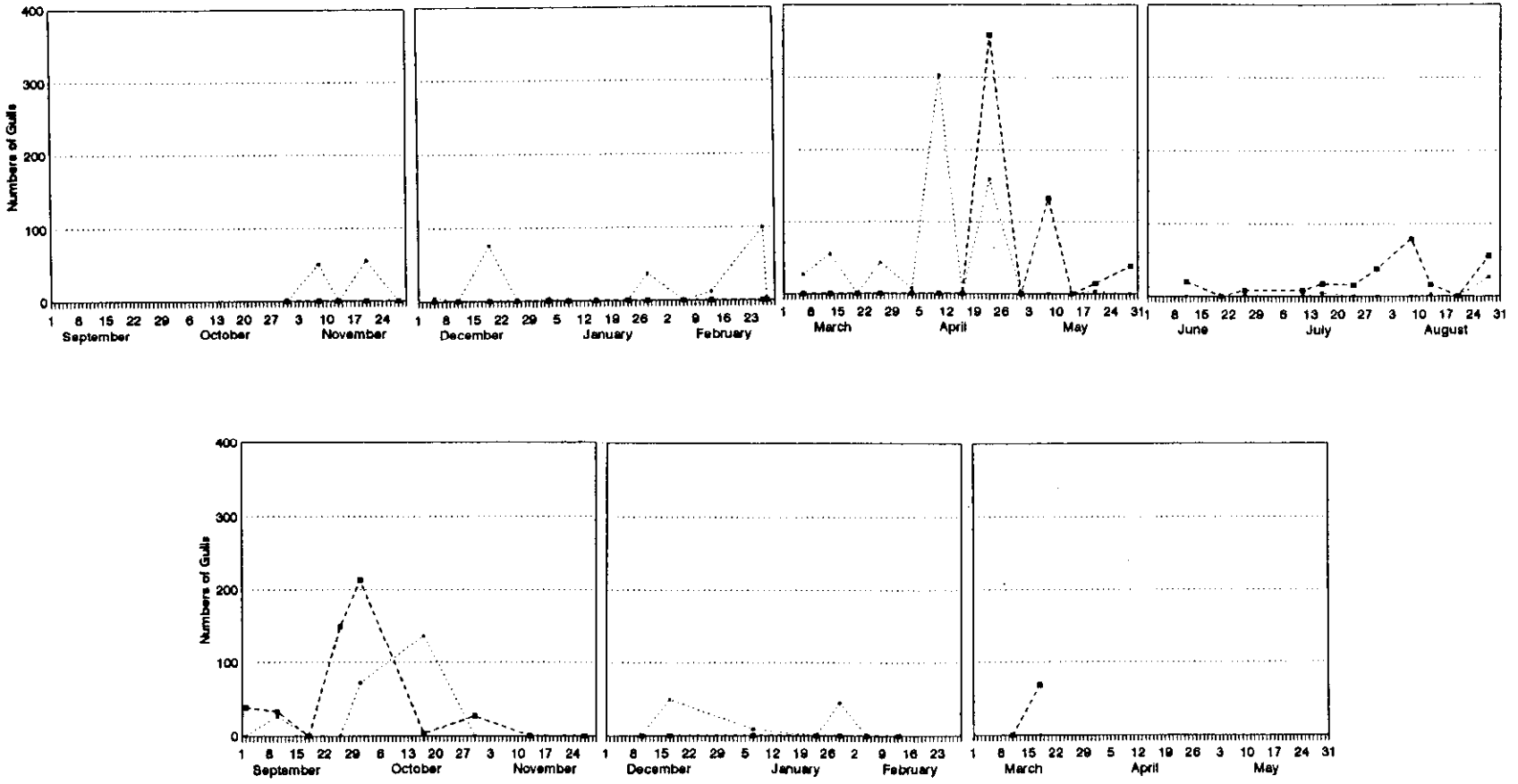


Figure 49. *Seasonal fluctuations in numbers of Bonaparte's Gulls (dashed line) and Mew Gulls (dotted line) on the Campbell River estuary, October 1982 to March 1984.*

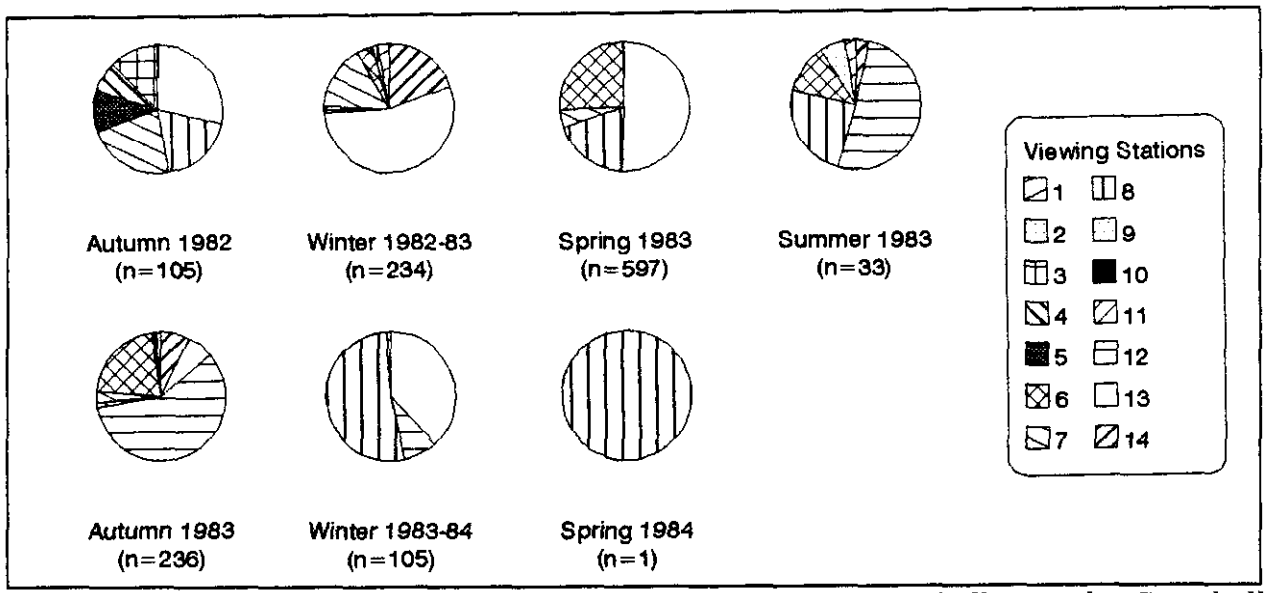


Figure 50. *Seasonal variations in the distribution of Mew Gulls on the Campbell River estuary, autumn 1982 to spring 1984.*

We saw a total of 979 Herring Gulls over the study period (4% of all gulls). They were present intermittently in all 4 seasons but the majority was counted in winter (84%); the peak of 421 birds was recorded on 28 January 1983. Most of the birds were seen near the centre of the estuary (station 13; Figure 51).

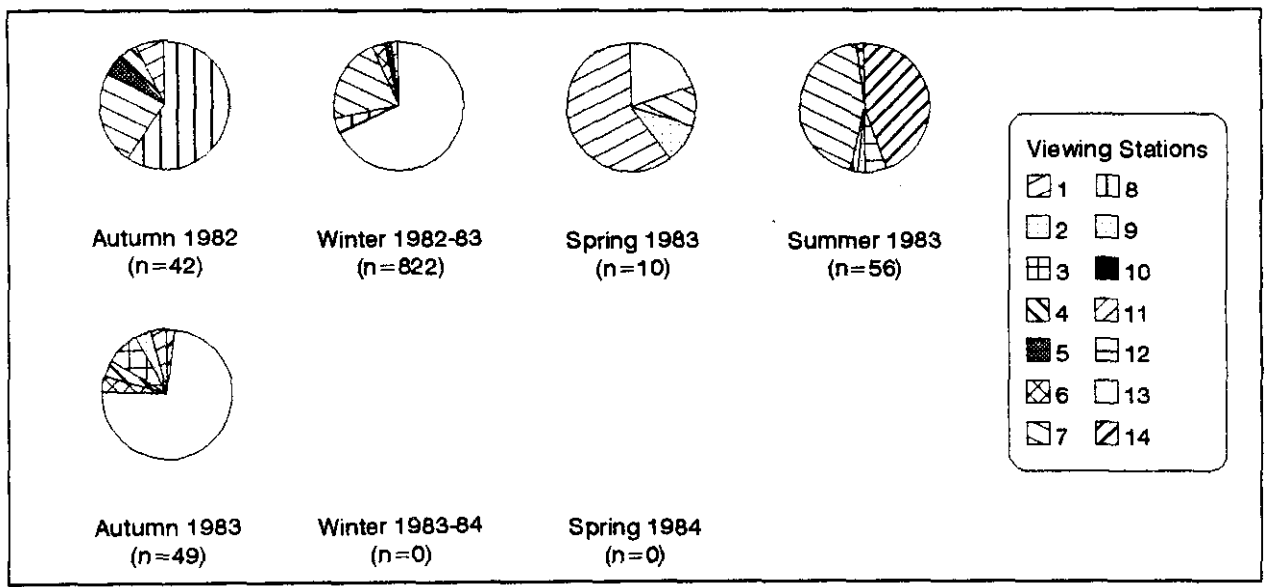


Figure 51. *Seasonal variations in the distribution of Herring Gulls on the Campbell River estuary, autumn 1982 to spring 1984.*

The number of Ring-billed Gulls counted was 25 in total: 2 birds on 15 January 1983 (station 7), 22 birds on 6 February 1983 near the centre of the estuary (station 13) and 1 bird 30 July 1983 (station 4).

One California Gull was reported on 10 April 1983 near the centre of the estuary (station 13).

The gull family was represented by 2 other species during the study period: the Black-legged Kittiwake and the Caspian Tern. The Black-legged Kittiwake is another species that might have been incorrectly identified at times by a surveys team (Kay Conway pers. comm.) for on the days when large numbers of Kittiwakes were reported, Mew Gulls were not mentioned. Therefore these records should be used with caution. The peak number of Black-legged Kittiwakes was 233 birds reported on 31 October 1982. This observation coincides with a report of 250 birds at the Campbell River estuary on the same date (Campbell et al. 1990). Kittiwakes were reported five more times during the surveys: 73 birds on 28 November 1982, 12 birds on 26 December 1982, 5 birds on 23 January 1983, 1 bird on 24 July 1983, 9 birds on 20 August 1983.

Two Caspian Terns were seen on 16 July 1983 near the tip of Tyee Spit (station 6).

Alcids: Three species of alcids were recorded. The areas that they preferred are shown combined in Figure 52. The most numerous alcid was the Marbled Murrelet with a total of 40 birds counted: 2 birds on 23 April 1983, 18 birds on 11 June 1983, 17 birds 2 weeks later on 26 June 1983, 1 bird on 30 July 1983, 1 bird on 30 October 1983 and 1 Bird on 8 November 1982. All of them were seen in or near deep water from the east side of Tyee Spit (stations 3, 1, 6, 2 and 5).

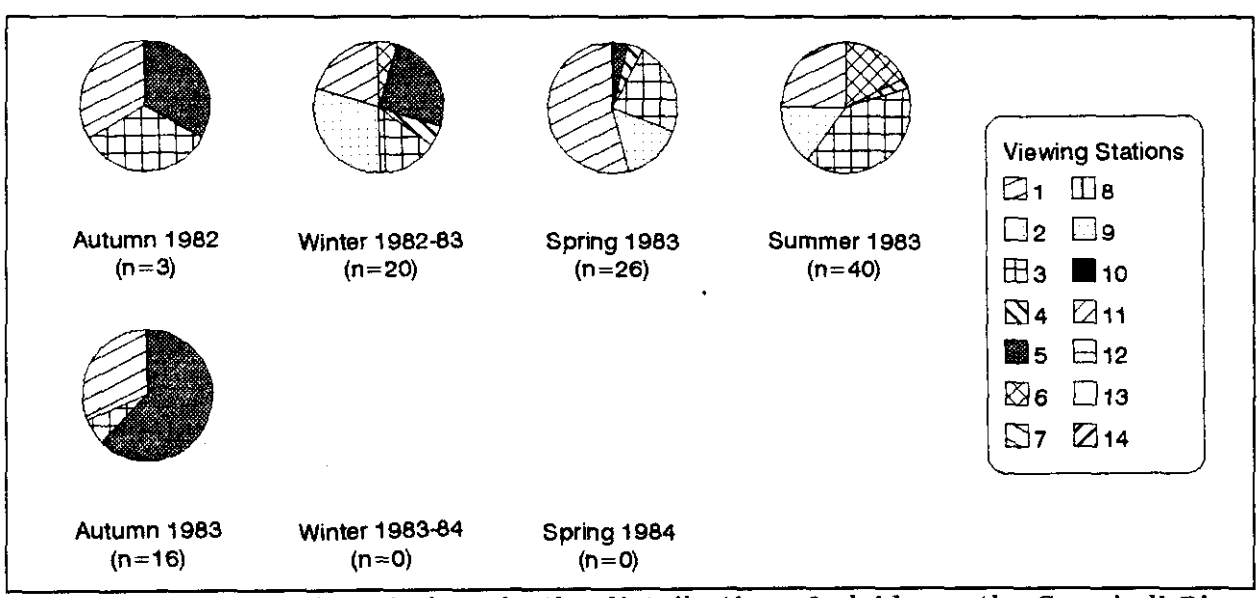


Figure 52. *Seasonal variations in the distribution of alcids on the Campbell River estuary, autumn 1982 to spring 1984.*

The total number of Pigeon Guillemots seen was 36; they occurred in all 4 seasons. Numbers were highest in winter and spring when a peak of 7 birds was recorded on 5 December 1982 and the same number again on 23 April 1983. Like the other alcids, the Pigeon Guillemot was only seen in or near deep water east of Tyee Spit (stations 1 to 6).

We saw a total of 29 Common Murres over 3 seasons: 1 bird on 13 February 1983, 5 birds on 26 February 1983, 8 birds on 23 April 1983, 15 birds on 17 October 1983. All were seen in or near deep water from the east side of Tyee Spit (stations 5 and 1).

Doves and Pigeons: A total of 327 Rock Doves was seen. This resident was observed in equivalent numbers in each season. The peak was 34 birds on 28 August 1983. They were seen most near stations 7 to 10, stations 1 to 4 and near station 13. The species did not appear near stations 5 and 6 near the tip of Tyee Spit, nor were they ever seen on the inner estuary near stations 11, 12 and 14 during this study.

Six Band-tailed Pigeons were seen on 26 June 1983 dispersed around Nunns Creek, the dry land log-sort, and the centre of the estuary (stations 10, 11, 12 and 13).

Hummingbirds: We recorded 2 species of hummingbirds with a combined total of 25 birds that included 2 individuals reported simply as hummingbird species.

The Rufous Hummingbird accounted for 21 of the birds. The earliest arrival was 10 April (1983) and the latest departure 16 July (1983). Most of the birds were seen in spring near Nunns Creek and the adjacent tidal channels from the base of Tyee Spit to the dry land log-sort (stations 9 to 12). However, the in summer one bird was seen at each of stations 8 and 14.

We saw 2 Annas Hummingbirds: 1 bird on 1 May 1983 and 1 bird on 26 June 1983. Both were using the area near Nunns Creek and the adjacent tidal stream (stations 10 and 11).

Kingfishers: We saw a total of 61 Belted Kingfishers. This species is a resident; it was present in low numbers through every season. The peak number was 7 birds recorded on 11 June 1983; nevertheless the chance of seeing at least one bird was always high (frequency of occurrence of 58% over the study period). Habitat use by the kingfisher appeared to be distributed almost evenly throughout the inner estuary (stations 7 to 14); the deepwater side of Tyee Spit was only used infrequently by this bird.

Woodpeckers: Four species in this group were recorded with a combined total of 25 birds.

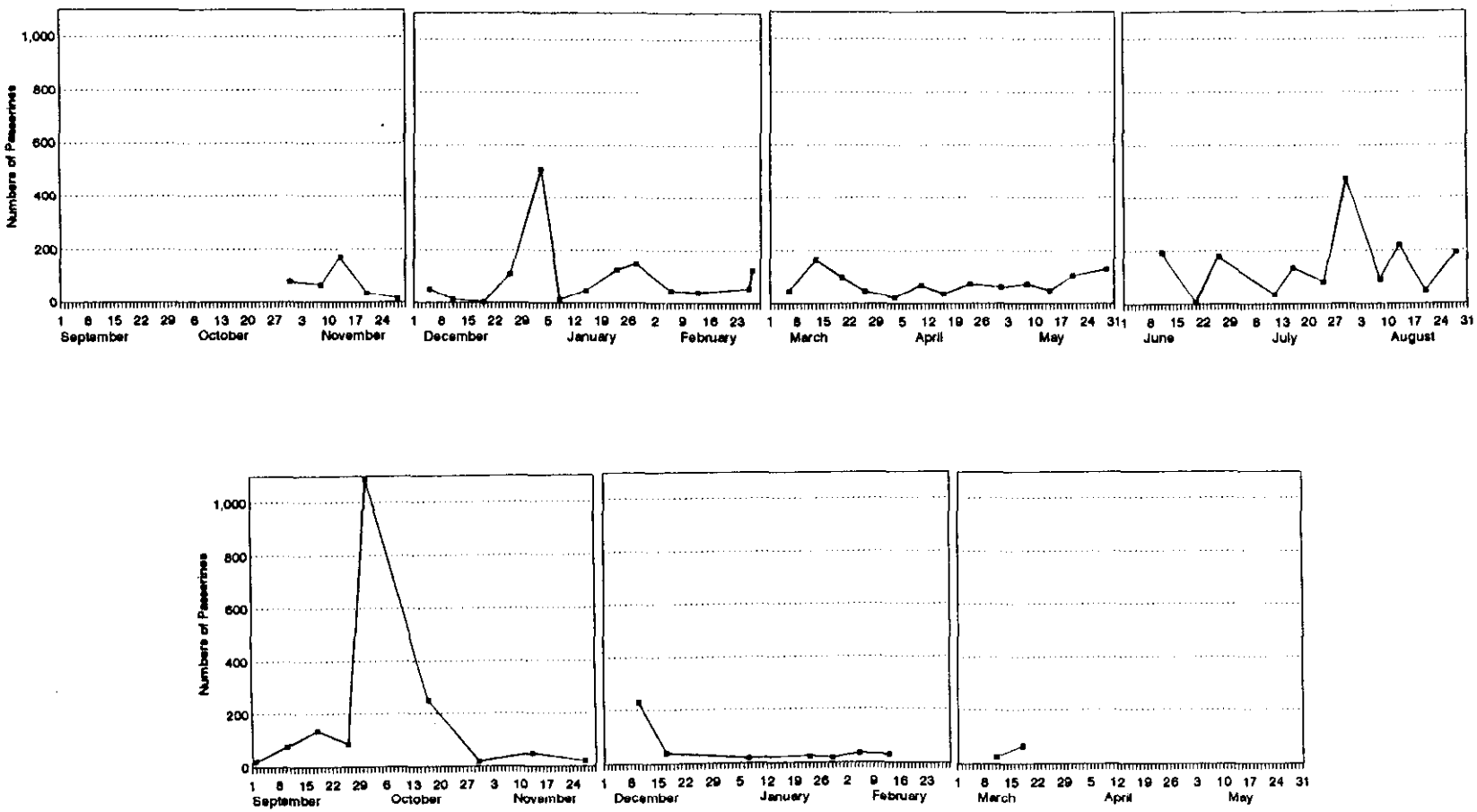


Figure 53. *Seasonal fluctuations in numbers of passerines on the Campbell River estuary, October 1982 to March 1984.*

The Northern Flicker, with a total of 17 birds, accounted for most of the woodpeckers seen (68%). This species was noted in all seasons but numbers were always low; the maximum number of birds seen in a day was 2. The Northern Flicker appeared at every location surveyed from the base of Tyee Spit west (stations 9 to 14) in equivalent numbers; the species was not observed on the Spit (stations 1 to 8).

Four Pileated Woodpeckers were tallied on 26 June 1983: 3 birds were seen near the dry land log-sort (station 12) and a fourth was observed near the centre of the estuary (station 13).

We saw the Downy Woodpecker twice: 1 bird on 20 November 1982 (station 11) and 1 bird on 26 June 1983 (station 13).

The Hairy Woodpecker was also seen a total of 2 times: 1 bird on 20 November 1982 (station 10) and 1 bird on 28 August 1983 (station 12).

Passerines: Although portions of the forested sections of the Campbell River estuary were surveyed, the focus of the study was primarily to determine waterbird use, so passerine information is limited. Furthermore, only one summer was surveyed whereas all other seasons were partly surveyed twice; passerine counts were affected by this, more so than some of the other groups. Therefore over the course of the study, recorded numbers of songbirds were lower than would otherwise be expected, with many of the family groups scantily represented or missing entirely from the species list (especially the flycatchers, wrens, vireos and warblers). Further studies would help to complete the picture of passerine use in this area.

Nevertheless, 14 families, 47 species and 6557 birds were tallied (16% of all the birds seen during the study) which ranks the passerines just ahead of the waterfowl and second only to gulls in abundance. The numbers of passerines fluctuated with the seasons, as shown in Figure 53. The peak of 1089 birds occurred on 1 October 1983; 82% of this peak was European Starlings but there were a large number of other passerine species logged on that day as well. If the totals seen in each season are adjusted to account for the different numbers of surveys, then the abundance in autumn was the highest with summer and spring ranking close behind. Only in winter was there significantly lower numbers of passerines present (20% of the passerine birds actually seen). The area used most by passerines was around station 13; however, there were large variations over the seasons as shown in Figure 54.

Flycatchers: Two species of flycatchers were recorded with a combined total of 5 birds. We saw 3 Pacific-slope Flycatchers near the dry land log-sort (station 12): 2 birds on 8 May 1983 (station 12) and 1 bird on 26 June 1983.

Two Willow Flycatchers were observed on 26 June 1983, one near Nunns Creek and another from the adjoining tidal stream (stations 10 and 11).

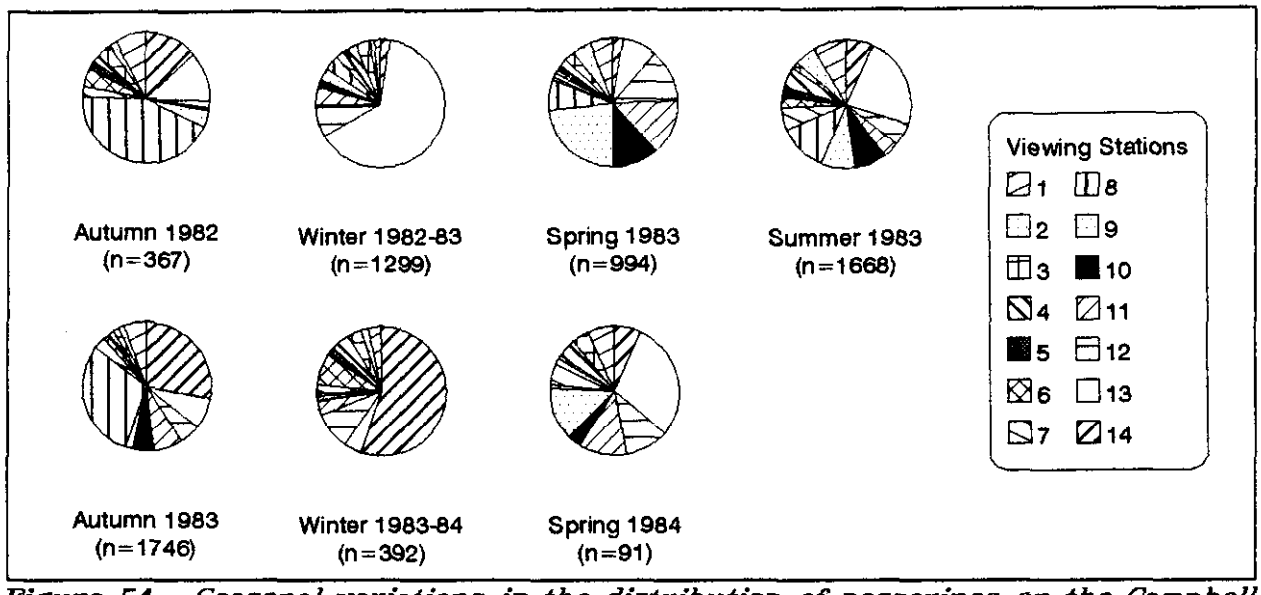


Figure 54. *Seasonal variations in the distribution of passerines on the Campbell River estuary, autumn 1982 to spring 1984.*

Swallows: The swallows were represented by 4 species during the survey with a combined total of 296 birds. The Barn Swallow was the most abundant followed at a distance by the Violet-green Swallow, Cliff Swallow and Tree Swallow, which were seen in numbers equivalent to one another.

The total number of Barn Swallows counted was 212 birds (72% of all swallows). The earliest arrival was 23 April 1983 and the latest departure was on 18 September 1983 when the peak of 54 birds was recorded. During their presence, the frequency of occurrence was 65%. Unlike the other 3 species of swallows, the Barn Swallow was seen mostly in the summer (55%) and autumn (25%). Its preferred location was near the base of Tyee Spit (approximately 65% of the birds occurred in an area centred on stations 9 and 1, which are only separated by the width of the Spit); stations 14, 13 and 12 also had significant numbers recorded.

The second most abundant swallow was the Violet-green; 30 birds were recorded (13% of all swallows). The earliest arrival was 16 April 1983 and the latest departure was 8 August 1983 when 8 birds were seen from station 9 during migration. The frequency of occurrence was 53% during its stay on the estuary; the abundance was highest in summer (67%). The Violet-green Swallow was seen most from the west side of Tyee Spit (stations 6 to 9).

A total of 28 Cliff Swallows was observed (9% of all swallows) near the centre of the estuary (station 13): 25 birds on 1 May 1983 and 3 birds on 28 August 1983.

Twenty six Tree Swallows were observed (9% of all swallows), all on 29 May 1983. They occurred at 3 disparate locations (stations 12, 9 and 2) throughout the estuary.

Crows and Jays: Three species of corvids with a combined total of 2438 birds accounted for 37% of the passerine total, ranking them as the second most abundant passerine family. The Northwestern Crow accounted for almost all of the corvids (2371 crows; 97% of the corvid total). Crows were present in every season with the highest numbers recorded during the winter (47%); the peak was 433 crows seen on 3 January 1983. The probability of seeing a crow on the estuary ranged from 84% to 100% during the study period. Every part of the estuary survey received regular use by this species, however, recorded numbers were highest near the centre of the estuary (station 13; 44%).

A total of 63 Common Ravens was seen. Sightings were irregular throughout the seasons; there were many periods where no ravens were recorded. Most of the ravens were observed near the base of Tyee Spit, near the dry land log-sort or near the tidal stream adjoining Nunns Creek (stations 1, 12 and 10).

Four Steller's Jays were observed in total: 1 bird on 13 August 1983, 2 birds on 28 August 1983 and 1 bird on 1 October 1983. All were observed in the area from the base of Tyee Spit to the dry land log-sort (stations 12, 11 and 9).

Chickadees: The total of Chestnut-backed Chickadees observed over the study period was 14 birds: 4 birds on 26 February 1983, 1 bird on 10 April 1983, 7 birds 26 June 1983, 2 birds on 28 August 1983. The location they favoured was near the dry land log-sort (station 12), but they were also seen from stations 9 and 11.

Bushtits: We saw 2 Bushtits on 8 May 1983 near Nunns Creek (station 11).

Creepers: One Brown Creeper was seen on 30 July 1983 near the dry land log-sort (station 12).

Wrens: Two species of wrens amounted to a total 5 birds seen. A sixth wren was counted but the species of it remained unidentified. We saw 3 Winter Wrens: 1 bird on 3 January 1983, 1 bird on 26 February 1983, and 1 bird on 13 March 1983. One bird was seen from each of stations 10, 11 and 12.

The Bewick's Wren was seen twice: 1 bird on 8 May 1983 from station 10 and 1 bird on 30 July 1983 from station 12.

Kinglets and Thrushes: In numbers, the muscicapids ranked third among the passerine families; they were represented by 6 species with a cumulative total of 491 birds (7% of all passerines).

The American Robin was the most abundant member of the group (54%). Records from throughout the study period totalled 264 robins. Highest numbers were seen in spring (55% of all robins) when the peak of 104 birds occurred on 13 March 1983 near Nunns Creek; the seasonal total for winter ranked lowest (4%). The American Robin used the areas around Nunns Creek, the adjoining tidal stream and near the dry land log-sort (stations 11, 10 and 12; Figure 55).

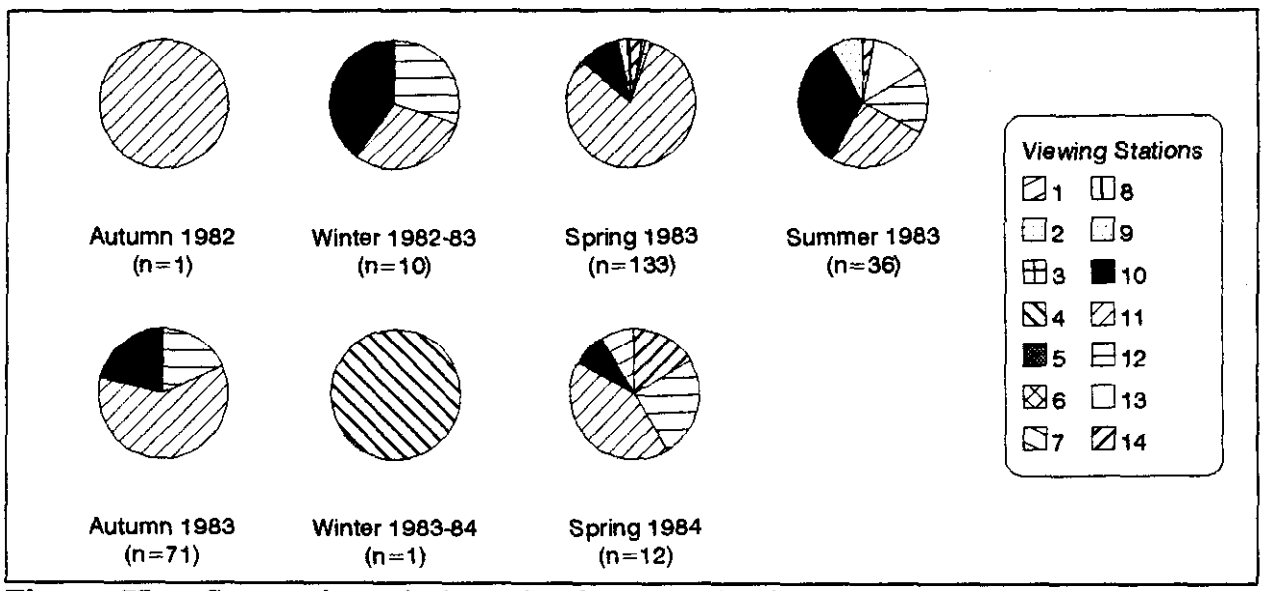


Figure 55. *Seasonal variations in the distributions of American Robins on the Campbell River estuary, autumn 1982 to spring 1984.*

The Golden-crowned Kinglet was the second most abundant muscicapid, with a total of 208 birds seen. Two hundred of the birds were recorded on a single day, 10 December 1983, near the main channel of the Campbell River (station 14). The other sightings (all from station 11) were: 1 bird on 5 December 1982, 3 birds on 13 February 1983 and 4 birds on 28 August 1983.

We saw 4 Ruby-crowned Kinglets: 1 bird on 15 January 1983 (station 9), 2 birds on 30 July 1983 (station 12) and 1 bird on 17 December 1983 (station 14). Although the species is known to breed on Vancouver Island (Campbell et al. In prep.), it was not reported from the study area during the breeding season.

We recorded a total of 13 Swainson's Thrushes on 26 June 1983. They occurred near every station of the estuary west of Tyee Spit except station 13.

One Hermit Thrush was recorded on 15 February 1983 near the dry land log-sort (station 12).

The Varied Thrush was also included in the study; a single bird on 17 October 1983 was recorded near Nunns Creek (station 11).

Waxwings: The Cedar Waxwing, with a total of 14 birds, was the only species reported: 4 birds on 26 June 1983, 5 birds on 30 July 1983, and 5 birds on 1 October 1983. The birds used the areas near Nunns Creek most (station 11, 9 birds); stations 10 and 13 was also used.

Shrikes: We saw 1 Northern Shrike on 1 October 1982, viewed from the south west side of Tyee Spit.

Starlings: The gregarious European Starling was the most abundant passerine species with 2679 birds tallied (41% of the passerine total). Flocks of starlings could be seen at any time of the year on the Campbell River estuary, however, the numbers recorded fluctuated with the seasons. Total counts were highest in autumn (48%) and summer (37%); lowest in winter and spring. A peak of 889 birds was recorded on 1 October 1983. Starlings were seen from every location surveyed but their distribution was not uniform; they used the base of Tyee Spit most (especially station 8, 29%). The centre of the estuary also reported heavy use; (more than 400 birds from each of stations 13 and 14 over the study period).

Wood Warblers, Sparrows and Blackbirds: The emberizids are a large and diverse group that ranked fourth in abundance among passerine families with a total of 459 birds counted (26% of all passerines). Four species of warblers, 1 species of tanager, 8 species of sparrows and 4 species of blackbirds were all recorded over the study. The sparrows were by far the most abundant of the sub-groups in this family.

Warblers: The most abundant species within this group was the Yellow Warbler with a total of 11 birds seen: 3 birds on 8 May 1983, 1 bird on 11 June 1983 and the peak of 7 birds on 26 June 1983. All were observed at stations from the base of Tyee Spit west to the dry land log-sort (stations 9, 10, 11 and 12).

Seven Yellow-rumped Warblers were recorded: 1 bird on 3 April 1983 (station 10), 1 bird on 26 June 1983 (station 12), 1 bird on 28 August 1983 (station 12) and 4 birds on 1 October 1983 (stations 13 and 14).

We recorded 6 Common Yellowthroats in total: 1 bird on 8 May 1983, 3 birds on 6 June 1983 and 2 birds on 30 July 1983. They were seen in the areas around Nunns Creek (stations 10, 11 and 9).

The only Orange-crowned Warbler observed in this study occurred on 26 June 1983 near the dry land log-sort (station 12).

Tanagers: The Western Tanager was recorded twice: 1 bird on 26 June 1983 (station 12) and 1 bird on 18 September 1983 (station 13).

Sparrows: The Dark-eyed Junco was the most abundant sparrow with a total of 116 birds seen. The earliest arrival was 13 November 1983 and the latest departure was 23 April 1983. Most juncos occurred in winter (89%) but even in that season the frequency of occurrence was often low (from 15% to 71%); a peak of 32 birds was recorded on 6 February 1983. Most of the birds were seen near the tip of Tyee Spit (station 6) or near the dry land log-sort station 12, Figure 56).

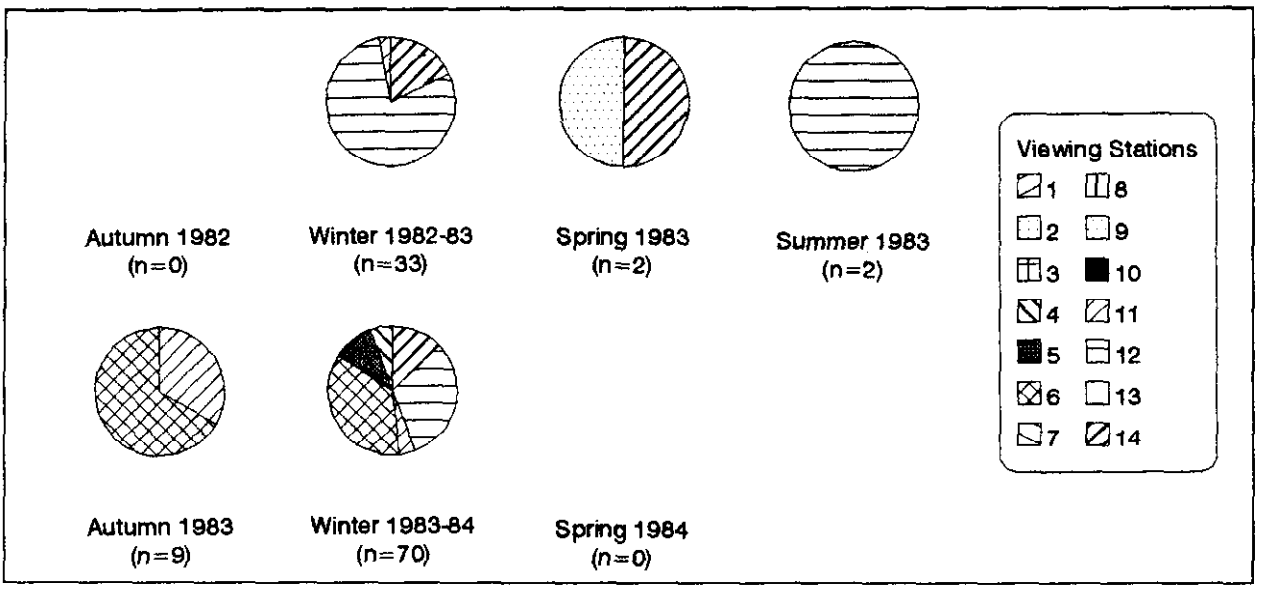


Figure 56. *Seasonal variations in the distribution of Dark-eyed Juncos on the Campbell River estuary, autumn 1982 to spring 1984.*

The Song Sparrow, with a total of 80 birds, was the second most abundant sparrow observed over the study period. This ubiquitous resident was seen throughout the period surveyed; seasonal totals did not fluctuate significantly. A peak number of 9 birds was seen on 1 October 1983. The Song Sparrow was seen at every station except 1, 3 and 5; use of the area from the base of Tyee Spit to the dry land log-sort was the highest (68% from stations 9 to 12 combined).

The third most abundant sparrow was the Fox Sparrow with a total of 32 birds recorded. Although this species is a resident on the estuary, the numbers seen varied; half of the birds were seen in the single summer surveyed. A peak of 8 birds was seen on 18 March 1984. The areas preferred by this species were similar to the those of the Song Sparrow (stations 9 to 12); the major difference was that the Fox Sparrow made significant use of the tip of Tyee Spit (station 6).

Eighteen Rufous-sided Towhees were tallied over the study period. They were seen in all 4 seasons; the majority (10 birds) were recorded in autumn. The areas frequented most were from the base of Tyee Spit to Nunns Creek (78% from stations 9 to 11).

We saw a total of 15 Savannah Sparrows. The spring migration was marked by 7 birds on 23 April 1983 and 1 bird on 8 May 1983; the records of the autumn migration were 1 bird on 28 August 1983 and 6 birds on 1 October 1983. While on the estuary, the birds occurred at disparate locations (stations 14, 9, 4, 3, and 7).

A total of 6 White-crowned Sparrows were recorded: 2 birds on 23 April 1983 (stations 7 and 9), 1 bird on 8 May 1983 (station 1), 1 bird on 20 May 1983 (station 7), 1 bird on 26 June 1983 (station 12) and 1 bird on 19 December 1983 (station 9).

Three Golden-crowned Sparrows were observed on 1 October 1983: 1 bird was seen from station 7 on Tyee Spit and 2 birds were noted from station 11 near Nunns Creek.

The Snow Bunting was also recorded on the estuary; 2 birds were noted on the 31 October 1982 west of the base of Tyee Spit (station 9).

Blackbirds: The most abundant bird of this group was the Red-winged Blackbird with a total of 113 individuals seen. The species was present in all 4 seasons but most of the birds occurred in spring (52%) and summer (35%). The latest departure in autumn was 10 birds seen on 1 October (1983) and the earliest arrival was 26 February (1983) when 3 blackbirds was recorded. The frequency of occurrence ranged from 8% in winter to 77% in spring. Most Red-winged Blackbirds were seen in the area from the tidal stream near Nunns Creek to Tyee Spit (75% from stations 10, 9 and 8 combined).

We saw a total of 43 Brewer's Blackbirds: 2 birds on 26 June 1983 near the outside tip of Tyee Spit (station 5), 40 birds on 28 August 1983 seen from the east side of Tyee Spit (station 2) and 1 bird on the same date near the dry land log-sort (station 12).

Two records of the Yellow-headed Blackbird were made during the study: 1 bird on 20 May 1983 (station 10) and 1 bird on 29 May 1983 (station 12). This is a rare species on Vancouver Island (Campbell et al. 1990).

A single Brown-headed Cowbird was observed on 1 October 1983 near the main stream of the Campbell River (station 14).

Finches: Six species of finches were recorded over the study period with a combined total of 139 birds.

The Pine Siskin was the most abundant of the finches with a total of 63 birds tallied in 7 records: 20 birds on 5 December 1982, 12 birds on 26 February 1983, 4 birds on 30 July 1983, 5 birds on 28 August 1983, 3 birds on 1 October 1983, 9 birds on 17 October 1983 and 10 birds on 17 December 1983. Described as nomadic in fall and winter and an irruptive species by Ehrlich (1988), the Pine Siskin can be unpredictably observed at any time of year. Although the species sometimes forms huge flocks, none were reported over the study period. Pine Siskins were only seen from stations 10 to 14; most of them occurred near Nunns Creek (56%, station 11).

The House Finch, with a total of 27 birds seen, ranked second in abundance among the finches. Like the Pine Siskin, the House Finch was seen erratically in all 4 seasons of this study: 3 birds on 1 October 1983, 5 birds on 26 December 1982, 2 birds on 18 March 1984, 16 birds on 26 June 1983 and 1 bird on 28 August 1983. The locations where they were seen were diverse: station 2; stations 10, 11 and 12; and stations 6 and 7.

We saw a total of 23 American Goldfinches. The earliest arrival was 8 May 1983; from that date until the 28 August the frequency of occurrence was 53%. The peak number of 7 birds was seen 30 July 1983. Outside of this period, there was only one report; a single goldfinch was seen on 1 October 1983 from Tyee Spit. All other records were from Tyee Spit west to the dry land log-sort (stations 9 to 12).

Six records of the Purple Finch totalled 20 birds. The earliest arrival was 10 April 1983. A group of 7 were seen on 20 May 1983 near the tip of Tyee Spit (station 2). A peak of 8 birds was seen on 26 June 1983 dispersed around the Nunns Creek area (stations 9 to 12). The latest departure was 1 October 1983.

We saw a total of 3 Red Crossbills: 1 bird on 8 November 1982 (station 12) and 2 birds on 28 August 1983 (station 14). Sightings of crossbills are variable (Ehrlich 1988) because these birds depend heavily on coniferous cone crop levels.

Three Evening Grosbeaks were recorded on 1 October 1983 near the dry land log-sort (station 12).

Weaver Finches: The House Sparrow is an introduced species that is known to be well established in the vicinity. However the total of 7 birds seen on 14 May 1983 from station 9 and station 5 indicates that it is not well established on the estuary.

Conclusions

The Campbell River estuary is important to a large number of resident and migratory birds. However, bird use of the estuary is lower than would be expected from such a large and diverse system. This is highlighted by a comparison with some other systems of equivalent size or smaller on the east coast of Vancouver Island, such as the Quatse River estuary, the Cluxewe River estuary, the Trent River estuary, the estuaries on Fanny Bay and the Englishman River estuary (Dawe et al. 1995, Dawe et al. 1994, Brooks et al. 1994, Dawe et al. in preparation, Dawe et al. 1994).

For example, the total number of Canada Geese counted on the Campbell river estuary during the 1982 to 1984 study period was less than in any of the other studies listed; the Campbell River total was about half the number of the next lowest count, a one year study on the Trent River estuary, and it was approximately 1% of the number counted in a 1 year study on the Quatse estuary.

The total number of dabbling ducks using the Campbell River estuary was also relatively low, approximately 2% of the total of birds counted in the study. On the five other estuaries, dabbling ducks account for 10% to 26% of all birds. However, the number of diving ducks using the Campbell River estuary was

average in comparison with the other estuaries. Thus some factor other than direct disturbance, such as the depth of the water or the characteristics of the substrate, might explain the relatively low numbers of dabbling ducks on the Campbell River estuary.

Although there are many shorebird species using the area, the total number of shorebirds seen on the Campbell River estuary accounted for less than 1% of all the birds counted during the study. In the five other studies sited, the proportion of shorebirds ranged from 4% to 15% of the total bird count in each case. It is likely that the amount of development on Tyee Spit and in the other habitats important to shorebirds has limited this bird group's use of these areas.

In contrast with waterfowl and shorebirds, the number of gulls as a proportion of the total number of birds counted was at least 20 percentage points higher than in any of the five other estuaries studied.

The bird surveys were started shortly after the construction of several islands in the estuary and significant bird use of these new islands was observed during this study. Unfortunately, the data do not allow any conclusion about whether bird use was increasing over time. However, the results suggest that if suitable habitat becomes available, bird use quickly follows.

Bird Use and Recreational Activities

In the past, the estuary has been altered by industrial and commercial uses. Today, high levels of commercial and recreational activity that occur on and around the estuary may also be a limiting factor in the amount of bird use that occurs. For example, float plane activity is high and small boats are a common disturbance at times. The exact effect of those activities on the birds has not been studied.

Future Studies

As this survey was primarily concerned with waterbirds, another survey specifically to document songbird use of the Campbell River estuary would round out the picture of migratory and resident bird use of the area.

Also, since the constructed islands now seem to be contributing significant primary production to the estuary (Dawe, unpublished data), another study would be useful to determine whether bird use of the estuary has increased over the years.

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Appendices

Appendix I. *List of surveyors and their initials, survey dates, and sundry remarks for the Campbell River estuary.*

Surveyors	Initials
Doreen Andrews	DA
Heather Asplin	HA
Kay Conway (coordinator)	KC
Jack Conway	JC
T. Glennie	TGl
Ted Granger	TGr
Rod Catchpole	RC
Cody Larsen	CL
Frances McPherson	FM
Julie O'Sullivan	JO
Mike O'Sullivan	MO
Lyn Paterson	LP
Stan Paterson	SP
Barbara Phipps	BaP
Bill Phipps	BiP
Howard Telosky	HT
Mary Vogel	MV
Myrtle Wilkes	MW
Ralph Wilkes	RW

In the raw data there are numerous remarks, asterisks and other symbols that refer to gender and maturity of birds. These have not been transcribed because their records are not consistent over the study period; surveyors differed in their interest and experience regarding this kind of data. Remarks regarding bird use of artificial islands are summarized in the results on page 9.

Remarks - Winter 1982-1983	
8 November 1982 SP, LP	missed stations 10 and 11 inadvertently
20 November 1982 HT, DA, HA, FM, KC	1 seal at stop #12
5 December 1982 SP, LP	9 scaup on grassy island
19 December 1982 HT, TGl	done in conjunction with Xmas count day after 3 days of bad storms
28 January 1983 LP, SP	station 12 could not be visited - log sorting in progress
27 February 1983 LP, SP	Trumpeter Swan-20 :17 mature, 3 immature

Remarks - Spring 1983	
March 6 1983 RW, MW	no land birds
May 29 1983 MW, RW	female Yellow-headed Blackbird noteworthy Station 12 The eagles are building a new nest.

Remarks - Summer 1983	
11 June 1983 LP, SP	1 female Mallard: 8 chicks
16 July 1983 SP	I am certain of this identification.(re: Caspian Tern)
30 July 1983 HT, RK	bird activity low

Remarks - Autumn 1983	
10 September 1983 LP	not certain of identification of white fronted goose
1 October 1983 RC, HT	all Bonaparte's Gulls in fall plumage
17 October 1983 LP, SP	not certain of identification (re: 9 Blue-winged Teal)
13 November 1983 MW, RW	heavy rain, much flooding
27 November 1983 BaP, BiP	tourists all gone, Westmin on strike; maybe this accounts for the increase (in bird use)

Remarks - Spring 1984	
23 January 1994 BiP	man walking on booms (station 12)
11 March 1984 MW, RW	much boat activity disturbing birds

Appendix II. *Campbell River estuary bird check-list.*

Species Code	Species Name	Scientific Name
RTLO	Red-throated Loon	*Gavia stellata*
PALO	Pacific Loon	*Gavia pacifica*
COLO	Common Loon	*Gavia immer*
YBLO	Yellow-billed Loon	*Gavia adamsii*
HOGR	Horned Grebe	*Podiceps auritus*
RNGR	Red-necked Grebe	*Podiceps grisegena*
EAGR	Eared Grebe	*Podiceps nigricollis*
WEGR	Western Grebe	*Aechmophorus occidentalis*
DCCO	Double-crested Cormorant	*Phalacrocorax auritus*
PECO	Pelagic Cormorant	*Phalacrocorax pelagicus*
GBHE	Great Blue Heron	*Ardea herodias*
TRUS	Trumpeter Swan	*Cygnus buccinator*
MUSW	Mute Swan	*Cygnus olor*
GWFG	Greater White-fronted Goose	*Anser albifrons*
SNGO	Snow Goose	*Chen caerulescens*
BRAN	Brant	*Branta bernicla*
CAGO	Canada Goose	*Branta canadensis*
WODU	Wood Duck	*Aix sponsa*
GWTE	Green-winged Teal	*Anas crecca*
MALL	Mallard	*Anas platyrhyncos*
NOPI	Northern Pintail	*Anas acuta*
BWTE	Blue-winged Teal	*Anas discors*
CITE	Cinnamon Teal	*Anas cyanoptera*
NOSL	Northern Shoveler	*Anas clypeata*
AMWI	American Wigeon	*Anas americana*
CANV	Canvasback	*Aythya valisineria*
GRSC	Greater Scaup	*Aythya marila*
LESC	Lesser Scaup	*Aythya affinis*
HADU	Harlequin Duck	*Histrionicus histrionicus*
OLDS	Oldsquaw	*Clangula hyemalis*
BLSC	Black Scoter	*Melanitta nigra*
SUSC	Surf Scoter	*Melanitta perspicillata*
WWSC	White-winged Scoter	*Melanitta fusca*
COGO	Common Goldeneye	*Bucephala clangula*
BAGO	Barrow's Goldeneye	*Bucephala islandica*
BUFF	Bufflehead	*Bucephala albeola*
HOME	Hooded Merganser	*Lophodytes cucullatus*
COME	Common Merganser	*Mergus merganser*
RBME	Red-breasted Merganser	*Mergus serrator*
TUVU	Turkey Vulture	*Cathartes aura*
OSPR	Osprey	*Pandion haliaetus*
BAEA	Bald Eagle	*Haliaeetus leucocephalus*
COHA	Cooper's Hawk	*Accipter cooperii*
NOGO	Northern Goshawk	*Accipiter gentilis*
RTHA	Red-tailed Hawk	*Buteo jamaicensis*
MERL	Merlin	*Falco columbarius*

Campbell River estuary bird check-list (Cont'd).

Species Code	Species Name	Scientific Name
LGPL	Lesser Golden-Plover	*Pluvialis dominica*
SEPL	Semipalmated Plover	*Charadrius semipalmatus*
KILL	Killdeer	*Charadrius vociferus*
GRYE	Greater Yellowlegs	*Tringa melanoleuca*
WATA	Wandering Tattler	*Heteroscelus incanus*
SPSA	Spotted Sandpiper	*Actitis macularia*
WHIM	Whimbrel	*Numenius phaeopus*
BLTU	Black Turnstone	*Arenaria melanocephala*
SURF	Surfbird	*Aphriza virgata*
WESA	Western Sandpiper	*Calidris mauri*
LESA	Least Sandpiper	*Calidris minutilla*
DUNL	Dunlin	*Calidris alpina*
SBDO	Short-billed Dowitcher	*Limnodromus griseus*
COSN	Common Snipe	*Gallinago gallinago*
BOGU	Bonaparte's Gull	*Larus philadelphia*
MEGU	Mew Gull	*Larus canus*
RBGU	Ring-billed Gull	*Larus delawarensis*
CAGU	California Gull	*Larus californicus*
HEGU	Herring Gull	*Larus argentatus*
GWGU	Glaucous-winged Gull	*Larus glaucescens*
BLKI	Black-legged Kittiwake	*Rissa tridactyla*
CATE	Caspian Tern	*Sterna caspia*
COMU	Common Murre	*Uria aalga*
PIGU	Pigeon Guillemot	*Cepphus columba*
MAMU	Marblet Murrelet	*Brachyrampus marmoratus*
RODO	Rock Dove	*Columba livia*
BTPI	Band-tailed Pigeon	*Columba fasciata*
ANHU	Anna's Hummingbird	*Calypte anna*
RUHU	Rufous Hummingbird	*Selasphorus rufous*
BEKI	Belted Kingfisher	*Ceryle alcyon*
DOWO	Downy Woodpecker	*Picoides pubescens*
HAWO	Hairy Woodpecker	*Picoides villosus*
NOFL	Northern Flicker	*Colaptes auratus*
PIWO	Pileated Woodpecker	*Dryocopus pileatus*
WIFL	Willow Flycatcher	*Empidonax traillii*
PSFL	Pacific-slope Flycatcher	*Empidonax difficilis*
TRSW	Tree Swallow	*Tachycineta bicolor*
VGSW	Violet-green Swallow	*Tachycinata thalassina*
CLSW	Cliff Swallow	*Hirundo pyrrhonota*
BASW	Barn Swallow	*Hirundo rustica*
STJA	Steller's Jay	*Cyanocitta stelleri*
NOCR	Northwestern Crow	*Corvus caurinus*
CORA	Common Raven	*Corvus corax*

Campbell River estuary bird check-list (Cont'd).

Species Code	Species Name	Scientific Name
CBCH	Chestnut-backed Chickadee	*Parus rufescens*
BUSH	Bushtit	*Psaltriparus minimus*
BRCR	Brown Creeper	*Certhia americana*
BEWR	Bewick's Wren	*Thryomanes bewickii*
WIWR	Winter Wren	*Troglodytes troglodytes*
GCKI	Golden-crowned Kinglet	*Regulus satrapa*
RCKI	Ruby-crowned Kinglet	*Regulus calendula*
SWTH	Swainson's Thrush	*Catharus ustulatus*
HETH	Hermit Thrush	*Catharus guttatus*
AMRO	American Robin	*Turdus migratorius*
VATH	Varied Thrush	*Ixoreus naevius*
CEWA	Cedar Waxwing	*Bombycilla cedrorum*
NOSH	Northern Shrike	*Lanius excubitor*
EUST	European Starling	*Sturnus vulgarus*
OCWA	Orange-crowned Warbler	*Vermivora celata*
YEWA	Yellow Warbler	*Dendroica petechia*
YRWA	Yellow-rumped Warbler	*Dendroica coronata*
COYE	Common Yellowthroat	*Geothlypis trichas*
WETA	Western Tanager	*Piranga ludoviciana*
RSTO	Rufous-sided Towhee	*Pipilo erythrophthalmus*
SAVS	Savannah Sparrow	*Passerculus sandwichensis*
FOSP	Fox Sparrow	*Passerella iliaca*
SOSP	Song Sparrow	*Melospiza melodia*
GCSP	Golden-crowned Sparrow	*Zonotrichia atricapilla*
WCSP	White-crowned Sparrow	*Zonotrichia leucophrys*
DEJU	Dark-eyed Junco	*Junco hyemalis*
SNBU	Snow Bunting	*Plectrophenax nivalis*
RWBL	Red-winged Blackbird	*Agelaius phoeniceus*
YHBL	Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*
BRBL	Brewer's Blackbird	*Euphagus cyanocephalus*
BHCO	Brown-headed Cowbird	*Molothrus ater*
PUFI	Purple Finch	*Carpodacus purpureus*
HOFI	House Finch	*Carpodacus mexicanus*
RECR	Red Crossbill	*Loxia curvirostra*
PISI	Pine Siskin	*Carduelis pinus*
AMGO	American Goldfinch	*Carduelis tristis*
EVGR	Evening Grosbeak	*Coccothraustes vespertinus*
HOSP	House Sparrow	*Passer domesticus*

Appendix III.

Campbell River estuary birds surveys: Seasonal bird numbers, 31 October 1982 through 18 March 1984.

Note: In this Appendix, the mean has been calculated as the total number of birds of species-x counted over the season, divided by the total number of counts where species-x occurred. Counts of zero have not been included in the total number of counts nor are they included as minimum values. Thus the last 5 columns in the Appendix summarize the species occurrence on the study area. For example, the probability of seeing a Great Blue Heron in summer on the Campbell River estuary is about 82%. If you see the species, you are likely to see an average of about 4 birds and more than 7 would be exceptional.

Campbell River Estuary All Habitat Report for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	4	15	23	3	6	51	23	3	10.2	8.6	100.0
LOON	0	0	0	2	0	2	2	2	2.0	-	20.0
PALO	0	10	0	0	0	10	10	10	10.0	-	20.0
COLO	4	5	23	1	6	39	23	1	7.8	8.7	100.0
#GRE	5	10	10	15	1	41	15	1	8.2	5.4	100.0
HOGR	0	5	0	6	0	11	6	5	5.5	0.7	40.0
RNGR	5	2	10	4	1	22	10	1	4.4	3.5	100.0
WEGR	0	3	0	5	0	8	5	3	4.0	1.4	40.0
#COR	31	34	24	24	23	136	34	23	27.2	5.0	100.0
CORM	24	0	0	0	23	47	24	23	23.5	0.7	40.0
DCCO	7	29	12	15	0	63	29	7	15.8	9.4	80.0
PECO	0	5	12	9	0	26	12	5	8.7	3.5	60.0
#HER	5	1	3	13	8	30	13	1	6.0	4.7	100.0
GBHE	5	1	3	13	8	30	13	1	6.0	4.7	100.0
#SWA	0	0	10	15	23	48	23	10	16.0	6.6	60.0
TRUS	0	0	10	15	23	48	23	10	16.0	6.6	60.0
#DAB	31	0	20	35	8	94	35	8	23.5	12.1	80.0
DABL	0	0	0	3	0	3	3	3	3.0	-	20.0
WODU	0	0	0	0	1	1	1	1	1.0	-	20.0
GWTE	4	0	0	0	0	4	4	4	4.0	-	20.0
MALL	27	0	16	28	7	78	28	7	19.5	9.9	80.0
AMWI	0	0	4	4	0	8	4	4	4.0	-	40.0
#DIV	62	113	125	144	97	541	144	62	108.2	31.0	100.0
SCAU	5	0	0	0	0	5	5	5	5.0	-	20.0
GRSC	0	0	20	26	0	46	26	20	23.0	4.2	40.0
HADU	6	19	0	15	2	42	19	2	10.5	7.9	80.0
SCOT	0	7	0	0	0	7	7	7	7.0	-	20.0
BLSC	0	3	0	0	0	3	3	3	3.0	-	20.0
SUSC	5	0	0	0	0	5	5	5	5.0	-	20.0
WWSC	0	19	0	0	0	19	19	19	19.0	-	20.0
COGO	0	0	5	20	0	25	20	5	12.5	10.6	40.0
BAGO	0	0	0	1	33	34	33	1	17.0	22.6	40.0
BUFF	46	52	83	70	60	311	83	46	62.2	14.7	100.0
COME	0	0	17	8	2	27	17	2	9.0	7.5	60.0
RBME	0	4	0	4	0	8	4	4	4.0	-	40.0
DUCK	0	9	0	0	0	9	9	9	9.0	-	20.0
#RAP	0	0	3	2	1	6	3	1	2.0	1.0	60.0
BAEA	0	0	3	2	1	6	3	1	2.0	1.0	60.0
#SHO	14	2	4	10	3	33	14	2	6.6	5.2	100.0
KILL	14	0	0	10	3	27	14	3	9.0	5.6	60.0
COSN	0	0	1	0	0	1	1	1	1.0	-	20.0
SHOR	0	2	3	0	0	5	3	2	2.5	0.7	40.0

Campbell River Estuary All Habitat Report for Autumn 1982 (continued)

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#GUL	796	621	555	470	203	2645	796	203	529.0	218.1	100.0
GULL	0	476	0	0	0	476	476	476	476.0	-	20.0
MEGU	0	50	0	55	0	105	55	50	52.5	3.5	40.0
HEGU	0	8	0	34	0	42	34	8	21.0	18.4	40.0
GWGU	563	87	555	381	130	1716	563	87	343.2	226.8	100.0
BLKI	233	0	0	0	73	306	233	73	153.0	113.1	40.0
#ALC	1	1	0	1	0	3	1	1	1.0	-	60.0
PIGU	1	0	0	1	0	2	1	1	1.0	-	40.0
MAMU	0	1	0	0	0	1	1	1	1.0	-	20.0
RODO	0	0	0	18	22	40	22	18	20.0	2.8	40.0
BEKI	1	0	3	1	1	6	3	1	1.5	1.0	80.0
#WOO	0	0	0	3	0	3	3	3	3.0	-	20.0
DOWO	0	0	0	1	0	1	1	1	1.0	-	20.0
HAWO	0	0	0	1	0	1	1	1	1.0	-	20.0
NOFL	0	0	0	1	0	1	1	1	1.0	-	20.0
#PAS	80	67	170	35	15	367	170	15	73.4	59.8	100.0
NOCR	63	63	38	21	6	191	63	6	38.2	25.3	100.0
CORA	3	0	0	4	0	7	4	3	3.5	0.7	40.0
AMRO	0	0	0	0	1	1	1	1	1.0	-	20.0
NOSH	1	0	0	0	0	1	1	1	1.0	-	20.0
EUST	9	2	125	3	7	146	125	2	29.2	53.6	100.0
RSTO	0	1	3	1	0	5	3	1	1.7	1.2	60.0
FOSP	1	0	0	0	0	1	1	1	1.0	-	20.0
SOSP	1	0	4	6	1	12	6	1	3.0	2.4	80.0
SNBU	2	0	0	0	0	2	2	2	2.0	-	20.0
RECR	0	1	0	0	0	1	1	1	1.0	-	20.0
#TOT	1030	864	950	789	411	4044	1030	411	808.8	240.1	100.0

Campbell River Estuary All Habitat Report for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	14	0	10	0	35	2	3	0	2	1	0	0	0	67	35	1	9.6	12.2	53.8
RTLO	2	0	0	0	9	0	0	0	0	0	0	0	0	11	9	2	5.5	4.9	15.4
PALO	2	0	4	0	17	1	0	0	0	0	0	0	0	24	17	1	6.0	7.4	30.8
COLO	10	0	6	0	9	1	3	0	2	1	0	0	0	32	10	1	4.6	3.8	53.8
#GRE	2	1	6	2	9	4	11	2	13	1	3	1	7	62	13	1	4.8	4.1	100.0
HOGR	2	1	6	2	6	0	3	0	12	0	0	1	2	35	12	1	3.9	3.6	69.2
RNGR	0	0	0	0	2	4	7	2	1	0	3	0	2	21	7	1	3.0	2.0	53.8
EAGR	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3.0	-	7.7
WEGR	0	0	0	0	1	0	1	0	0	1	0	0	0	3	1	1	1.0	-	23.1
#COR	27	10	14	2	23	2	15	6	34	1	14	3	15	166	34	1	12.8	10.4	100.0
CORM	0	0	0	0	0	0	0	3	0	0	0	0	0	3	3	3	3.0	-	7.7
DCCO	17	8	9	2	12	0	12	3	5	0	9	1	5	83	17	1	7.5	4.9	84.6
PECO	10	2	5	0	11	2	3	0	29	1	5	2	10	80	29	1	7.3	8.1	84.6
#HER	9	7	9	15	19	28	20	7	15	15	17	1	8	170	28	1	13.1	7.1	100.0
GBHE	9	7	9	15	19	28	20	7	15	15	17	1	8	170	28	1	13.1	7.1	100.0
#SWA	13	13	29	6	7	23	10	19	21	24	21	21	20	227	29	6	17.5	7.0	100.0
TRUS	13	13	28	6	7	23	10	19	21	24	21	21	20	226	28	6	17.4	6.9	100.0
MUSW	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#GEE	0	0	0	2	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
CAGO	0	0	0	2	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#DAB	0	16	2	41	6	40	22	12	33	20	18	16	2	228	41	2	19.0	13.3	92.3
GWTE	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
MALL	0	15	2	41	6	40	22	12	33	18	18	16	2	225	41	2	18.8	13.3	92.3
AMWI	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
#DIV	155	117	106	69	99	74	111	68	108	120	77	84	139	1327	155	68	102.1	27.2	100.0
SCAU	9	0	0	0	0	0	0	0	1	0	0	0	0	10	9	1	5.0	5.7	15.4
GRSC	0	5	2	0	0	0	0	0	0	0	0	0	0	7	5	2	3.5	2.1	15.4
HADU	28	14	10	3	4	5	8	17	19	0	7	4	2	121	28	2	10.1	7.9	92.3
OLDS	5	2	1	0	2	0	1	3	3	2	2	3	0	24	5	1	2.4	1.2	76.9
BLSC	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	2	2.0	-	7.7
SUSC	4	2	0	7	12	1	14	6	21	20	12	8	16	123	21	1	10.3	6.7	92.3
WWSC	0	0	2	0	0	1	0	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
COGO	17	24	9	0	13	8	24	2	9	18	13	8	10	155	24	2	12.9	6.7	92.3
BAGO	0	1	5	9	0	0	0	3	4	0	0	0	0	22	9	1	4.4	3.0	38.5
BUFF	71	51	54	26	48	37	53	28	44	33	34	42	61	582	71	26	44.8	13.3	100.0
MERG	0	0	0	4	0	0	0	0	0	0	0	0	0	4	4	4	4.0	-	7.7
HOME	0	3	0	0	0	3	0	2	0	0	0	0	0	8	3	2	2.7	0.6	23.1
COME	15	9	19	3	11	16	9	7	6	43	9	15	31	193	43	3	14.8	11.1	100.0
RBME	4	6	4	17	9	3	2	0	1	4	0	2	6	58	17	1	5.3	4.5	84.6
DUCK	2	0	0	0	0	0	0	0	0	0	0	0	13	15	13	2	7.5	7.8	15.4
#RAP	4	0	4	1	5	0	5	0	1	3	2	4	4	33	5	1	3.3	1.5	76.9
BAEA	3	0	4	1	5	0	5	0	0	3	2	4	3	30	5	1	3.3	1.3	69.2
COHA	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
NOGO	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
RTHA	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
#SHO	12	5	0	0	10	0	4	2	0	2	9	1	2	47	12	1	5.2	4.1	69.2
SEPL	4	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4.0	-	7.7
KILL	8	5	0	0	10	0	4	2	0	2	9	1	2	43	10	1	4.8	3.4	69.2

Campbell River Estuary All Habitat Report for Winter 1982-1983 (continued)

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#GUL	306	252	529	97	508	427	1030	605	1267	1026	563	766	327	7703	1267	97	592.5	343.8	100.0
GULL	120	0	0	0	0	0	0	0	151	3	500	0	166	940	500	3	188.0	185.8	38.5
MEGU	5	0	75	0	3	0	0	0	37	0	12	100	2	234	100	2	33.4	39.5	53.8
RBGU	0	0	0	0	0	0	2	0	0	22	0	0	0	24	22	2	12.0	14.1	15.4
HEGU	72	0	100	0	75	0	112	0	421	0	0	0	42	822	421	42	137.0	141.2	46.2
GWGU	109	252	354	85	430	427	916	600	658	1001	51	666	117	5666	1001	51	435.8	316.2	100.0
BLKI	0	0	0	12	0	0	0	5	0	0	0	0	0	17	12	5	8.5	4.9	15.4
#ALC	7	0	0	0	3	0	2	0	1	0	2	5	0	20	7	1	3.3	2.3	46.2
COMU	0	0	0	0	0	0	0	0	0	0	1	5	0	6	5	1	3.0	2.8	15.4
PIGU	7	0	0	0	3	0	2	0	1	0	1	0	0	14	7	1	2.8	2.5	38.5
RODO	31	1	0	0	1	0	12	4	1	0	11	7	30	98	31	1	10.9	11.9	69.2
BEKI	0	0	2	2	1	2	2	0	2	2	1	2	0	16	2	1	1.8	0.4	69.2
#WOO	1	0	0	0	0	1	0	0	0	0	0	2	0	4	2	1	1.3	0.6	23.1
NOFL	1	0	0	0	0	1	0	0	0	0	0	2	0	4	2	1	1.3	0.6	23.1
#PAS	53	13	3	112	510	12	49	125	150	47	41	56	128	1299	510	3	99.9	132.3	100.0
NOCR	27	0	1	105	433	12	44	121	148	0	36	10	95	1032	433	1	93.8	123.1	84.6
CORA	0	0	0	0	0	0	0	0	0	10	0	0	0	10	10	10	10.0	-	7.7
CBCH	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4	4	4.0	-	7.7
WIWR	0	0	0	0	1	0	0	0	0	0	0	1	0	2	1	1	1.0	-	15.4
GCKI	1	0	0	0	0	0	0	0	0	0	3	0	0	4	3	1	2.0	1.4	15.4
RCKI	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
HETH	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
AMRO	0	0	0	0	0	0	0	0	0	0	0	6	4	10	6	4	5.0	1.4	15.4
EUST	4	5	0	0	76	0	4	4	2	0	1	13	27	136	76	1	15.1	24.2	69.2
RSTO	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
FOSP	0	0	0	2	0	0	0	0	0	0	0	0	1	3	2	1	1.5	0.7	15.4
SOSP	1	7	1	0	0	0	0	0	0	1	0	7	0	17	7	1	3.4	3.3	38.5
WCSP	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
DEJU	0	0	0	0	0	0	0	0	0	32	0	0	1	33	32	1	16.5	21.9	15.4
RWBL	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3	3	3.0	-	7.7
HOFI	0	0	0	5	0	0	0	0	0	0	0	0	0	5	5	5	5.0	-	7.7
PISI	20	0	0	0	0	0	0	0	0	0	0	12	0	32	20	12	16.0	5.7	15.4
PASS	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4	4	4.0	-	7.7
#TOT	634	435	714	349	1236	615	1296	850	1648	1262	779	969	682	11469	1648	349	882.2	379.9	100.0

Campbell River Estuary All Habitat Report for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#LOO	3	0	0	1	3	13	4	2	8	6	0	59	0	99	59	1	11.0	18.4	69.2
RTLO	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
PALO	1	0	0	0	0	13	0	0	8	6	0	59	0	87	59	1	17.4	23.6	38.5
COLO	2	0	0	1	3	0	4	1	0	0	0	0	0	11	4	1	2.2	1.3	38.5
#GRE	6	8	0	1	14	22	1	21	0	0	0	0	0	73	22	1	10.4	8.8	53.8
HOGR	0	1	0	0	0	6	0	4	0	0	0	0	0	11	6	1	3.7	2.5	23.1
RNGR	5	7	0	1	14	16	0	16	0	0	0	0	0	59	16	1	9.8	6.4	46.2
EAGR	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
WEGR	0	0	0	0	0	0	1	1	0	0	0	0	0	2	1	1	1.0	-	15.4
#COR	6	6	7	1	3	16	5	3	0	1	0	0	0	48	16	1	5.3	4.6	69.2
CORM	0	0	7	0	0	0	5	0	0	0	0	0	0	12	7	5	6.0	1.4	15.4
DCCO	0	0	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
PECO	6	6	0	1	0	16	0	3	0	1	0	0	0	33	16	1	5.5	5.6	46.2
#HER	3	2	7	3	10	0	2	1	7	1	3	0	1	40	10	1	3.6	3.0	84.6
GBHE	3	2	7	3	10	0	2	1	7	1	3	0	1	40	10	1	3.6	3.0	84.6
#SWA	9	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9.0	-	7.7
TRUS	9	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9.0	-	7.7
#GEE	0	3	0	0	0	0	0	0	0	2	0	0	0	5	3	2	2.5	0.7	15.4
SNGO	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
CAGO	0	2	0	0	0	0	0	0	0	2	0	0	0	4	2	2	2.0	-	15.4
#DAB	12	3	2	11	17	14	3	18	1	4	2	0	19	106	19	1	8.8	7.0	92.3
GWTE	0	3	0	0	0	4	0	0	0	0	0	0	0	7	4	3	3.5	0.7	15.4
TEAL	0	0	0	0	0	0	0	7	0	0	0	0	0	7	7	7	7.0	-	7.7
MALL	12	0	2	11	17	10	3	7	1	0	2	0	19	84	19	1	8.4	6.5	76.9
BWTE	0	0	0	0	0	0	0	2	0	2	0	0	0	4	2	2	2.0	-	15.4
CITE	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
NOSL	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
AMWI	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
#DIV	135	102	54	111	90	101	74	59	27	27	9	18	0	807	135	9	67.3	41.2	92.3
SCAU	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
HADU	8	2	0	0	0	0	0	0	0	2	0	0	0	12	8	2	4.0	3.5	23.1
OLDS	0	5	0	0	0	0	0	0	0	0	0	0	0	5	5	5	5.0	-	7.7
SUSC	16	14	0	0	0	0	1	0	0	2	0	0	0	33	16	1	8.3	7.8	30.8
WWSC	0	1	0	1	0	0	0	0	0	0	0	0	0	2	1	1	1.0	-	15.4
COGO	10	6	1	5	12	17	3	5	0	0	0	0	0	59	17	1	7.4	5.3	61.5
BAGO	0	0	0	0	0	0	6	0	0	0	0	0	0	6	6	6	6.0	-	7.7
BUFF	67	39	30	75	43	55	55	38	0	9	0	0	0	411	75	9	45.7	20.0	69.2
HOME	0	0	0	0	2	11	0	0	0	0	0	0	0	13	11	2	6.5	6.4	15.4
COME	34	35	23	29	33	16	8	15	27	14	9	17	0	260	35	8	21.7	9.8	92.3
RBME	0	0	0	1	0	2	0	1	0	0	0	0	0	4	2	1	1.3	0.6	23.1
DUCK	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
#RAP	3	3	0	2	0	1	1	5	1	2	2	7	5	32	7	1	2.9	2.0	84.6
BAEA	3	3	0	2	0	1	1	5	1	2	2	7	5	32	7	1	2.9	2.0	84.6
#SHO	0	1	2	1	6	3	1	0	1	68	4	3	1	91	68	1	8.3	19.9	84.6
KILL	0	0	2	1	6	2	1	0	1	1	2	3	1	20	6	1	2.0	1.6	76.9
WESA	0	0	0	0	0	0	0	0	0	62	0	0	0	62	62	62	62.0	-	7.7
DUNL	0	0	0	0	0	0	0	0	0	5	0	0	0	5	5	5	5.0	-	7.7
COSN	0	1	0	0	0	1	0	0	0	0	0	0	0	2	1	1	1.0	-	15.4
SHOR	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	2	2.0	-	7.7

Campbell River Estuary All Habitat Report for Spring 1983 (continued)

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#GUL	609	257	402	606	126	375	295	818	641	264	65	308	158	4924	818	65	378.8	226.9	100.0
GULL	0	0	0	530	0	0	0	0	0	0	0	100	0	630	530	100	315.0	304.1	15.4
BOGU	0	0	0	0	0	0	0	358	0	133	0	14	38	543	358	14	135.8	156.8	30.8
MEGU	27	55	0	43	7	303	0	159	0	0	0	3	0	597	303	3	85.3	109.4	53.8
CAGU	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
HEGU	0	0	0	6	0	0	0	4	0	0	0	0	0	10	6	4	5.0	1.4	15.4
GWGU	582	202	402	27	119	71	295	297	641	131	65	191	120	3143	641	27	241.8	195.7	100.0
#ALC	2	3	0	0	0	2	0	17	0	2	0	0	0	26	17	2	5.2	6.6	38.5
COMU	0	0	0	0	0	0	0	8	0	0	0	0	0	8	8	8	8.0	-	7.7
PIGU	2	3	0	0	0	2	0	7	0	2	0	0	0	16	7	2	3.2	2.2	38.5
MAMU	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
RODO	0	0	0	1	0	13	5	17	0	8	5	18	0	67	18	1	9.6	6.5	53.8
HUMM	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
ANHU	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
RUHU	0	0	0	0	0	2	0	0	0	9	1	7	0	19	9	1	4.8	3.9	30.8
BEKI	0	1	1	0	1	1	1	0	0	2	0	0	1	8	2	1	1.1	0.4	53.8
#WOO	0	0	0	0	2	0	0	1	0	1	0	0	0	4	2	1	1.3	0.6	23.1
NOFL	0	0	0	0	2	0	0	1	0	1	0	0	0	4	2	1	1.3	0.6	23.1
#PAS	49	165	100	48	23	70	37	75	63	75	51	106	132	994	165	23	76.5	40.0	100.0
PSFL	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
TRSW	0	0	0	0	0	0	0	0	0	0	0	0	26	26	26	26	26.0	-	7.7
VGSW	0	0	0	0	0	0	3	5	0	3	3	6	0	20	6	3	4.0	1.4	38.5
CLSW	0	0	0	0	0	0	0	0	25	0	0	0	0	25	25	25	25.0	-	7.7
BASW	0	0	0	0	0	0	0	4	0	8	8	22	0	42	22	4	10.5	7.9	30.8
NOCR	47	26	64	47	12	29	20	26	23	15	15	28	15	367	64	12	28.2	15.5	100.0
CORA	2	0	0	0	0	0	0	0	0	3	0	0	0	5	3	2	2.5	0.7	15.4
CBCH	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
BUSH	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
BEWR	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
WIWR	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
AMRO	0	104	0	1	2	4	1	8	2	3	2	3	3	133	104	1	12.1	30.5	84.6
EUST	0	30	35	0	4	23	10	11	12	11	8	29	83	256	83	4	23.3	22.3	84.6
YEWA	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	7.7
YRWA	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
COYE	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
RSTO	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
SAVS	0	0	0	0	0	0	0	7	0	1	0	0	0	8	7	1	4.0	4.2	15.4
FOSP	0	0	1	0	0	0	2	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
SOSP	0	2	0	0	2	1	0	0	0	8	0	0	0	13	8	1	3.3	3.2	30.8
WCSP	0	0	0	0	0	0	0	2	0	1	0	1	0	4	2	1	1.3	0.6	23.1
DEJU	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
RWBL	0	2	0	0	2	11	1	10	1	9	6	7	3	52	11	1	5.2	3.9	76.9
YHBL	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	1	1.0	-	15.4
PUFI	0	0	0	0	0	1	0	0	0	1	0	7	0	9	7	1	3.0	3.5	23.1
AMGO	0	0	0	0	0	0	0	0	0	2	2	2	0	6	2	2	2.0	-	23.1
HOSP	0	0	0	0	0	0	0	0	0	0	7	0	0	7	7	7	7.0	-	7.7
PASS	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
#TOT	837	554	575	786	295	633	429	1039	750	472	142	526	317	7355	1039	142	565.8	246.4	100.0

Campbell River Estuary All Habitat Report for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	2	0	0	0	1	0	0	0	3	2	1	1.5	0.7	18.2
PALO	0	0	0	2	0	0	0	1	0	0	0	3	2	1	1.5	0.7	18.2
#GRE	0	0	0	1	0	0	0	2	0	0	0	3	2	1	1.5	0.7	18.2
RNGR	0	0	0	1	0	0	0	2	0	0	0	3	2	1	1.5	0.7	18.2
#COR	0	4	0	3	0	0	0	24	0	0	0	31	24	3	10.3	11.8	27.3
CORM	0	4	0	3	0	0	0	24	0	0	0	31	24	3	10.3	11.8	27.3
#HER	2	2	0	5	0	2	5	4	3	7	3	33	7	2	3.7	1.7	81.8
GBHE	2	2	0	5	0	2	5	4	3	7	3	33	7	2	3.7	1.7	81.8
#DAB	9	3	0	14	0	0	0	42	0	10	17	95	42	3	15.8	13.7	54.5
MALL	9	3	0	14	0	0	0	42	0	0	0	68	42	3	17.0	17.3	36.4
NOPI	0	0	0	0	0	0	0	0	0	0	17	17	17	17	17.0	-	9.1
AMWI	0	0	0	0	0	0	0	0	0	10	0	10	10	10	10.0	-	9.1
#DIV	4	2	31	59	2	0	14	99	7	6	23	247	99	2	24.7	31.6	90.9
HADU	1	0	14	3	0	0	0	12	0	0	17	47	17	1	9.4	7.0	45.5
SUSC	0	2	0	27	0	0	0	36	7	0	0	72	36	2	18.0	16.1	36.4
BUFF	0	0	0	24	0	0	0	40	0	0	0	64	40	24	32.0	11.3	18.2
HOME	0	0	17	0	0	0	0	0	0	0	1	18	17	1	9.0	11.3	18.2
COME	3	0	0	5	0	0	11	11	0	6	5	41	11	3	6.8	3.4	54.5
RBME	0	0	0	0	2	0	3	0	0	0	0	5	3	2	2.5	0.7	18.2
#RAP	62	0	20	0	13	15	8	1	4	2	3	128	62	1	14.2	19.1	81.8
TUVU	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3.0	-	9.1
OSPR	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
HAWK	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	9.1
BAEA	62	0	19	0	13	14	7	1	4	2	0	122	62	1	15.3	19.9	72.7
MERL	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
#SHO	1	1	3	5	0	0	14	53	29	32	21	159	53	1	17.7	17.8	81.8
LGPL	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	9.1
KILL	1	1	2	5	0	0	3	13	4	0	2	31	13	1	3.9	3.9	72.7
SPSA	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
SURF	0	0	0	0	0	0	0	40	0	0	0	40	40	40	40.0	-	9.1
WESA	0	0	0	0	0	0	11	0	25	0	15	51	25	11	17.0	7.2	27.3
LESA	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
SBDO	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
SHOR	0	0	0	0	0	0	0	0	0	32	0	32	32	32	32.0	-	9.1
#GUL	303	109	186	139	184	557	226	244	317	452	412	3129	557	109	284.5	140.3	100.0
GULL	0	0	0	0	0	0	0	0	0	30	0	30	30	30	30.0	-	9.1
BOGU	20	0	8	8	17	15	37	79	16	0	55	255	79	8	28.3	24.3	81.8
MEGU	0	0	1	0	4	0	0	0	2	0	26	33	26	1	8.3	11.9	36.4
RBGU	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
HEGU	0	0	0	0	26	0	0	0	1	0	29	56	29	1	18.7	15.4	27.3
GWGU	283	109	177	131	137	541	188	165	298	413	302	2744	541	109	249.5	134.4	100.0
BLKI	0	0	0	0	0	1	0	0	0	9	0	10	9	1	5.0	5.7	18.2
CATE	0	0	0	0	2	0	0	0	0	0	0	2	2	2	2.0	-	9.1
#ALC	22	0	17	0	0	0	1	0	0	0	0	40	22	1	13.3	11.0	27.3
PIGU	4	0	0	0	0	0	0	0	0	0	0	4	4	4	4.0	-	9.1
MAMU	18	0	17	0	0	0	1	0	0	0	0	36	18	1	12.0	9.5	27.3

Campbell River Estuary All Habitat Report for Summer 1983 (continued)

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
RODO	5	0	9	8	5	0	9	8	15	0	34	93	34	5	11.6	9.6	72.7
BTPI	0	0	6	0	0	0	0	0	0	0	0	6	6	6	6.0	-	9.1
ANHU	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
RUHU	1	0	0	0	1	0	0	0	0	0	0	2	1	1	1.0	-	18.2
BEKI	7	0	2	0	0	0	0	1	3	1	1	15	7	1	2.5	2.3	54.5
#WOO	1	0	6	0	0	0	1	1	0	0	1	10	6	1	2.0	2.2	45.5
DOWO	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
HAWO	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
NOFL	1	0	1	0	0	0	1	1	0	0	0	4	1	1	1.0	-	36.4
PIWO	0	0	4	0	0	0	0	0	0	0	0	4	4	4	4.0	-	9.1
#PAS	194	6	180	36	136	83	473	94	223	50	193	1668	473	6	151.6	128.8	100.0
WIFL	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
PSFL	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
VGSW	1	0	0	0	1	0	0	8	0	0	0	10	8	1	3.3	4.0	27.3
CLSW	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3.0	-	9.1
BASW	24	0	11	0	6	18	21	10	8	0	18	116	24	6	14.5	6.6	72.7
STJA	0	0	0	0	0	0	0	0	1	0	2	3	2	1	1.5	0.7	18.2
NOCR	38	0	22	18	7	33	30	45	15	41	26	275	45	7	27.5	12.2	90.9
CORA	0	0	2	0	0	0	0	2	0	0	11	15	11	2	5.0	5.2	27.3
CBCH	0	0	7	0	0	0	0	0	0	0	2	9	7	2	4.5	3.5	18.2
BRCR	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
BEWR	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
GCKI	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4.0	-	9.1
RCKI	0	0	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	9.1
SWTH	0	0	13	0	0	0	0	0	0	0	0	13	13	13	13.0	-	9.1
AMRO	7	1	9	1	2	1	3	5	0	2	5	36	9	1	3.6	2.8	90.9
CEWA	0	0	4	0	0	0	5	0	0	0	0	9	5	4	4.5	0.7	18.2
EUST	109	0	50	13	115	24	393	13	192	7	69	985	393	7	98.5	119.1	90.9
OCWA	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
YEWA	1	0	7	0	0	0	0	0	0	0	0	8	7	1	4.0	4.2	18.2
YRWA	0	0	1	0	0	0	0	0	0	0	1	2	1	1	1.0	-	18.2
COYE	0	0	3	0	0	0	2	0	0	0	0	5	3	2	2.5	0.7	18.2
WETA	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
RSTO	0	0	4	0	0	0	0	0	0	0	0	4	4	4	4.0	-	9.1
SAVS	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
FOSP	0	0	0	2	0	0	0	6	0	0	0	8	6	2	4.0	2.8	18.2
SOSP	4	0	8	0	0	0	2	0	0	0	0	14	8	2	4.7	3.1	27.3
WCSP	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
DEJU	2	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
RWBL	6	5	4	2	5	7	2	5	3	0	1	40	7	1	4.0	1.9	90.9
BRBL	0	0	2	0	0	0	0	0	0	0	41	43	41	2	21.5	27.6	18.2
PUFI	1	0	8	0	0	0	0	0	0	0	0	9	8	1	4.5	4.9	18.2
HOFI	0	0	16	0	0	0	0	0	0	0	1	17	16	1	8.5	10.6	18.2
RECR	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	9.1
PISI	0	0	0	0	0	0	4	0	0	0	5	9	5	4	4.5	0.7	18.2
AMGO	1	0	3	0	0	0	7	0	4	0	1	16	7	1	3.2	2.5	45.5
#TOT	611	127	461	272	343	657	751	574	601	560	708	5665	751	127	515.0	194.2	100.0

Campbell River Estuary All Habitat Report for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	0	0	1	6	12	19	12	1	6.3	5.5	33.3
COLO	0	0	0	0	0	0	1	6	12	19	12	1	6.3	5.5	33.3
#GRE	0	1	0	0	0	14	0	2	0	17	14	1	5.7	7.2	33.3
HOGR	0	1	0	0	0	2	0	0	0	3	2	1	1.5	0.7	22.2
RNGR	0	0	0	0	0	3	0	2	0	5	3	2	2.5	0.7	22.2
WEGR	0	0	0	0	0	9	0	0	0	9	9	9	9.0	-	11.1
#COR	0	1	2	0	7	26	13	21	27	97	27	1	13.9	11.0	77.8
CORM	0	0	0	0	0	0	13	0	27	40	27	13	20.0	9.9	22.2
DCCO	0	0	0	0	5	3	0	0	0	8	5	3	4.0	1.4	22.2
PECO	0	1	2	0	2	23	0	21	0	49	23	1	9.8	11.2	55.6
#HER	1	1	7	1	0	7	2	0	5	24	7	1	3.4	2.8	77.8
GBHE	1	1	7	1	0	7	2	0	5	24	7	1	3.4	2.8	77.8
#SWA	0	0	0	0	0	0	0	2	13	15	13	2	7.5	7.8	22.2
TRUS	0	0	0	0	0	0	0	2	13	15	13	2	7.5	7.8	22.2
#GEE	0	1	0	0	1	0	0	0	0	2	1	1	1.0	-	22.2
GWFG	0	1	0	0	1	0	0	0	0	2	1	1	1.0	-	22.2
#DAB	10	14	0	21	268	92	3	9	25	442	268	3	55.3	90.5	88.9
GWTE	0	0	0	0	38	0	0	0	0	38	38	38	38.0	-	11.1
MALL	10	0	0	21	14	6	3	9	25	88	25	3	12.6	8.0	77.8
NOPI	0	14	0	0	13	7	0	0	0	34	14	7	11.3	3.8	33.3
BWTE	0	0	0	0	0	9	0	0	0	9	9	9	9.0	-	11.1
NOSL	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	11.1
AMWI	0	0	0	0	200	70	0	0	0	270	200	70	135.0	91.9	22.2
#DIV	16	41	0	6	46	19	32	63	141	364	141	6	45.5	42.7	88.9
GRSC	0	0	0	0	6	0	0	0	0	6	6	6	6.0	-	11.1
LESC	0	0	0	0	0	0	0	0	22	22	22	22	22.0	-	11.1
HADU	0	0	0	0	22	12	24	13	13	84	24	12	16.8	5.7	55.6
OLDS	0	0	0	0	0	0	0	9	7	16	9	7	8.0	1.4	22.2
SUSC	5	12	0	0	0	0	0	0	0	17	12	5	8.5	4.9	22.2
WWSC	0	0	0	0	12	0	0	0	0	12	12	12	12.0	-	11.1
COGO	0	0	0	0	2	0	0	0	9	11	9	2	5.5	4.9	22.2
BUFF	11	0	0	0	0	0	7	29	65	112	65	7	28.0	26.5	44.4
HOME	0	0	0	0	4	1	0	0	12	17	12	1	5.7	5.7	33.3
COME	0	11	0	6	0	4	1	12	13	47	13	1	7.8	4.9	66.7
RBME	0	3	0	0	0	2	0	0	0	5	3	2	2.5	0.7	22.2
DUCK	0	15	0	0	0	0	0	0	0	15	15	15	15.0	-	11.1
#RAP	0	0	2	0	3	2	2	0	1	10	3	1	2.0	0.7	55.6
BAEA	0	0	2	0	3	0	2	0	1	8	3	1	2.0	0.8	44.4
RTHA	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
MERL	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
#SHO	3	4	2	15	4	3	3	0	0	34	15	2	4.9	4.5	77.8
KILL	1	1	2	0	2	0	0	0	0	6	2	1	1.5	0.6	44.4
GRYE	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
WATA	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
WHIM	0	2	0	0	0	0	0	0	0	2	2	2	2.0	-	11.1
WESA	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
SBDO	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	11.1
COSN	1	0	0	0	1	0	0	0	0	2	1	1	1.0	-	22.2
SHOR	0	0	0	15	0	0	3	0	0	18	15	3	9.0	8.5	22.2

Campbell River Estuary All Habitat Report for Autumn 1983 (continued)

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#GUL	363	434	512	640	623	582	475	436	582	4647	640	363	516.3	96.0	100.0
GULL	0	1	23	0	0	0	0	0	0	24	23	1	12.0	15.6	22.2
BOGU	39	33	0	150	213	3	27	0	0	465	213	3	77.5	83.9	66.7
MEGU	0	27	0	0	72	137	0	0	0	236	137	27	78.7	55.3	33.3
HEGU	0	1	0	0	2	46	0	0	0	49	46	1	16.3	25.7	33.3
GWGU	324	372	489	490	336	396	448	436	582	3873	582	324	430.3	83.0	100.0
#ALC	0	0	0	0	0	15	1	0	0	16	15	1	8.0	9.9	22.2
COMU	0	0	0	0	0	15	0	0	0	15	15	15	15.0	-	11.1
MAMU	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	11.1
RODO	0	0	0	0	22	6	0	0	0	28	22	6	14.0	11.3	22.2
BEKI	1	2	3	0	3	2	0	0	1	12	3	1	2.0	0.9	66.7
#WOO	0	0	0	0	1	0	0	0	1	2	1	1	1.0	-	22.2
NOFL	0	0	0	0	1	0	0	0	1	2	1	1	1.0	-	22.2
#PAS	20	78	137	87	1089	249	18	48	20	1746	1089	18	194.0	343.7	100.0
BASW	0	0	54	0	0	0	0	0	0	54	54	54	54.0	-	11.1
STJA	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
NOCR	10	47	29	65	93	86	13	23	11	377	93	10	41.9	32.5	100.0
CORA	0	0	0	8	9	0	1	0	3	21	9	1	5.3	3.9	44.4
AMRO	6	0	0	9	45	11	0	0	0	71	45	6	17.8	18.3	44.4
VATH	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
CEWA	0	0	0	0	5	0	0	0	0	5	5	5	5.0	-	11.1
EUST	3	30	52	2	889	140	4	13	0	1133	889	2	141.6	305.5	88.9
WARB	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
YRWA	0	0	0	0	4	0	0	0	0	4	4	4	4.0	-	11.1
WETA	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	11.1
RSTO	0	0	0	0	2	0	0	2	1	5	2	1	1.7	0.6	33.3
SAVS	0	0	0	0	6	0	0	0	0	6	6	6	6.0	-	11.1
FOSP	1	0	0	3	0	0	0	0	5	9	5	1	3.0	2.0	33.3
SOSP	0	0	0	0	9	2	0	1	0	12	9	1	4.0	4.4	33.3
GCSP	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	11.1
DEJU	0	0	0	0	0	0	0	9	0	9	9	9	9.0	-	11.1
RWBL	0	0	1	0	10	0	0	0	0	11	10	1	5.5	6.4	22.2
BHCO	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
PUFI	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
HOFI	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	11.1
PISI	0	0	0	0	3	9	0	0	0	12	9	3	6.0	4.2	22.2
AMGO	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
EVGR	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	11.1
#TOT	414	577	665	770	2067	1017	550	587	828	7475	2067	414	830.6	496.3	100.0

Campbell River Estuary All Habitat Report for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	1	5	12	2	6	3	4	33	12	1	4.7	3.6	100.0
PALO	0	3	0	0	0	0	0	3	3	3	3.0	-	14.3
COLO	1	2	12	2	6	3	4	30	12	1	4.3	3.8	100.0
#GRE	3	5	9	2	5	6	5	35	9	2	5.0	2.2	100.0
HOGR	0	4	3	0	5	0	4	16	5	3	4.0	0.8	57.1
RNGR	3	0	6	2	0	6	1	18	6	1	3.6	2.3	71.4
WEGR	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
#COR	13	18	9	1	13	8	13	75	18	1	10.7	5.4	100.0
CORM	0	1	0	1	0	0	0	2	1	1	1.0	-	28.6
DCCO	5	12	0	0	3	0	2	22	12	2	5.5	4.5	57.1
PECO	8	5	9	0	10	8	11	51	11	5	8.5	2.1	85.7
#HER	0	0	2	7	2	25	1	37	25	1	7.4	10.1	71.4
GBHE	0	0	2	7	2	25	1	37	25	1	7.4	10.1	71.4
#SWA	13	5	23	24	23	20	20	128	24	5	18.3	6.9	100.0
TRUS	13	5	23	24	23	20	20	128	24	5	18.3	6.9	100.0
#GEE	0	0	0	25	0	0	0	25	25	25	25.0	-	14.3
CAGO	0	0	0	25	0	0	0	25	25	25	25.0	-	14.3
#DAB	16	22	10	9	4	5	5	71	22	4	10.1	6.7	100.0
GWTE	2	1	0	0	0	0	0	3	2	1	1.5	0.7	28.6
MALL	11	21	10	9	2	5	5	63	21	2	9.0	6.2	100.0
AMWI	3	0	0	0	2	0	0	5	3	2	2.5	0.7	28.6
#DIV	115	112	66	68	67	246	153	827	246	66	118.1	65.1	100.0
CANV	0	0	0	2	0	0	0	2	2	2	2.0	-	14.3
SCAU	0	0	0	1	0	0	0	1	1	1	1.0	-	14.3
GRSC	0	0	6	0	0	0	0	6	6	6	6.0	-	14.3
LESC	0	6	0	0	0	0	0	6	6	6	6.0	-	14.3
HADU	14	13	4	0	10	0	3	44	14	3	8.8	5.1	71.4
OLDS	5	4	0	0	2	1	1	13	5	1	2.6	1.8	71.4
BLSC	0	0	0	0	0	0	8	8	8	8	8.0	-	14.3
SUSC	7	0	0	4	0	59	43	113	59	4	28.3	27.1	57.1
GOLD	0	0	0	4	0	0	0	4	4	4	4.0	-	14.3
COGO	14	16	30	1	3	71	27	162	71	1	23.1	23.7	100.0
BAGO	0	0	0	5	0	16	0	21	16	5	10.5	7.8	28.6
BUFF	43	39	9	36	21	37	31	216	43	9	30.9	11.9	100.0
COME	27	20	17	15	19	58	36	192	58	15	27.4	15.3	100.0
RBME	5	14	0	0	12	4	4	39	14	4	7.8	4.8	71.4
#RAP	1	3	3	2	3	5	2	19	5	1	2.7	1.3	100.0
HAWK	0	0	0	0	0	1	0	1	1	1	1.0	-	14.3
BAEA	1	3	3	2	3	4	2	18	4	1	2.6	1.0	100.0
#SHO	0	5	0	0	0	0	2	7	5	2	3.5	2.1	28.6
KILL	0	4	0	0	0	0	2	6	4	2	3.0	1.4	28.6
COSN	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3

Campbell River Estuary All Habitat Report for Winter 1983-1984 (continued)

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#GUL	736	163	425	395	454	986	604	3763	986	163	537.6	266.2	100.0
GULL	0	0	0	0	400	0	30	430	400	30	215.0	261.6	28.6
MEGU	1	50	9	0	45	0	0	105	50	1	26.3	24.8	57.1
GWGU	735	113	416	395	9	986	574	3228	986	9	461.1	340.4	100.0
RODO	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
BEKI	0	0	2	0	0	0	1	3	2	1	1.5	0.7	28.6
#PAS	228	39	18	24	18	35	30	392	228	18	56.0	76.3	100.0
NOCR	12	7	11	8	16	10	17	81	17	7	11.6	3.8	100.0
WREN	0	0	0	0	0	1	0	1	1	1	1.0	-	14.3
GCKI	200	0	0	0	0	0	0	200	200	200	200.0	-	14.3
RCKI	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
AMRO	0	0	0	0	0	0	1	1	1	1	1.0	-	14.3
EUST	3	1	6	0	0	2	3	15	6	1	3.0	1.9	71.4
RSTO	0	2	0	0	0	0	0	2	2	2	2.0	-	14.3
SOSP	0	5	1	1	2	0	2	11	5	1	2.2	1.6	71.4
DEJU	13	13	0	15	0	22	7	70	22	7	14.0	5.4	71.4
PISI	0	10	0	0	0	0	0	10	10	10	10.0	-	14.3
#TOT	1126	378	579	559	595	1339	840	5416	1339	378	773.7	346.6	100.0

Campbell River Estuary All Habitat Report for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#LOO	1	3	4	3	1	2.0	1.4	100.0
COLO	1	3	4	3	1	2.0	1.4	100.0
#GRE	4	1	5	4	1	2.5	2.1	100.0
RNGR	4	1	5	4	1	2.5	2.1	100.0
#COR	8	11	19	11	8	9.5	2.1	100.0
CORM	0	11	11	11	11	11.0	-	50.0
DCCO	2	0	2	2	2	2.0	-	50.0
PECO	6	0	6	6	6	6.0	-	50.0
#HER	1	6	7	6	1	3.5	3.5	100.0
GBHE	1	6	7	6	1	3.5	3.5	100.0
#SWA	0	13	13	13	13	13.0	-	50.0
TRUS	0	13	13	13	13	13.0	-	50.0
#GEE	0	7	7	7	7	7.0	-	50.0
BRAN	0	7	7	7	7	7.0	-	50.0
#DAB	0	9	9	9	9	9.0	-	50.0
MALL	0	9	9	9	9	9.0	-	50.0
#DIV	85	58	143	85	58	71.5	19.1	100.0
GRSC	0	2	2	2	2	2.0	-	50.0
SUSC	12	25	37	25	12	18.5	9.2	100.0
WWSC	16	0	16	16	16	16.0	-	50.0
COGO	9	10	19	10	9	9.5	0.7	100.0
BUFF	30	14	44	30	14	22.0	11.3	100.0
COME	17	7	24	17	7	12.0	7.1	100.0
RBME	1	0	1	1	1	1.0	-	50.0
#RAP	0	3	3	3	3	3.0	-	50.0
BAEA	0	3	3	3	3	3.0	-	50.0
#GUL	268	283	551	283	268	275.5	10.6	100.0
BOGU	0	69	69	69	69	69.0	-	50.0
MEGU	1	0	1	1	1	1.0	-	50.0
GWGU	267	214	481	267	214	240.5	37.5	100.0
BEKI	1	0	1	1	1	1.0	-	50.0
#WOO	1	1	2	1	1	1.0	-	100.0
NOFL	1	1	2	1	1	1.0	-	100.0
#PAS	26	65	91	65	26	45.5	27.6	100.0
NOCR	13	35	48	35	13	24.0	15.6	100.0
CORA	1	4	5	4	1	2.5	2.1	100.0
AMRO	3	9	12	9	3	6.0	4.2	100.0
EUST	8	0	8	8	8	8.0	-	50.0
FOSP	0	8	8	8	8	8.0	-	50.0
SOSP	1	0	1	1	1	1.0	-	50.0
RWBL	0	7	7	7	7	7.0	-	50.0
HOFI	0	2	2	2	2	2.0	-	50.0
#TOT	395	460	855	460	395	427.5	46.0	100.0

Appendix IV

Campbell River estuary birds surveys: Seasonal bird use by habitat, 31 October 1982 through 18 March 1984.

Note: In this Appendix, the mean has been calculated as the total number of birds of species-x counted over the season, divided by the total number of counts where species-x occurred. Counts of zero have not been included in the total number of counts nor are they included as minimum values. Thus the last 5 columns in the Appendix summarize the species occurrence on the study area. For example, the probability of seeing a Glaucous-winged Gull in summer from viewing station 1 on the Campbell River estuary is about 82%. If you see the species, you are likely to see an average of about 9 birds and more than 32 would be exceptional.

Campbell River Estuary Bird Surveys of Station 1 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	1	1	0	0	2	1	1	1.0	-	40.0
COLO	0	1	1	0	0	2	1	1	1.0	-	40.0
#GRE	0	1	0	10	0	11	10	1	5.5	6.4	40.0
HOGR	0	0	0	4	0	4	4	4	4.0	-	20.0
RNGR	0	0	0	1	0	1	1	1	1.0	-	20.0
WEGR	0	1	0	5	0	6	5	1	3.0	2.8	40.0
#COR	3	4	4	1	3	15	4	1	3.0	1.2	100.0
CORM	3	0	0	0	3	6	3	3	3.0	-	40.0
DCCO	0	4	0	1	0	5	4	1	2.5	2.1	40.0
PECO	0	0	4	0	0	4	4	4	4.0	-	20.0
#DIV	6	19	6	17	3	51	19	3	10.2	7.3	100.0
HADU	6	17	0	5	0	28	17	5	9.3	6.7	60.0
BUFF	0	2	5	8	3	18	8	2	4.5	2.6	80.0
COME	0	0	1	2	0	3	2	1	1.5	0.7	40.0
RBME	0	0	0	2	0	2	2	2	2.0	-	20.0
#GUL	10	5	2	1	4	22	10	1	4.4	3.5	100.0
HEGU	0	3	0	0	0	3	3	3	3.0	-	20.0
GWGU	10	2	2	1	1	16	10	1	3.2	3.8	100.0
BLKI	0	0	0	0	3	3	3	3	3.0	-	20.0
#ALC	0	0	0	1	0	1	1	1	1.0	-	20.0
PIGU	0	0	0	1	0	1	1	1	1.0	-	20.0
#PAS	19	6	0	4	0	29	19	4	9.7	8.1	60.0
NOCR	19	6	0	0	0	25	19	6	12.5	9.2	40.0
CORA	0	0	0	4	0	4	4	4	4.0	-	20.0
#TOT	38	36	13	34	10	131	38	10	26.2	13.5	100.0

Campbell River Estuary Bird Surveys of Station 1 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	3	0	1	0	15	0	0	0	2	0	0	0	0	21	15	1	5.3	6.6	30.8
RTLO	0	0	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
PALO	2	0	0	0	9	0	0	0	0	0	0	0	0	11	9	2	5.5	4.9	15.4
COLO	1	0	1	0	3	0	0	0	2	0	0	0	0	7	3	1	1.8	1.0	30.8
#GRE	2	0	1	0	0	1	8	0	3	0	0	0	0	15	8	1	3.0	2.9	38.5
HOGR	2	0	1	0	0	0	2	0	3	0	0	0	0	8	3	1	2.0	0.8	30.8
RNGR	0	0	0	0	0	1	5	0	0	0	0	0	0	6	5	1	3.0	2.8	15.4
WEGR	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#COR	0	1	0	0	6	0	3	2	4	0	2	0	3	21	6	1	3.0	1.6	53.8
CORM	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
DCCO	0	0	0	0	5	0	0	0	4	0	0	0	0	9	5	4	4.5	0.7	15.4
PECO	0	1	0	0	1	0	3	0	0	0	2	0	3	10	3	1	2.0	1.0	38.5
#DIV	29	24	12	18	22	6	15	5	15	18	4	10	3	181	29	3	13.9	8.2	100.0
HADU	11	14	6	0	2	4	0	4	2	0	0	2	0	45	14	2	5.6	4.5	61.5
OLDS	3	2	0	0	1	0	1	0	2	0	0	0	0	9	3	1	1.8	0.8	38.5
BLSC	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
SUSC	4	2	0	7	8	0	7	0	8	14	3	5	2	60	14	2	6.0	3.7	76.9
WWSC	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
COGO	2	2	1	0	5	0	4	0	2	0	1	1	0	18	5	1	2.3	1.5	61.5
BUFF	8	4	5	7	4	1	3	1	0	4	0	1	1	39	8	1	3.5	2.5	84.6
COME	0	0	0	2	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
RBME	1	0	0	2	2	0	0	0	1	0	0	0	0	6	2	1	1.5	0.6	30.8
#RAP	1	0	0	0	0	0	1	0	0	0	0	2	0	4	2	1	1.3	0.6	23.1
BAEA	1	0	0	0	0	0	1	0	0	0	0	2	0	4	2	1	1.3	0.6	23.1
#GUL	5	10	0	4	12	1	1	3	1	3	2	25	3	70	25	1	5.8	7.0	92.3
GULL	0	0	0	0	0	0	0	0	1	0	0	0	2	3	2	1	1.5	0.7	15.4
MEGU	5	0	0	0	0	0	0	0	0	0	2	0	0	7	5	2	3.5	2.1	15.4
HEGU	0	0	0	0	12	0	0	0	0	0	0	0	0	12	12	12	12.0	-	7.7
GWGU	0	10	0	4	0	1	1	3	0	3	0	25	1	48	25	1	6.0	8.2	61.5
#ALC	1	0	0	0	0	0	2	0	0	0	1	0	0	4	2	1	1.3	0.6	23.1
COMU	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
PIGU	1	0	0	0	0	0	2	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
RODO	0	0	0	0	0	0	0	0	0	0	1	7	0	8	7	1	4.0	4.2	15.4
#PAS	0	0	0	0	2	1	0	0	3	0	0	7	6	19	7	1	3.8	2.6	38.5
NOCR	0	0	0	0	2	1	0	0	3	0	0	5	3	14	5	1	2.8	1.5	38.5
EUST	0	0	0	0	0	0	0	0	0	0	0	2	3	5	3	2	2.5	0.7	15.4
#TOT	41	35	14	22	57	9	30	10	28	21	10	51	15	343	57	9	26.4	15.9	100.0

Campbell River Estuary Bird Surveys of Station 1 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#LOO	1	0	0	0	2	1	1	1	0	0	0	28	0	34	28	1	5.7	10.9	46.2
RTLO	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
PALO	0	0	0	0	0	1	0	0	0	0	0	28	0	29	28	1	14.5	19.1	15.4
COLO	1	0	0	0	2	0	1	0	0	0	0	0	0	4	2	1	1.3	0.6	23.1
#GRE	1	1	0	0	6	0	0	4	0	0	0	0	0	12	6	1	3.0	2.4	30.8
HOGR	0	1	0	0	0	0	0	2	0	0	0	0	0	3	2	1	1.5	0.7	15.4
RNGR	0	0	0	0	6	0	0	1	0	0	0	0	0	7	6	1	3.5	3.5	15.4
EAGR	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
WEGR	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
#COR	4	2	7	1	0	4	2	2	0	0	0	0	0	22	7	1	3.1	2.0	53.8
CORM	0	0	7	0	0	0	2	0	0	0	0	0	0	9	7	2	4.5	3.5	15.4
PECO	4	2	0	1	0	4	0	2	0	0	0	0	0	13	4	1	2.6	1.3	38.5
#DIV	10	6	0	0	1	1	0	1	0	0	0	0	0	19	10	1	3.8	4.1	38.5
HADU	1	2	0	0	0	0	0	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
SUSC	8	4	0	0	0	0	0	0	0	0	0	0	0	12	8	4	6.0	2.8	15.4
BUFF	1	0	0	0	1	0	0	0	0	0	0	0	0	2	1	1	1.0	-	15.4
RBME	0	0	0	0	0	1	0	1	0	0	0	0	0	2	1	1	1.0	-	15.4
#RAP	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
BAEA	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
#GUL	1	2	0	7	2	1	4	5	7	4	1	6	0	40	7	1	3.6	2.4	84.6
HEGU	0	0	0	6	0	0	0	0	0	0	0	0	0	6	6	6	6.0	-	7.7
GWGU	1	2	0	1	2	1	4	5	7	4	1	6	0	34	7	1	3.1	2.2	84.6
#ALC	0	3	0	0	0	0	0	11	0	0	0	0	0	14	11	3	7.0	5.7	15.4
COMU	0	0	0	0	0	0	0	8	0	0	0	0	0	8	8	8	8.0	-	7.7
PIGU	0	3	0	0	0	0	0	2	0	0	0	0	0	5	3	2	2.5	0.7	15.4
MAMU	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
RODO	0	0	0	0	0	4	0	0	0	0	0	3	0	7	4	3	3.5	0.7	15.4
#PAS	1	0	0	0	0	0	2	3	4	13	4	13	18	58	18	1	7.3	6.4	61.5
BASW	0	0	0	0	0	0	0	0	0	8	0	2	0	10	8	2	5.0	4.2	15.4
NOCR	0	0	0	0	0	0	2	2	4	0	3	7	1	19	7	1	3.2	2.1	46.2
CORA	1	0	0	0	0	0	0	0	0	3	0	0	0	4	3	1	2.0	1.4	15.4
AMRO	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
EUST	0	0	0	0	0	0	0	1	0	1	1	4	16	23	16	1	4.6	6.5	38.5
WCSP	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
#TOT	18	14	7	8	11	11	9	28	11	17	5	50	18	207	50	5	15.9	11.9	100.0

Campbell River Estuary Bird Surveys of Station 1 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
PALO	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
#DIV	0	0	0	4	0	0	0	7	0	0	0	11	7	4	5.5	2.1	18.2
SUSC	0	0	0	4	0	0	0	7	0	0	0	11	7	4	5.5	2.1	18.2
#RAP	1	0	0	0	1	0	0	0	0	0	0	2	1	1	1.0	-	18.2
BAEA	1	0	0	0	1	0	0	0	0	0	0	2	1	1	1.0	-	18.2
#GUL	4	3	7	0	3	35	1	0	20	12	6	91	35	1	10.1	11.0	81.8
BOGU	0	0	0	0	0	3	0	0	1	0	1	5	3	1	1.7	1.2	27.3
MEGU	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	9.1
GWGU	4	3	7	0	3	32	1	0	18	12	5	85	32	1	9.4	10.0	81.8
#ALC	0	0	10	0	0	0	0	0	0	0	0	10	10	10	10.0	-	9.1
MAMU	0	0	10	0	0	0	0	0	0	0	0	10	10	10	10.0	-	9.1
RODO	0	0	0	0	2	0	9	0	2	0	16	29	16	2	7.3	6.7	36.4
#PAS	55	0	1	8	2	0	32	30	3	3	3	137	55	1	15.2	19.2	81.8
VGSW	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	9.1
BASW	0	0	0	0	0	0	21	0	0	0	0	21	21	21	21.0	-	9.1
NOCR	5	0	1	5	1	0	3	23	1	3	0	42	23	1	5.3	7.4	72.7
EUST	50	0	0	3	0	0	8	7	2	0	3	73	50	2	12.2	18.7	54.5
#TOT	60	3	18	13	8	35	42	37	25	15	25	281	60	3	25.5	16.8	100.0

Campbell River Estuary Bird Surveys of Station 1 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	11.1
COLO	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	11.1
#GRE	0	1	0	0	0	11	0	0	0	12	11	1	6.0	7.1	22.2
HOGR	0	1	0	0	0	1	0	0	0	2	1	1	1.0	-	22.2
RNGR	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
WEGR	0	0	0	0	0	9	0	0	0	9	9	9	9.0	-	11.1
#COR	0	0	0	0	2	3	3	0	8	16	8	2	4.0	2.7	44.4
CORM	0	0	0	0	0	0	3	0	8	11	8	3	5.5	3.5	22.2
DCCO	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
PECO	0	0	0	0	2	2	0	0	0	4	2	2	2.0	-	22.2
#DIV	0	0	0	0	15	2	10	17	12	56	17	2	11.2	5.8	55.6
HADU	0	0	0	0	15	2	9	10	7	43	15	2	8.6	4.7	55.6
BUFF	0	0	0	0	0	0	0	4	4	8	4	4	4.0	-	22.2
COME	0	0	0	0	0	0	1	3	1	5	3	1	1.7	1.2	33.3
#GUL	2	7	7	2	15	53	16	6	25	133	53	2	14.8	16.2	100.0
BOGU	0	0	0	0	12	1	1	0	0	14	12	1	4.7	6.4	33.3
HEGU	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	11.1
GWGU	2	7	7	2	3	50	15	6	25	117	50	2	13.0	15.7	100.0
#ALC	0	0	0	0	0	5	0	0	0	5	5	5	5.0	-	11.1
COMU	0	0	0	0	0	5	0	0	0	5	5	5	5.0	-	11.1
RODO	0	0	0	0	13	0	0	0	0	13	13	13	13.0	-	11.1
#PAS	3	3	29	1	23	24	3	12	3	101	29	1	11.2	11.1	100.0
BASW	0	0	12	0	0	0	0	0	0	12	12	12	12.0	-	11.1
NOCR	0	3	5	1	6	18	3	6	3	45	18	1	5.6	5.3	88.9
CORA	0	0	0	0	6	0	0	0	0	6	6	6	6.0	-	11.1
EUST	3	0	12	0	11	6	0	6	0	38	12	3	7.6	3.8	55.6
#TOT	5	11	36	3	68	98	32	35	50	338	98	3	37.6	31.1	100.0

Campbell River Estuary Bird Surveys of Station 1 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	6	1	0	0	2	9	6	1	3.0	2.6	42.9
COLO	0	0	6	1	0	0	2	9	6	1	3.0	2.6	42.9
#GRE	2	0	4	1	0	2	0	9	4	1	2.3	1.3	57.1
RNGR	2	0	4	1	0	2	0	9	4	1	2.3	1.3	57.1
#COR	4	5	1	0	8	0	5	23	8	1	4.6	2.5	71.4
DCCO	0	0	0	0	1	0	0	1	1	1	1.0	-	14.3
PECO	4	5	1	0	7	0	5	22	7	1	4.4	2.2	71.4
#DIV	19	8	3	18	13	42	6	109	42	3	15.6	13.1	100.0
CANV	0	0	0	2	0	0	0	2	2	2	2.0	-	14.3
HADU	9	3	0	0	7	0	3	22	9	3	5.5	3.0	57.1
SUSC	0	0	0	4	0	5	3	12	5	3	4.0	1.0	42.9
BUFF	2	2	3	2	1	2	0	12	3	1	2.0	0.6	85.7
COME	8	0	0	10	0	35	0	53	35	8	17.7	15.0	42.9
RBME	0	3	0	0	5	0	0	8	5	3	4.0	1.4	28.6
#RAP	1	1	0	0	0	0	0	2	1	1	1.0	-	28.6
BAEA	1	1	0	0	0	0	0	2	1	1	1.0	-	28.6
#GUL	10	3	10	29	0	74	4	130	74	3	21.7	27.3	85.7
GWGU	10	3	10	29	0	74	4	130	74	3	21.7	27.3	85.7
#PAS	2	1	3	0	4	0	3	13	4	1	2.6	1.1	71.4
NOCR	2	1	3	0	4	0	3	13	4	1	2.6	1.1	71.4
#TOT	38	18	27	49	25	118	20	295	118	18	42.1	35.2	100.0

Campbell River Estuary Bird Surveys of Station 1 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#LOO	0	2	2	2	2	2.0	-	50.0
COLO	0	2	2	2	2	2.0	-	50.0
#GRE	0	1	1	1	1	1.0	-	50.0
RNGR	0	1	1	1	1	1.0	-	50.0
#COR	2	2	4	2	2	2.0	-	100.0
CORM	0	2	2	2	2	2.0	-	50.0
PECO	2	0	2	2	2	2.0	-	50.0
#DIV	2	22	24	22	2	12.0	14.1	100.0
GRSC	0	2	2	2	2	2.0	-	50.0
SUSC	0	12	12	12	12	12.0	-	50.0
WWSC	2	0	2	2	2	2.0	-	50.0
COGO	0	3	3	3	3	3.0	-	50.0
BUFF	0	5	5	5	5	5.0	-	50.0
#RAP	0	1	1	1	1	1.0	-	50.0
BAEA	0	1	1	1	1	1.0	-	50.0
#GUL	0	10	10	10	10	10.0	-	50.0
BOGU	0	3	3	3	3	3.0	-	50.0
GWGU	0	7	7	7	7	7.0	-	50.0
#PAS	2	4	6	4	2	3.0	1.4	100.0
NOCR	2	2	4	2	2	2.0	-	100.0
CORA	0	1	1	1	1	1.0	-	50.0
AMRO	0	1	1	1	1	1.0	-	50.0
#TOT	6	42	48	42	6	24.0	25.5	100.0

Campbell River Estuary Bird Surveys of Station 2 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	1	1	5	0	0	7	5	1	2.3	2.3	60.0
COLO	1	1	5	0	0	7	5	1	2.3	2.3	60.0
#GRE	1	3	3	1	1	9	3	1	1.8	1.1	100.0
HOGR	0	1	0	1	0	2	1	1	1.0	-	40.0
RNGR	1	2	3	0	1	7	3	1	1.8	1.0	80.0
#COR	4	9	7	4	3	27	9	3	5.4	2.5	100.0
CORM	4	0	0	0	3	7	4	3	3.5	0.7	40.0
DCCO	0	6	0	0	0	6	6	6	6.0	-	20.0
PECO	0	3	7	4	0	14	7	3	4.7	2.1	60.0
#DIV	0	0	0	1	9	10	9	1	5.0	5.7	40.0
BAGO	0	0	0	0	4	4	4	4	4.0	-	20.0
BUFF	0	0	0	0	3	3	3	3	3.0	-	20.0
COME	0	0	0	0	2	2	2	2	2.0	-	20.0
RBME	0	0	0	1	0	1	1	1	1.0	-	20.0
#RAP	0	0	1	0	0	1	1	1	1.0	-	20.0
BAEA	0	0	1	0	0	1	1	1	1.0	-	20.0
#GUL	6	14	1	2	2	25	14	1	5.0	5.4	100.0
GULL	0	10	0	0	0	10	10	10	10.0	-	20.0
GWGU	6	4	1	2	2	15	6	1	3.0	2.0	100.0
RODO	0	0	0	0	1	1	1	1	1.0	-	20.0
#PAS	0	4	1	0	1	6	4	1	2.0	1.7	60.0
NOCR	0	2	0	0	0	2	2	2	2.0	-	20.0
EUST	0	2	0	0	1	3	2	1	1.5	0.7	40.0
SOSP	0	0	1	0	0	1	1	1	1.0	-	20.0
#TOT	12	31	18	8	17	86	31	8	17.2	8.7	100.0

Campbell River Estuary Bird Surveys of Station 2 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	3	0	1	0	5	0	2	0	0	0	0	0	0	11	5	1	2.8	1.7	30.8
RTLO	0	0	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
PALO	0	0	1	0	2	0	0	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
COLO	3	0	0	0	1	0	2	0	0	0	0	0	0	6	3	1	2.0	1.0	23.1
#GRE	0	1	3	0	1	3	1	1	3	0	0	0	2	15	3	1	1.9	1.0	61.5
HOGR	0	1	3	0	1	0	0	0	3	0	0	0	2	10	3	1	2.0	1.0	38.5
RNGR	0	0	0	0	0	3	1	1	0	0	0	0	0	5	3	1	1.7	1.2	23.1
#COR	12	2	1	1	5	2	0	0	6	1	1	1	2	34	12	1	3.1	3.4	84.6
DCCO	11	1	0	1	4	0	0	0	0	0	0	0	0	17	11	1	4.3	4.7	30.8
PECO	1	1	1	0	1	2	0	0	6	1	1	1	2	17	6	1	1.7	1.6	76.9
#DIV	1	5	4	1	7	0	7	3	4	3	5	0	0	40	7	1	4.0	2.1	76.9
OLDS	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
SUSC	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3	3	3.0	-	7.7
COGO	0	1	0	0	0	0	6	0	0	2	0	0	0	9	6	1	3.0	2.6	23.1
BAGO	0	0	0	0	0	0	0	1	4	0	0	0	0	5	4	1	2.5	2.1	15.4
BUFF	0	0	3	0	6	0	1	2	0	1	2	0	0	15	6	1	2.5	1.9	46.2
COME	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
RBME	0	3	1	1	1	0	0	0	0	0	0	0	0	6	3	1	1.5	1.0	30.8
#GUL	56	80	0	50	2	3	8	7	2	3	10	2	1	224	80	1	18.7	27.1	92.3
GULL	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	7.7
HEGU	2	0	0	0	1	0	0	0	1	0	0	0	0	4	2	1	1.3	0.6	23.1
GWGU	54	80	0	50	1	3	8	7	1	0	10	2	1	217	80	1	19.7	27.9	84.6
#ALC	5	0	0	0	0	0	0	0	0	0	1	0	0	6	5	1	3.0	2.8	15.4
PIGU	5	0	0	0	0	0	0	0	0	0	1	0	0	6	5	1	3.0	2.8	15.4
RODO	0	0	0	0	1	0	0	4	0	0	10	0	8	23	10	1	5.8	4.0	30.8
BEKI	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#PAS	0	3	0	0	0	0	4	0	1	1	0	4	3	16	4	1	2.7	1.4	46.2
NOCR	0	0	0	0	0	0	1	0	1	0	0	3	3	8	3	1	2.0	1.2	30.8
CORA	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
EUST	0	3	0	0	0	0	3	0	0	0	0	1	0	7	3	1	2.3	1.2	23.1
#TOT	77	91	10	52	21	8	22	15	16	8	27	7	16	370	91	7	28.5	27.5	100.0

Campbell River Estuary Bird Surveys of Station 2 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#LOO	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
PALO	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
COLO	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#GRE	1	1	0	0	1	6	0	0	0	0	0	0	0	9	6	1	2.3	2.5	30.8
HOGR	0	0	0	0	0	6	0	0	0	0	0	0	0	6	6	6	6.0	-	7.7
RNGR	1	1	0	0	1	0	0	0	0	0	0	0	0	3	1	1	1.0	-	23.1
#COR	2	2	0	0	0	2	1	1	0	0	0	0	0	8	2	1	1.6	0.5	38.5
CORM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
PECO	2	2	0	0	0	2	0	1	0	0	0	0	0	7	2	1	1.8	0.5	30.8
#DIV	7	0	0	4	0	1	0	0	0	0	0	0	0	12	7	1	4.0	3.0	23.1
SUSC	4	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4.0	-	7.7
COGO	3	0	0	4	0	0	0	0	0	0	0	0	0	7	4	3	3.5	0.7	15.4
RBME	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#SHO	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
KILL	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
#GUL	6	10	0	4	2	5	0	34	2	6	6	7	17	99	34	2	9.0	9.3	84.6
BOGU	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	7.7
MEGU	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
HEGU	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
GWGU	6	10	0	4	2	5	0	33	2	3	6	6	17	94	33	2	8.5	9.2	84.6
#ALC	0	0	0	0	0	0	0	2	0	2	0	0	0	4	2	2	2.0	-	15.4
PIGU	0	0	0	0	0	0	0	1	0	2	0	0	0	3	2	1	1.5	0.7	15.4
MAMU	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
RODO	0	0	0	1	0	4	3	7	0	8	0	0	0	23	8	1	4.6	2.9	38.5
#PAS	3	7	0	0	0	2	0	3	0	7	2	17	4	45	17	2	5.6	5.0	61.5
TRSW	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	7.7
BASW	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	2	2.0	-	7.7
NOCR	3	7	0	0	0	0	0	1	0	4	0	3	0	18	7	1	3.6	2.2	38.5
EUST	0	0	0	0	0	2	0	2	0	3	2	3	2	14	3	2	2.3	0.5	46.2
PUFI	0	0	0	0	0	0	0	0	0	0	0	7	0	7	7	7	7.0	-	7.7
AMGO	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	2	2.0	-	7.7
#TOT	21	20	0	9	3	20	4	47	2	23	8	25	21	203	47	2	16.9	12.7	92.3

Campbell River Estuary Bird Surveys of Station 2 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	9.1
PALO	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	9.1
#GRE	0	0	0	1	0	0	0	2	0	0	0	3	2	1	1.5	0.7	18.2
RNGR	0	0	0	1	0	0	0	2	0	0	0	3	2	1	1.5	0.7	18.2
#COR	0	1	0	3	0	0	0	12	0	0	0	16	12	1	5.3	5.9	27.3
CORM	0	1	0	3	0	0	0	12	0	0	0	16	12	1	5.3	5.9	27.3
#RAP	2	0	2	0	0	0	0	0	0	0	0	4	2	2	2.0	-	18.2
BAEA	2	0	2	0	0	0	0	0	0	0	0	4	2	2	2.0	-	18.2
#GUL	19	6	9	13	7	1	4	0	6	6	25	96	25	1	9.6	7.4	90.9
BOGU	1	0	0	0	0	0	1	0	0	0	3	5	3	1	1.7	1.2	27.3
MEGU	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	9.1
GWGU	18	6	9	13	7	1	3	0	6	6	20	89	20	1	8.9	6.2	90.9
#ALC	4	0	2	0	0	0	0	0	0	0	0	6	4	2	3.0	1.4	18.2
MAMU	4	0	2	0	0	0	0	0	0	0	0	6	4	2	3.0	1.4	18.2
RODO	3	0	6	5	0	0	0	3	1	0	0	18	6	1	3.6	1.9	45.5
#PAS	7	0	15	0	0	5	0	0	6	2	56	91	56	2	15.2	20.5	54.5
BASW	0	0	0	0	0	5	0	0	5	0	2	12	5	2	4.0	1.7	27.3
NOCR	7	0	0	0	0	0	0	0	0	2	1	10	7	1	3.3	3.2	27.3
EUST	0	0	1	0	0	0	0	0	1	0	12	14	12	1	4.7	6.4	27.3
RSTO	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
RWBL	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
BRBL	0	0	0	0	0	0	0	0	0	0	40	40	40	40	40.0	-	9.1
HOFI	0	0	12	0	0	0	0	0	0	0	0	12	12	12	12.0	-	9.1
AMGO	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
#TOT	35	7	34	22	7	6	4	18	13	8	81	235	81	4	21.4	22.6	100.0

Campbell River Estuary Bird Surveys of Station 2 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	0	0	0	1	3	4	3	1	2.0	1.4	22.2
COLO	0	0	0	0	0	0	0	1	3	4	3	1	2.0	1.4	22.2
#GRE	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
RNGR	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
#COR	0	0	2	0	0	12	1	1	4	20	12	1	4.0	4.6	55.6
CORM	0	0	0	0	0	0	1	0	4	5	4	1	2.5	2.1	22.2
DCCO	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	11.1
PECO	0	0	2	0	0	10	0	1	0	13	10	1	4.3	4.9	33.3
#DIV	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	11.1
COME	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	11.1
#SHO	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
WATA	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
#GUL	22	9	0	5	1	5	23	1	3	69	23	1	8.6	8.9	88.9
BOGU	13	1	0	0	0	0	0	0	0	14	13	1	7.0	8.5	22.2
MEGU	0	1	0	0	0	2	0	0	0	3	2	1	1.5	0.7	22.2
HEGU	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	11.1
GWGU	9	7	0	5	1	1	23	1	3	50	23	1	6.3	7.4	88.9
RODO	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	11.1
BEKI	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
#PAS	0	2	7	0	5	1	0	2	6	23	7	1	3.8	2.5	66.7
BASW	0	0	7	0	0	0	0	0	0	7	7	7	7.0	-	11.1
NOCR	0	2	0	0	3	0	0	2	6	13	6	2	3.3	1.9	44.4
CORA	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
EUST	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
#TOT	23	11	9	5	7	22	24	5	18	124	24	5	13.8	7.9	100.0

Campbell River Estuary Bird Surveys of Station 2 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	1	1	1	0	0	1	0	4	1	1	1.0	-	57.1
COLO	1	1	1	0	0	1	0	4	1	1	1.0	-	57.1
#GRE	0	3	3	1	0	2	2	11	3	1	2.2	0.8	71.4
HOGR	0	2	3	0	0	0	2	7	3	2	2.3	0.6	42.9
RNGR	0	0	0	1	0	2	0	3	2	1	1.5	0.7	28.6
WEGR	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
#COR	2	0	4	0	0	8	0	14	8	2	4.7	3.1	42.9
PECO	2	0	4	0	0	8	0	14	8	2	4.7	3.1	42.9
#DIV	4	16	10	9	0	22	4	65	22	4	10.8	7.1	85.7
GRSC	0	0	5	0	0	0	0	5	5	5	5.0	-	14.3
HADU	0	0	2	0	0	0	0	2	2	2	2.0	-	14.3
OLDS	2	0	0	0	0	0	0	2	2	2	2.0	-	14.3
COGO	0	5	0	0	0	6	0	11	6	5	5.5	0.7	28.6
BAGO	0	0	0	1	0	0	0	1	1	1	1.0	-	14.3
BUFF	1	4	1	8	0	2	0	16	8	1	3.2	2.9	71.4
COME	1	0	2	0	0	13	0	16	13	1	5.3	6.7	42.9
RBME	0	7	0	0	0	1	4	12	7	1	4.0	3.0	42.9
#GUL	2	0	0	0	0	10	2	14	10	2	4.7	4.6	42.9
GWGU	2	0	0	0	0	10	2	14	10	2	4.7	4.6	42.9
RODO	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
BEKI	0	0	1	0	0	0	0	1	1	1	1.0	-	14.3
#PAS	0	5	1	0	0	1	0	7	5	1	2.3	2.3	42.9
NOCR	0	5	0	0	0	1	0	6	5	1	3.0	2.8	28.6
SOSP	0	0	1	0	0	0	0	1	1	1	1.0	-	14.3
#TOT	9	26	20	10	0	44	8	117	44	8	19.5	14.0	85.7

Campbell River Estuary Bird Surveys of Station 2 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#GRE	1	0	1	1	1	1.0	-	50.0
RNGR	1	0	1	1	1	1.0	-	50.0
#COR	0	3	3	3	3	3.0	-	50.0
CORM	0	3	3	3	3	3.0	-	50.0
#DIV	3	2	5	3	2	2.5	0.7	100.0
COGO	3	0	3	3	3	3.0	-	50.0
BUFF	0	2	2	2	2	2.0	-	50.0
#GUL	1	6	7	6	1	3.5	3.5	100.0
BOGU	0	1	1	1	1	1.0	-	50.0
GWGU	1	5	6	5	1	3.0	2.8	100.0
#TOT	5	11	16	11	5	8.0	4.2	100.0

Campbell River Estuary Bird Surveys of Station 3 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	1	1	1	1	4	1	1	1.0	-	80.0
COLO	0	1	1	1	1	4	1	1	1.0	-	80.0
#GRE	0	1	0	2	0	3	2	1	1.5	0.7	40.0
HOGR	0	0	0	1	0	1	1	1	1.0	-	20.0
RNGR	0	0	0	1	0	1	1	1	1.0	-	20.0
WEGR	0	1	0	0	0	1	1	1	1.0	-	20.0
#COR	0	1	0	0	0	1	1	1	1.0	-	20.0
DCCO	0	1	0	0	0	1	1	1	1.0	-	20.0
#DIV	0	2	0	3	0	5	3	2	2.5	0.7	40.0
HADU	0	0	0	3	0	3	3	3	3.0	-	20.0
RBME	0	2	0	0	0	2	2	2	2.0	-	20.0
#RAP	0	0	0	1	0	1	1	1	1.0	-	20.0
BAEA	0	0	0	1	0	1	1	1	1.0	-	20.0
#GUL	12	14	1	0	2	29	14	1	7.3	6.7	80.0
MEGU	0	13	0	0	0	13	13	13	13.0	-	20.0
GWGU	12	1	1	0	2	16	12	1	4.0	5.4	80.0
#ALC	1	0	0	0	0	1	1	1	1.0	-	20.0
PIGU	1	0	0	0	0	1	1	1	1.0	-	20.0
#PAS	7	2	0	1	3	13	7	1	3.3	2.6	80.0
NOCR	5	2	0	1	3	11	5	1	2.8	1.7	80.0
EUST	2	0	0	0	0	2	2	2	2.0	-	20.0
#TOT	20	21	2	8	6	57	21	2	11.4	8.6	100.0

Campbell River Estuary Bird Surveys of Station 3 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	1	0	2	0	4	0	1	0	0	1	0	0	0	9	4	1	1.8	1.3	38.5
PALO	0	0	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
COLO	1	0	2	0	2	0	1	0	0	1	0	0	0	7	2	1	1.4	0.5	38.5
#GRE	0	0	0	2	3	0	1	1	1	0	3	0	2	13	3	1	1.9	0.9	53.8
HOGR	0	0	0	2	3	0	0	0	1	0	0	0	0	6	3	1	2.0	1.0	23.1
RNGR	0	0	0	0	0	0	1	1	0	0	3	0	0	5	3	1	1.7	1.2	23.1
EAGR	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	7.7
#COR	0	3	0	0	1	0	0	0	4	0	0	0	0	8	4	1	2.7	1.5	23.1
DCCO	0	3	0	0	1	0	0	0	1	0	0	0	0	5	3	1	1.7	1.2	23.1
PECO	0	0	0	0	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	7.7
#DIV	5	2	11	3	12	0	8	2	5	16	5	10	13	92	16	2	7.7	4.7	92.3
HADU	0	0	2	0	1	0	0	0	3	0	0	0	0	6	3	1	2.0	1.0	23.1
OLDS	0	0	0	0	0	0	0	0	0	2	0	1	0	3	2	1	1.5	0.7	15.4
SUSC	0	0	0	0	2	0	0	0	2	4	2	3	8	21	8	2	3.5	2.3	46.2
COGO	0	2	6	0	4	0	5	0	0	8	1	3	1	30	8	1	3.8	2.5	61.5
BAGO	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
BUFF	3	0	3	2	5	0	3	2	0	0	1	2	3	24	5	1	2.7	1.1	69.2
COME	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
RBME	0	0	0	0	0	0	0	0	0	2	0	1	1	4	2	1	1.3	0.6	23.1
DUCK	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#GUL	7	13	0	0	1	0	2	10	4	1	0	30	4	72	30	1	8.0	9.2	69.2
MEGU	0	0	0	0	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	7.7
HEGU	4	0	0	0	1	0	0	0	0	0	0	0	1	6	4	1	2.0	1.7	23.1
GWGU	3	13	0	0	0	0	2	10	1	1	0	30	3	63	30	1	7.9	10.0	61.5
#ALC	0	0	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
PIGU	0	0	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
RODO	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
#PAS	4	2	0	0	0	0	1	4	0	0	26	0	8	45	26	1	7.5	9.4	46.2
NOCR	4	0	0	0	0	0	0	4	0	0	26	0	5	39	26	4	9.8	10.8	30.8
EUST	0	2	0	0	0	0	1	0	0	0	0	0	3	6	3	1	2.0	1.0	23.1
#TOT	17	20	13	5	24	0	13	17	15	18	34	40	27	243	40	5	20.3	9.7	92.3

Campbell River Estuary Bird Surveys of Station 3 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	1	4	0	1	0	1	0	0	0	7	4	1	1.8	1.5	30.8
PALO	0	0	0	0	0	4	0	0	0	1	0	0	0	5	4	1	2.5	2.1	15.4
COLO	0	0	0	0	1	0	0	1	0	0	0	0	0	2	1	1	1.0	-	15.4
#GRE	4	5	0	1	3	15	0	10	0	0	0	0	0	38	15	1	6.3	5.2	46.2
RNGR	4	5	0	1	3	15	0	10	0	0	0	0	0	38	15	1	6.3	5.2	46.2
#COR	0	2	0	0	0	4	0	0	0	0	0	0	0	6	4	2	3.0	1.4	15.4
PECO	0	2	0	0	0	4	0	0	0	0	0	0	0	6	4	2	3.0	1.4	15.4
#DIV	1	10	0	0	2	4	0	0	0	0	0	0	0	17	10	1	4.3	4.0	30.8
OLDS	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
SUSC	1	6	0	0	0	0	0	0	0	0	0	0	0	7	6	1	3.5	3.5	15.4
COGO	0	1	0	0	2	0	0	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
BUFF	0	2	0	0	0	4	0	0	0	0	0	0	0	6	4	2	3.0	1.4	15.4
#RAP	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
BAEA	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
#GUL	8	0	0	0	5	12	0	9	5	5	8	0	5	57	12	5	7.1	2.6	61.5
GWGU	8	0	0	0	5	12	0	9	5	5	8	0	5	57	12	5	7.1	2.6	61.5
#ALC	2	0	0	0	0	2	0	2	0	0	0	0	0	6	2	2	2.0	-	23.1
PIGU	2	0	0	0	0	2	0	2	0	0	0	0	0	6	2	2	2.0	-	23.1
RODO	0	0	0	0	0	3	0	2	0	0	0	0	0	5	3	2	2.5	0.7	15.4
#PAS	6	0	0	0	0	4	1	7	1	4	1	1	1	26	7	1	2.9	2.4	69.2
NOCR	6	0	0	0	0	4	1	4	1	2	1	0	1	20	6	1	2.5	1.9	61.5
EUST	0	0	0	0	0	0	0	0	0	2	0	1	0	3	2	1	1.5	0.7	15.4
SAVS	0	0	0	0	0	0	0	3	0	0	0	0	0	3	3	3	3.0	-	7.7
#TOT	21	17	0	1	11	48	1	32	6	10	9	1	6	163	48	1	13.6	14.2	92.3

Campbell River Estuary Bird Surveys of Station 3 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#COR	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	9.1
CORM	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	9.1
#DIV	0	0	0	16	0	0	0	17	0	6	0	39	17	6	13.0	6.1	27.3
SUSC	0	0	0	16	0	0	0	0	0	0	0	16	16	16	16.0	-	9.1
BUFF	0	0	0	0	0	0	0	17	0	0	0	17	17	17	17.0	-	9.1
COME	0	0	0	0	0	0	0	0	0	6	0	6	6	6	6.0	-	9.1
#RAP	2	0	3	0	0	0	0	0	0	0	0	5	3	2	2.5	0.7	18.2
BAEA	2	0	3	0	0	0	0	0	0	0	0	5	3	2	2.5	0.7	18.2
#SHO	0	0	1	0	0	0	0	15	0	0	0	16	15	1	8.0	9.9	18.2
KILL	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
SURF	0	0	0	0	0	0	0	15	0	0	0	15	15	15	15.0	-	9.1
#GUL	7	0	2	19	4	4	14	40	17	11	0	118	40	2	13.1	11.8	81.8
BOGU	0	0	0	7	3	0	0	17	0	0	0	27	17	3	9.0	7.2	27.3
GWGU	7	0	2	12	1	4	14	23	17	11	0	91	23	1	10.1	7.3	81.8
#ALC	13	0	2	0	0	0	1	0	0	0	0	16	13	1	5.3	6.7	27.3
PIGU	3	0	0	0	0	0	0	0	0	0	0	3	3	3	3.0	-	9.1
MAMU	10	0	2	0	0	0	1	0	0	0	0	13	10	1	4.3	4.9	27.3
#PAS	2	0	0	0	2	0	1	0	0	7	16	28	16	1	5.6	6.3	45.5
NOCR	2	0	0	0	0	0	1	0	0	7	1	11	7	1	2.8	2.9	36.4
EUST	0	0	0	0	2	0	0	0	0	0	15	17	15	2	8.5	9.2	18.2
#TOT	24	0	8	35	6	4	16	74	17	24	16	224	74	4	22.4	20.4	90.9

Campbell River Estuary Bird Surveys of Station 3 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	0	0	0	1	4	5	4	1	2.5	2.1	22.2
COLO	0	0	0	0	0	0	0	1	4	5	4	1	2.5	2.1	22.2
#GRE	0	0	0	0	0	2	0	2	0	4	2	2	2.0	-	22.2
HOGR	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
RNGR	0	0	0	0	0	1	0	2	0	3	2	1	1.5	0.7	22.2
#COR	0	0	0	0	0	1	1	1	0	3	1	1	1.0	-	33.3
CORM	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	11.1
PECO	0	0	0	0	0	1	0	1	0	2	1	1	1.0	-	22.2
#DIV	0	1	0	0	0	3	9	14	24	51	24	1	10.2	9.3	55.6
HADU	0	0	0	0	0	3	9	0	0	12	9	3	6.0	4.2	22.2
OLDS	0	0	0	0	0	0	0	9	0	9	9	9	9.0	-	11.1
BUFF	0	0	0	0	0	0	0	0	24	24	24	24	24.0	-	11.1
COME	0	0	0	0	0	0	0	5	0	5	5	5	5.0	-	11.1
RBME	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
#GUL	5	3	15	36	1	5	27	0	0	92	36	1	13.1	13.5	77.8
BOGU	3	0	0	0	0	0	15	0	0	18	15	3	9.0	8.5	22.2
HEGU	0	0	0	0	0	4	0	0	0	4	4	4	4.0	-	11.1
GWGU	2	3	15	36	1	1	12	0	0	70	36	1	10.0	12.8	77.8
#ALC	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	11.1
MAMU	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	11.1
#PAS	0	0	0	3	6	7	3	8	1	28	8	1	4.7	2.7	66.7
NOCR	0	0	0	3	6	6	2	1	0	18	6	1	3.6	2.3	55.6
EUST	0	0	0	0	0	1	1	7	0	9	7	1	3.0	3.5	33.3
FOSP	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	11.1
#TOT	5	4	15	39	7	18	41	26	29	184	41	4	20.4	14.1	100.0

Campbell River Estuary Bird Surveys of Station 3 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	0	4	1	0	1	0	0	6	4	1	2.0	1.7	42.9
PALO	0	3	0	0	0	0	0	3	3	3	3.0	-	14.3
COLO	0	1	1	0	1	0	0	3	1	1	1.0	-	42.9
#GRE	0	0	0	0	1	1	0	2	1	1	1.0	-	28.6
HOGR	0	0	0	0	1	0	0	1	1	1	1.0	-	14.3
RNGR	0	0	0	0	0	1	0	1	1	1	1.0	-	14.3
#COR	0	0	0	0	0	0	2	2	2	2	2.0	-	14.3
DCCO	0	0	0	0	0	0	2	2	2	2	2.0	-	14.3
#DIV	10	4	12	1	18	8	43	96	43	1	13.7	14.0	100.0
SCAU	0	0	0	1	0	0	0	1	1	1	1.0	-	14.3
GRSC	0	0	1	0	0	0	0	1	1	1	1.0	-	14.3
HADU	0	0	0	0	2	0	0	2	2	2	2.0	-	14.3
SUSC	0	0	0	0	0	3	8	11	8	3	5.5	3.5	28.6
COGO	3	0	10	0	0	1	5	19	10	1	4.8	3.9	57.1
BAGO	0	0	0	0	0	4	0	4	4	4	4.0	-	14.3
BUFF	2	4	1	0	0	0	0	7	4	1	2.3	1.5	42.9
COME	1	0	0	0	11	0	30	42	30	1	14.0	14.7	42.9
RBME	4	0	0	0	5	0	0	9	5	4	4.5	0.7	28.6
#GUL	2	1	2	0	0	0	0	5	2	1	1.7	0.6	42.9
GWGU	2	1	2	0	0	0	0	5	2	1	1.7	0.6	42.9
#PAS	0	0	6	0	3	1	4	14	6	1	3.5	2.1	57.1
NOCR	0	0	0	0	3	1	4	8	4	1	2.7	1.5	42.9
EUST	0	0	6	0	0	0	0	6	6	6	6.0	-	14.3
#TOT	12	9	21	1	23	10	49	125	49	1	17.9	15.6	100.0

Campbell River Estuary Bird Surveys of Station 3 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#DIV	3	7	10	7	3	5.0	2.8	100.0
COGO	2	0	2	2	2	2.0	-	50.0
BUFF	0	7	7	7	7	7.0	-	50.0
COME	1	0	1	1	1	1.0	-	50.0
#GUL	3	10	13	10	3	6.5	4.9	100.0
GWGU	3	10	13	10	3	6.5	4.9	100.0
#PAS	1	3	4	3	1	2.0	1.4	100.0
NOCR	0	3	3	3	3	3.0	-	50.0
EUST	1	0	1	1	1	1.0	-	50.0
#TOT	7	20	27	20	7	13.5	9.2	100.0

Campbell River Estuary Bird Surveys of Station 4 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	12	8	0	2	22	12	2	7.3	5.0	60.0
PALO	0	10	0	0	0	10	10	10	10.0	-	20.0
COLO	0	2	8	0	2	12	8	2	4.0	3.5	60.0
#GRE	4	3	7	2	0	16	7	2	4.0	2.2	80.0
HOGR	0	3	0	0	0	3	3	3	3.0	-	20.0
RNGR	4	0	7	2	0	13	7	2	4.3	2.5	60.0
#DIV	0	23	5	7	9	44	23	5	11.0	8.2	80.0
HADU	0	2	0	0	2	4	2	2	2.0	-	40.0
WWSC	0	19	0	0	0	19	19	19	19.0	-	20.0
COGO	0	0	0	2	0	2	2	2	2.0	-	20.0
BAGO	0	0	0	0	2	2	2	2	2.0	-	20.0
BUFF	0	0	0	3	5	8	5	3	4.0	1.4	40.0
COME	0	0	5	2	0	7	5	2	3.5	2.1	40.0
RBME	0	2	0	0	0	2	2	2	2.0	-	20.0
#RAP	0	0	0	1	0	1	1	1	1.0	-	20.0
BAEA	0	0	0	1	0	1	1	1	1.0	-	20.0
#GUL	2	12	2	3	1	20	12	1	4.0	4.5	100.0
GULL	0	2	0	0	0	2	2	2	2.0	-	20.0
MEGU	0	8	0	0	0	8	8	8	8.0	-	20.0
HEGU	0	2	0	0	0	2	2	2	2.0	-	20.0
GWGU	2	0	2	3	1	8	3	1	2.0	0.8	80.0
#PAS	1	3	0	1	2	7	3	1	1.8	1.0	80.0
NOCR	1	3	0	1	1	6	3	1	1.5	1.0	80.0
SOSP	0	0	0	0	1	1	1	1	1.0	-	20.0
#TOT	7	53	22	14	14	110	53	7	22.0	18.1	100.0

Campbell River Estuary Bird Surveys of Station 4 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	3	0	2	0	10	0	0	0	0	0	0	0	0	15	10	2	5.0	4.4	23.1
RTLO	0	0	0	0	4	0	0	0	0	0	0	0	0	4	4	4	4.0	-	7.7
PALO	0	0	1	0	4	0	0	0	0	0	0	0	0	5	4	1	2.5	2.1	15.4
COLO	3	0	1	0	2	0	0	0	0	0	0	0	0	6	3	1	2.0	1.0	23.1
#GRE	0	0	0	0	4	0	1	0	4	0	0	1	3	13	4	1	2.6	1.5	38.5
HOGR	0	0	0	0	2	0	1	0	3	0	0	1	0	7	3	1	1.8	1.0	30.8
RNGR	0	0	0	0	2	0	0	0	1	0	0	0	2	5	2	1	1.7	0.6	23.1
EAGR	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
#COR	0	0	0	0	0	0	1	0	1	0	2	0	5	9	5	1	2.3	1.9	30.8
DCCO	0	0	0	0	0	0	1	0	0	0	0	0	4	5	4	1	2.5	2.1	15.4
PECO	0	0	0	0	0	0	0	0	1	0	2	0	1	4	2	1	1.3	0.6	23.1
#DIV	8	11	6	7	2	3	9	10	13	4	12	1	20	106	20	1	8.2	5.2	100.0
HADU	0	0	0	0	0	0	0	0	0	0	3	0	2	5	3	2	2.5	0.7	15.4
OLDS	1	0	1	0	0	0	0	3	1	0	0	1	0	7	3	1	1.4	0.9	38.5
SUSC	0	0	0	0	2	0	7	6	9	0	1	0	6	31	9	1	5.2	3.1	46.2
WWSC	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
COGO	1	0	1	0	0	0	1	0	2	0	5	0	3	13	5	1	2.2	1.6	46.2
BUFF	6	10	2	7	0	3	0	1	1	4	3	0	7	44	10	1	4.4	3.0	76.9
COME	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
RBME	0	0	0	0	0	0	1	0	0	0	0	0	2	3	2	1	1.5	0.7	15.4
#GUL	1	4	0	1	0	0	1	10	3	4	2	6	4	36	10	1	3.6	2.8	76.9
HEGU	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4.0	-	7.7
GWGU	1	4	0	1	0	0	1	10	3	4	2	6	0	32	10	1	3.6	3.0	69.2
#ALC	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
PIGU	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
RODO	15	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15.0	-	7.7
#PAS	10	0	0	0	7	0	5	9	5	0	0	0	2	38	10	2	6.3	2.9	46.2
NOCR	7	0	0	0	4	0	5	5	3	0	0	0	1	25	7	1	4.2	2.0	46.2
EUST	3	0	0	0	3	0	0	4	2	0	0	0	1	13	4	1	2.6	1.1	38.5
#TOT	37	15	8	8	23	3	17	29	27	8	16	8	34	233	37	3	17.9	11.1	100.0

Campbell River Estuary Bird Surveys of Station 4 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	1	0	0	3	0	7	2	0	11	0	24	11	1	4.8	4.1	38.5
PALO	0	0	0	0	0	0	0	0	7	2	0	11	0	20	11	2	6.7	4.5	23.1
COLO	0	0	0	1	0	0	3	0	0	0	0	0	0	4	3	1	2.0	1.4	15.4
#GRE	0	1	0	0	4	1	1	7	0	0	0	0	0	14	7	1	2.8	2.7	38.5
HOGR	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
RNGR	0	1	0	0	4	1	0	5	0	0	0	0	0	11	5	1	2.8	2.1	30.8
WEGR	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#DIV	3	3	0	9	6	1	9	2	0	2	0	0	0	35	9	1	4.4	3.2	61.5
OLDS	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
SUSC	0	0	0	0	0	0	1	0	0	2	0	0	0	3	2	1	1.5	0.7	15.4
WWSC	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
COGO	0	0	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
BAGO	0	0	0	0	0	0	4	0	0	0	0	0	0	4	4	4	4.0	-	7.7
BUFF	3	2	0	7	2	0	3	2	0	0	0	0	0	19	7	2	3.2	1.9	46.2
COME	0	0	0	0	1	1	1	0	0	0	0	0	0	3	1	1	1.0	-	23.1
RBME	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#GUL	5	10	2	16	4	24	6	2	5	11	17	4	3	109	24	2	8.4	6.9	100.0
BOGU	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4	4	4.0	-	7.7
MEGU	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
GWGU	5	10	2	15	4	24	6	2	5	7	17	4	3	104	24	2	8.0	6.7	100.0
#ALC	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
PIGU	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
RODO	0	0	0	0	0	0	0	4	0	0	0	7	0	11	7	4	5.5	2.1	15.4
#PAS	0	3	0	2	0	0	3	7	0	0	0	3	0	18	7	2	3.6	1.9	38.5
NOCR	0	3	0	2	0	0	2	1	0	0	0	2	0	10	3	1	2.0	0.7	38.5
EUST	0	0	0	0	0	0	1	3	0	0	0	1	0	5	3	1	1.7	1.2	23.1
SAVS	0	0	0	0	0	0	0	3	0	0	0	0	0	3	3	3	3.0	-	7.7
#TOT	8	17	2	28	14	26	22	23	12	15	17	25	3	212	28	2	16.3	8.5	100.0

Campbell River Estuary Bird Surveys of Station 4 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
PALO	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
#HER	0	0	0	0	0	0	0	0	0	4	0	4	4	4	4.0	-	9.1
GBHE	0	0	0	0	0	0	0	0	0	4	0	4	4	4	4.0	-	9.1
#DAB	0	0	0	0	0	0	0	0	0	10	0	10	10	10	10.0	-	9.1
AMWI	0	0	0	0	0	0	0	0	0	10	0	10	10	10	10.0	-	9.1
#DIV	0	0	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	9.1
SUSC	0	0	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	9.1
#RAP	5	0	0	0	1	0	0	0	0	2	0	8	5	1	2.7	2.1	27.3
BAEA	5	0	0	0	1	0	0	0	0	2	0	8	5	1	2.7	2.1	27.3
#GUL	50	0	29	3	8	56	51	10	21	108	21	357	108	3	35.7	31.7	90.9
GULL	0	0	0	0	0	0	0	0	0	30	0	30	30	30	30.0	-	9.1
RBGU	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
GWGU	50	0	29	3	8	56	50	10	21	78	21	326	78	3	32.6	24.7	90.9
#ALC	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
PIGU	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
RODO	0	0	3	0	1	0	0	0	0	0	0	4	3	1	2.0	1.4	18.2
#PAS	1	0	4	3	30	2	0	3	30	7	6	86	30	1	9.6	11.7	81.8
BASW	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	9.1
NOCR	1	0	4	1	0	0	0	2	0	0	6	14	6	1	2.8	2.2	45.5
EUST	0	0	0	2	30	0	0	1	30	7	0	70	30	1	14.0	14.8	45.5
#TOT	57	0	36	7	40	58	51	16	51	131	27	474	131	7	47.4	34.1	90.9

Campbell River Estuary Bird Surveys of Station 4 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#COR	0	0	0	0	1	1	0	0	0	2	1	1	1.0	-	22.2
DCCO	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
PECO	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
#DIV	0	0	0	0	0	2	0	3	12	17	12	2	5.7	5.5	33.3
HADU	0	0	0	0	0	0	0	3	5	8	5	3	4.0	1.4	22.2
OLDS	0	0	0	0	0	0	0	0	7	7	7	7	7.0	-	11.1
RBME	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	11.1
#GUL	24	30	0	30	53	6	6	1	1	151	53	1	18.9	18.6	88.9
BOGU	0	0	0	0	10	0	0	0	0	10	10	10	10.0	-	11.1
MEGU	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
HEGU	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	11.1
GWGU	24	30	0	30	43	3	6	1	1	138	43	1	17.3	16.4	88.9
RODO	0	0	0	0	7	3	0	0	0	10	7	3	5.0	2.8	22.2
#PAS	0	1	0	4	9	2	6	0	0	22	9	1	4.4	3.2	55.6
NOCR	0	1	0	4	9	0	3	0	0	17	9	1	4.3	3.4	44.4
EUST	0	0	0	0	0	2	3	0	0	5	3	2	2.5	0.7	22.2
#TOT	24	31	0	34	70	14	12	4	13	202	70	4	25.3	20.8	88.9

Campbell River Estuary Bird Surveys of Station 4 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	2	1	1	2	2	8	2	1	1.6	0.5	71.4
COLO	0	0	2	1	1	2	2	8	2	1	1.6	0.5	71.4
#GRE	0	2	2	0	3	0	3	10	3	2	2.5	0.6	57.1
HOGR	0	2	0	0	3	0	2	7	3	2	2.3	0.6	42.9
RNGR	0	0	2	0	0	0	1	3	2	1	1.5	0.7	28.6
#DIV	4	9	0	4	7	53	36	113	53	4	18.8	20.7	85.7
HADU	0	2	0	0	1	0	0	3	2	1	1.5	0.7	28.6
OLDS	0	2	0	0	0	0	0	2	2	2	2.0	-	14.3
SUSC	0	0	0	0	0	9	32	41	32	9	20.5	16.3	28.6
COGO	0	0	0	1	2	42	0	45	42	1	15.0	23.4	42.9
BUFF	4	5	0	3	3	1	0	16	5	1	3.2	1.5	71.4
COME	0	0	0	0	0	1	4	5	4	1	2.5	2.1	28.6
RBME	0	0	0	0	1	0	0	1	1	1	1.0	-	14.3
#GUL	2	1	60	4	5	3	5	80	60	1	11.4	21.5	100.0
GWGU	2	1	60	4	5	3	5	80	60	1	11.4	21.5	100.0
#PAS	4	1	0	0	0	2	11	18	11	1	4.5	4.5	57.1
NOCR	0	0	0	0	0	0	7	7	7	7	7.0	-	14.3
AMRO	0	0	0	0	0	0	1	1	1	1	1.0	-	14.3
EUST	0	1	0	0	0	2	3	6	3	1	2.0	1.0	42.9
DEJU	4	0	0	0	0	0	0	4	4	4	4.0	-	14.3
#TOT	10	13	64	9	16	60	57	229	64	9	32.7	26.0	100.0

Campbell River Estuary Bird Surveys of Station 4 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#LOO	0	1	1	1	1	1.0	-	50.0
COLO	0	1	1	1	1	1.0	-	50.0
#DIV	18	13	31	18	13	15.5	3.5	100.0
SUSC	0	6	6	6	6	6.0	-	50.0
WWSC	14	0	14	14	14	14.0	-	50.0
COGO	0	7	7	7	7	7.0	-	50.0
BUFF	2	0	2	2	2	2.0	-	50.0
COME	2	0	2	2	2	2.0	-	50.0
#GUL	0	3	3	3	3	3.0	-	50.0
GWGU	0	3	3	3	3	3.0	-	50.0
#PAS	4	0	4	4	4	4.0	-	50.0
NOCR	2	0	2	2	2	2.0	-	50.0
EUST	2	0	2	2	2	2.0	-	50.0
#TOT	22	17	39	22	17	19.5	3.5	100.0

Campbell River Estuary Bird Surveys of Station 5 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	1	1	1	1	1.0	-	20.0
COLO	0	0	0	0	1	1	1	1	1.0	-	20.0
#GRE	0	2	0	0	0	2	2	2	2.0	-	20.0
HOGR	0	1	0	0	0	1	1	1	1.0	-	20.0
WEGR	0	1	0	0	0	1	1	1	1.0	-	20.0
#COR	1	3	0	1	0	5	3	1	1.7	1.2	60.0
CORM	1	0	0	0	0	1	1	1	1.0	-	20.0
DCCO	0	3	0	1	0	4	3	1	2.0	1.4	40.0
#DIV	0	0	0	10	0	10	10	10	10.0	-	20.0
HADU	0	0	0	7	0	7	7	7	7.0	-	20.0
COGO	0	0	0	2	0	2	2	2	2.0	-	20.0
RBME	0	0	0	1	0	1	1	1	1.0	-	20.0
#SHO	0	0	0	1	3	4	3	1	2.0	1.4	40.0
KILL	0	0	0	1	3	4	3	1	2.0	1.4	40.0
#GUL	1	14	0	6	0	21	14	1	7.0	6.6	60.0
MEGU	0	11	0	0	0	11	11	11	11.0	-	20.0
HEGU	0	2	0	0	0	2	2	2	2.0	-	20.0
GWGU	1	1	0	6	0	8	6	1	2.7	2.9	60.0
#ALC	0	1	0	0	0	1	1	1	1.0	-	20.0
MAMU	0	1	0	0	0	1	1	1	1.0	-	20.0
BEKI	0	0	0	1	0	1	1	1	1.0	-	20.0
#PAS	2	0	0	6	0	8	6	2	4.0	2.8	40.0
NOCR	0	0	0	6	0	6	6	6	6.0	-	20.0
EUST	2	0	0	0	0	2	2	2	2.0	-	20.0
#TOT	4	20	0	25	4	53	25	4	13.3	10.9	80.0

Campbell River Estuary Bird Surveys of Station 5 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	2	0	1	1	0	0	0	0	0	0	0	4	2	1	1.3	0.6	23.1
PALO	0	0	2	0	0	1	0	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
COLO	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#GRE	0	0	2	0	1	0	0	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
HOGR	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
WEGR	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#COR	1	0	0	0	1	0	0	0	0	0	0	0	0	2	1	1	1.0	-	15.4
PECO	1	0	0	0	1	0	0	0	0	0	0	0	0	2	1	1	1.0	-	15.4
#DIV	18	11	7	11	10	17	20	15	20	2	8	4	0	143	20	2	11.9	6.1	92.3
HADU	7	0	2	3	1	1	8	13	10	0	3	2	0	50	13	1	5.0	4.2	76.9
OLDS	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
BLSC	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
SUSC	0	0	0	0	0	1	0	0	2	0	3	0	0	6	3	1	2.0	1.0	23.1
COGO	2	6	0	0	2	1	1	0	2	2	0	0	0	16	6	1	2.3	1.7	53.8
BAGO	0	0	0	5	0	0	0	0	0	0	0	0	0	5	5	5	5.0	-	7.7
BUFF	9	3	5	3	6	13	11	2	6	0	2	1	0	61	13	1	5.5	4.0	84.6
COME	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
RBME	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#RAP	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
BAEA	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
#SHO	5	1	0	0	10	0	2	0	0	0	0	0	2	20	10	1	4.0	3.7	38.5
KILL	5	1	0	0	10	0	2	0	0	0	0	0	2	20	10	1	4.0	3.7	38.5
#GUL	2	0	2	0	0	0	0	19	3	0	10	0	0	36	19	2	7.2	7.4	38.5
GWGU	2	0	2	0	0	0	0	19	3	0	10	0	0	36	19	2	7.2	7.4	38.5
#ALC	0	0	0	0	0	0	0	0	0	0	0	5	0	5	5	5	5.0	-	7.7
COMU	0	0	0	0	0	0	0	0	0	0	0	5	0	5	5	5	5.0	-	7.7
BEKI	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#PAS	0	0	0	0	0	0	5	1	0	0	0	0	0	6	5	1	3.0	2.8	15.4
NOCR	0	0	0	0	0	0	5	1	0	0	0	0	0	6	5	1	3.0	2.8	15.4
#TOT	26	12	13	11	23	18	28	35	23	2	19	9	2	221	35	2	17.0	10.0	100.0

Campbell River Estuary Bird Surveys of Station 5 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	0	2	0	0	0	3	0	12	0	17	12	2	5.7	5.5	23.1
PALO	0	0	0	0	0	2	0	0	0	3	0	12	0	17	12	2	5.7	5.5	23.1
#COR	0	0	0	0	0	2	1	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
CORM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
PECO	0	0	0	0	0	2	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#DIV	9	12	3	2	5	8	2	1	0	2	0	0	0	44	12	1	4.9	3.9	69.2
HADU	2	0	0	0	0	0	0	0	0	2	0	0	0	4	2	2	2.0	-	15.4
OLDS	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
SUSC	0	4	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4.0	-	7.7
WWSC	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
COGO	0	2	1	1	4	6	2	1	0	0	0	0	0	17	6	1	2.4	1.9	53.8
BUFF	0	4	2	1	1	0	0	0	0	0	0	0	0	8	4	1	2.0	1.4	30.8
COME	7	0	0	0	0	2	0	0	0	0	0	0	0	9	7	2	4.5	3.5	15.4
#GUL	0	0	0	2	52	2	2	30	0	1	0	5	0	94	52	1	13.4	19.9	53.8
BOGU	0	0	0	0	0	0	0	25	0	0	0	0	0	25	25	25	25.0	-	7.7
GWGU	0	0	0	2	52	2	2	5	0	1	0	5	0	69	52	1	9.9	18.6	53.8
#ALC	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
PIGU	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
#PAS	3	0	0	1	0	0	0	1	0	3	4	1	0	13	4	1	2.2	1.3	46.2
BASW	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
NOCR	3	0	0	1	0	0	0	0	0	3	0	0	0	7	3	1	2.3	1.2	23.1
EUST	0	0	0	0	0	0	0	1	0	0	1	0	0	2	1	1	1.0	-	15.4
HOSP	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3	3	3.0	-	7.7
#TOT	12	12	3	5	57	14	5	33	0	9	4	18	0	172	57	3	15.6	16.2	84.6

Campbell River Estuary Bird Surveys of Station 5 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#COR	0	0	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	9.1
CORM	0	0	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	9.1
#DIV	0	0	0	28	0	0	0	0	7	0	0	35	28	7	17.5	14.8	18.2
HADU	0	0	0	3	0	0	0	0	0	0	0	3	3	3	3.0	-	9.1
SUSC	0	0	0	7	0	0	0	0	7	0	0	14	7	7	7.0	-	18.2
BUFF	0	0	0	18	0	0	0	0	0	0	0	18	18	18	18.0	-	9.1
#RAP	5	0	4	0	0	0	0	0	0	0	0	9	5	4	4.5	0.7	18.2
BAEA	5	0	4	0	0	0	0	0	0	0	0	9	5	4	4.5	0.7	18.2
#GUL	20	0	4	0	12	6	2	19	17	78	10	168	78	2	18.7	23.2	81.8
BOGU	0	0	1	0	0	0	2	12	0	0	0	15	12	1	5.0	6.1	27.3
GWGU	20	0	3	0	12	6	0	7	17	78	10	153	78	3	19.1	24.5	72.7
#PAS	1	0	6	0	1	3	0	0	0	12	21	44	21	1	7.3	7.9	54.5
NOCR	1	0	0	0	1	3	0	0	0	12	12	29	12	1	5.8	5.7	45.5
CORA	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
EUST	0	0	2	0	0	0	0	0	0	0	9	11	9	2	5.5	4.9	18.2
BRBL	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
#TOT	26	0	14	28	13	9	2	22	24	90	31	259	90	2	25.9	24.3	90.9

Campbell River Estuary Bird Surveys of Station 5 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	0	0	1	3	2	6	3	1	2.0	1.0	33.3
COLO	0	0	0	0	0	0	1	3	2	6	3	1	2.0	1.0	33.3
#DIV	5	4	0	0	5	7	0	0	4	25	7	4	5.0	1.2	55.6
HADU	0	0	0	0	5	7	0	0	1	13	7	1	4.3	3.1	33.3
SUSC	5	4	0	0	0	0	0	0	0	9	5	4	4.5	0.7	22.2
COME	0	0	0	0	0	0	0	0	3	3	3	3	3.0	-	11.1
#GUL	23	7	9	3	28	0	2	5	0	77	28	2	11.0	10.3	77.8
BOGU	23	4	0	0	3	0	1	0	0	31	23	1	7.8	10.2	44.4
MEGU	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
GWGU	0	2	9	3	25	0	1	5	0	45	25	1	7.5	9.0	66.7
#ALC	0	0	0	0	0	10	0	0	0	10	10	10	10.0	-	11.1
COMU	0	0	0	0	0	10	0	0	0	10	10	10	10.0	-	11.1
#PAS	0	0	0	1	5	0	0	2	0	8	5	1	2.7	2.1	33.3
NOCR	0	0	0	1	0	0	0	2	0	3	2	1	1.5	0.7	22.2
RWBL	0	0	0	0	5	0	0	0	0	5	5	5	5.0	-	11.1
#TOT	28	11	9	4	38	17	3	10	6	126	38	3	14.0	11.8	100.0

Campbell River Estuary Bird Surveys of Station 5 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	4	0	0	4	4	4	4.0	-	14.3
COLO	0	0	0	0	4	0	0	4	4	4	4.0	-	14.3
#GRE	0	0	0	0	1	1	0	2	1	1	1.0	-	28.6
HOGR	0	0	0	0	1	0	0	1	1	1	1.0	-	14.3
RNGR	0	0	0	0	0	1	0	1	1	1	1.0	-	14.3
#COR	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
CORM	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
#DIV	35	28	2	4	1	67	36	173	67	1	24.7	24.3	100.0
HADU	5	8	2	0	0	0	0	15	8	2	5.0	3.0	42.9
OLDS	3	0	0	0	0	0	0	3	3	3	3.0	-	14.3
SUSC	7	0	0	0	0	40	0	47	40	7	23.5	23.3	28.6
GOLD	0	0	0	4	0	0	0	4	4	4	4.0	-	14.3
COGO	8	8	0	0	0	20	22	58	22	8	14.5	7.5	57.1
BUFF	3	2	0	0	0	5	12	22	12	2	5.5	4.5	57.1
COME	9	7	0	0	0	2	2	20	9	2	5.0	3.6	57.1
RBME	0	3	0	0	1	0	0	4	3	1	2.0	1.4	28.6
#RAP	0	0	0	0	1	1	0	2	1	1	1.0	-	28.6
BAEA	0	0	0	0	1	1	0	2	1	1	1.0	-	28.6
#GUL	0	0	0	12	0	1	0	13	12	1	6.5	7.8	28.6
GWGU	0	0	0	12	0	1	0	13	12	1	6.5	7.8	28.6
#PAS	1	0	0	0	0	0	7	8	7	1	4.0	4.2	28.6
NOCR	1	0	0	0	0	0	0	1	1	1	1.0	-	14.3
DEJU	0	0	0	0	0	0	7	7	7	7	7.0	-	14.3
#TOT	36	29	2	16	7	70	43	203	70	2	29.0	23.5	100.0

Campbell River Estuary Bird Surveys of Station 5 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#LOO	1	0	1	1	1	1.0	-	50.0
COLO	1	0	1	1	1	1.0	-	50.0
#COR	2	0	2	2	2	2.0	-	50.0
PECO	2	0	2	2	2	2.0	-	50.0
#GEE	0	7	7	7	7	7.0	-	50.0
BRAN	0	7	7	7	7	7.0	-	50.0
#DIV	0	7	7	7	7	7.0	-	50.0
SUSC	0	7	7	7	7	7.0	-	50.0
#GUL	1	0	1	1	1	1.0	-	50.0
GWGU	1	0	1	1	1	1.0	-	50.0
#TOT	4	14	18	14	4	9.0	7.1	100.0

Campbell River Estuary Bird Surveys of Station 6 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	2	0	8	0	0	10	8	2	5.0	4.2	40.0
COLO	2	0	8	0	0	10	8	2	5.0	4.2	40.0
#COR	0	2	2	0	1	5	2	1	1.7	0.6	60.0
CORM	0	0	0	0	1	1	1	1	1.0	-	20.0
DCCO	0	2	2	0	0	4	2	2	2.0	-	40.0
#SWA	0	0	10	0	0	10	10	10	10.0	-	20.0
TRUS	0	0	10	0	0	10	10	10	10.0	-	20.0
#DAB	0	0	7	0	0	7	7	7	7.0	-	20.0
MALL	0	0	3	0	0	3	3	3	3.0	-	20.0
AMWI	0	0	4	0	0	4	4	4	4.0	-	20.0
#DIV	0	2	35	40	50	127	50	2	31.8	20.8	80.0
COGO	0	0	5	16	0	21	16	5	10.5	7.8	40.0
BAGO	0	0	0	0	27	27	27	27	27.0	-	20.0
BUFF	0	2	22	24	23	71	24	2	17.8	10.5	80.0
COME	0	0	8	0	0	8	8	8	8.0	-	20.0
#RAP	0	0	1	0	0	1	1	1	1.0	-	20.0
BAEA	0	0	1	0	0	1	1	1	1.0	-	20.0
#SHO	0	0	0	9	0	9	9	9	9.0	-	20.0
KILL	0	0	0	9	0	9	9	9	9.0	-	20.0
#GUL	4	3	200	6	2	215	200	2	43.0	87.8	100.0
GWGU	1	3	200	6	2	212	200	1	42.4	88.1	100.0
BLKI	3	0	0	0	0	3	3	3	3.0	-	20.0
BEKI	0	0	1	0	0	1	1	1	1.0	-	20.0
#PAS	3	0	13	0	0	16	13	3	8.0	7.1	40.0
NOCR	2	0	13	0	0	15	13	2	7.5	7.8	40.0
FOSP	1	0	0	0	0	1	1	1	1.0	-	20.0
#TOT	9	7	277	55	53	401	277	7	80.2	112.4	100.0

Campbell River Estuary Bird Surveys of Station 6 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
COLO	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#GRE	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
HOGR	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
#COR	2	0	3	0	0	0	9	1	10	0	3	1	1	30	10	1	3.8	3.7	61.5
CORM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
DCCO	2	0	1	0	0	0	9	0	0	0	3	0	1	16	9	1	3.2	3.3	38.5
PECO	0	0	2	0	0	0	0	0	10	0	0	1	0	13	10	1	4.3	4.9	23.1
#HER	0	0	1	2	0	0	0	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
GBHE	0	0	1	2	0	0	0	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
#SWA	0	13	0	4	0	4	0	0	0	0	0	0	0	21	13	4	7.0	5.2	23.1
TRUS	0	13	0	4	0	4	0	0	0	0	0	0	0	21	13	4	7.0	5.2	23.1
#DAB	0	0	0	20	0	0	0	0	0	0	6	0	0	26	20	6	13.0	9.9	15.4
MALL	0	0	0	20	0	0	0	0	0	0	6	0	0	26	20	6	13.0	9.9	15.4
#DIV	30	18	17	4	5	6	15	0	16	1	6	14	12	144	30	1	12.0	8.1	92.3
HADU	10	0	0	0	0	0	0	0	4	0	1	0	0	15	10	1	5.0	4.6	23.1
OLDS	0	0	0	0	0	0	0	0	0	0	1	1	0	2	1	1	1.0	-	15.4
COGO	11	13	1	0	1	4	7	0	3	0	3	3	4	50	13	1	5.0	4.1	76.9
BAGO	0	1	5	0	0	0	0	0	0	0	0	0	0	6	5	1	3.0	2.8	15.4
BUFF	9	4	11	0	4	0	8	0	9	1	1	10	7	64	11	1	6.4	3.7	76.9
MERG	0	0	0	4	0	0	0	0	0	0	0	0	0	4	4	4	4.0	-	7.7
COME	0	0	0	0	0	2	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
RBME	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
#RAP	0	0	2	0	0	0	2	0	0	0	0	0	0	4	2	2	2.0	-	15.4
BAEA	0	0	2	0	0	0	2	0	0	0	0	0	0	4	2	2	2.0	-	15.4
#SHO	4	4	0	0	0	0	0	0	0	2	9	1	0	20	9	1	4.0	3.1	38.5
SEPL	4	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4.0	-	7.7
KILL	0	4	0	0	0	0	0	0	0	2	9	1	0	16	9	1	4.0	3.6	30.8
#GUL	32	5	25	25	10	163	96	60	57	0	3	11	1	488	163	1	40.7	48.0	92.3
MEGU	0	0	0	0	1	0	0	0	7	0	0	1	0	9	7	1	3.0	3.5	23.1
HEGU	23	0	0	0	1	0	2	0	0	0	0	0	0	26	23	1	8.7	12.4	23.1
GWGU	9	5	25	25	8	163	94	60	50	0	3	10	1	453	163	1	37.8	48.6	92.3
#ALC	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
PIGU	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
BEKI	0	0	1	0	0	0	0	0	1	0	1	0	0	3	1	1	1.0	-	23.1
#PAS	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
NOCR	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#TOT	70	40	49	55	15	174	122	61	85	3	28	27	14	743	174	3	57.2	47.9	100.0

Campbell River Estuary Bird Surveys of Station 6 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	0	6	0	0	0	0	0	8	0	14	8	6	7.0	1.4	15.4
PALO	0	0	0	0	0	6	0	0	0	0	0	8	0	14	8	6	7.0	1.4	15.4
#COR	0	0	0	0	2	3	0	0	0	0	0	0	0	5	3	2	2.5	0.7	15.4
DCCO	0	0	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
PECO	0	0	0	0	0	3	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
#DAB	0	0	0	0	0	0	0	0	0	0	0	0	19	19	19	19	19.0	-	7.7
MALL	0	0	0	0	0	0	0	0	0	0	0	0	19	19	19	19	19.0	-	7.7
#DIV	12	8	8	1	12	24	4	5	0	0	0	0	0	74	24	1	9.3	7.1	61.5
SCAU	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
HADU	5	0	0	0	0	0	0	0	0	0	0	0	0	5	5	5	5.0	-	7.7
OLDS	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
SUSC	3	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
COGO	2	2	0	0	0	11	1	4	0	0	0	0	0	20	11	1	4.0	4.1	38.5
BAGO	0	0	0	0	0	0	2	0	0	0	0	0	0	2	2	2	2.0	-	7.7
BUFF	2	4	8	1	0	11	0	1	0	0	0	0	0	27	11	1	4.5	4.1	46.2
COME	0	0	0	0	12	2	0	0	0	0	0	0	0	14	12	2	7.0	7.1	15.4
#RAP	0	1	0	0	0	0	0	0	1	0	0	1	0	3	1	1	1.0	-	23.1
BAEA	0	1	0	0	0	0	0	0	1	0	0	1	0	3	1	1	1.0	-	23.1
#SHO	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
WESA	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
#GUL	62	0	200	0	7	2	200	247	0	21	0	215	64	1018	247	2	113.1	100.3	69.2
GULL	0	0	0	0	0	0	0	0	0	0	0	100	0	100	100	100	100.0	-	7.7
BOGU	0	0	0	0	0	0	0	27	0	1	0	14	0	42	27	1	14.0	13.0	23.1
MEGU	0	0	0	0	0	0	0	150	0	0	0	1	0	151	150	1	75.5	105.4	15.4
GWGU	62	0	200	0	7	2	200	70	0	20	0	100	64	725	200	2	80.6	74.9	69.2
RUHU	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
BEKI	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
#PAS	0	0	0	1	0	0	4	0	0	0	0	2	2	9	4	1	2.3	1.3	30.8
VGSW	0	0	0	0	0	0	3	0	0	0	0	0	0	3	3	3	3.0	-	7.7
NOCR	0	0	0	1	0	0	1	0	0	0	0	2	2	6	2	1	1.5	0.6	30.8
#TOT	74	9	208	2	21	35	208	252	1	23	0	226	86	1145	252	1	95.4	98.6	92.3

Campbell River Estuary Bird Surveys of Station 6 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#HER	2	0	0	0	0	1	1	0	0	1	0	5	2	1	1.3	0.5	36.4
GBHE	2	0	0	0	0	1	1	0	0	1	0	5	2	1	1.3	0.5	36.4
#DAB	0	0	0	0	0	0	0	15	0	0	0	15	15	15	15.0	-	9.1
MALL	0	0	0	0	0	0	0	15	0	0	0	15	15	15	15.0	-	9.1
#DIV	1	0	14	0	0	0	0	60	0	0	14	89	60	1	22.3	25.9	36.4
HADU	1	0	14	0	0	0	0	12	0	0	14	41	14	1	10.3	6.2	36.4
SUSC	0	0	0	0	0	0	0	25	0	0	0	25	25	25	25.0	-	9.1
BUFF	0	0	0	0	0	0	0	23	0	0	0	23	23	23	23.0	-	9.1
#RAP	5	0	0	0	1	1	1	0	0	0	0	8	5	1	2.0	2.0	36.4
BAEA	5	0	0	0	1	1	1	0	0	0	0	8	5	1	2.0	2.0	36.4
#SHO	0	0	0	2	0	0	8	30	10	32	16	98	32	2	16.3	12.2	54.5
KILL	0	0	0	2	0	0	0	10	0	0	0	12	10	2	6.0	5.7	18.2
SURF	0	0	0	0	0	0	0	20	0	0	0	20	20	20	20.0	-	9.1
WESA	0	0	0	0	0	0	8	0	10	0	15	33	15	8	11.0	3.6	27.3
LESA	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
SHOR	0	0	0	0	0	0	0	0	0	32	0	32	32	32	32.0	-	9.1
#GUL	99	30	133	16	54	387	81	70	28	16	6	920	387	6	83.6	108.1	100.0
BOGU	19	0	7	1	2	6	10	30	2	0	0	77	30	1	9.6	10.1	72.7
MEGU	0	0	1	0	2	0	0	0	1	0	0	4	2	1	1.3	0.6	27.3
HEGU	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	9.1
GWGU	80	30	125	15	50	380	71	40	24	16	6	837	380	6	76.1	106.7	100.0
BLKI	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	9.1
CATE	0	0	0	0	2	0	0	0	0	0	0	2	2	2	2.0	-	9.1
#ALC	4	0	3	0	0	0	0	0	0	0	0	7	4	3	3.5	0.7	18.2
MAMU	4	0	3	0	0	0	0	0	0	0	0	7	4	3	3.5	0.7	18.2
#PAS	5	0	5	0	1	15	9	2	0	5	1	43	15	1	5.4	4.7	72.7
BASW	2	0	0	0	0	2	0	0	0	0	0	4	2	2	2.0	-	18.2
NOCR	3	0	3	0	1	13	4	0	0	5	1	30	13	1	4.3	4.1	63.6
EUST	0	0	1	0	0	0	5	0	0	0	0	6	5	1	3.0	2.8	18.2
FOSP	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	9.1
HOFI	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
#TOT	116	30	155	18	58	404	100	177	38	54	37	1187	404	18	107.9	111.5	100.0

Campbell River Estuary Bird Surveys of Station 6 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	0	0	0	1	1	2	1	1	1.0	-	22.2
COLO	0	0	0	0	0	0	0	1	1	2	1	1	1.0	-	22.2
#COR	0	0	0	0	2	0	1	0	0	3	2	1	1.5	0.7	22.2
CORM	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	11.1
DCCO	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
#HER	0	1	2	0	0	0	0	0	0	3	2	1	1.5	0.7	22.2
GBHE	0	1	2	0	0	0	0	0	0	3	2	1	1.5	0.7	22.2
#GEE	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
GWFG	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
#DAB	0	0	0	0	235	73	0	0	0	308	235	73	154.0	114.6	22.2
GWTE	0	0	0	0	35	0	0	0	0	35	35	35	35.0	-	11.1
MALL	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	11.1
AMWI	0	0	0	0	200	70	0	0	0	270	200	70	135.0	91.9	22.2
#DIV	0	15	0	0	14	0	5	0	21	55	21	5	13.8	6.6	44.4
HADU	0	0	0	0	2	0	5	0	0	7	5	2	3.5	2.1	22.2
SUSC	0	3	0	0	0	0	0	0	0	3	3	3	3.0	-	11.1
WWSC	0	0	0	0	12	0	0	0	0	12	12	12	12.0	-	11.1
COGO	0	0	0	0	0	0	0	0	8	8	8	8	8.0	-	11.1
BUFF	0	0	0	0	0	0	0	0	10	10	10	10	10.0	-	11.1
COME	0	0	0	0	0	0	0	0	3	3	3	3	3.0	-	11.1
RBME	0	2	0	0	0	0	0	0	0	2	2	2	2.0	-	11.1
DUCK	0	10	0	0	0	0	0	0	0	10	10	10	10.0	-	11.1
#RAP	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
BAEA	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
#GUL	68	77	223	6	19	330	165	0	6	894	330	6	111.8	117.7	88.9
GULL	0	0	23	0	0	0	0	0	0	23	23	23	23.0	-	11.1
BOGU	0	6	0	0	2	0	0	0	0	8	6	2	4.0	2.8	22.2
MEGU	0	20	0	0	0	30	0	0	0	50	30	20	25.0	7.1	22.2
HEGU	0	1	0	0	1	0	0	0	0	2	1	1	1.0	-	22.2
GWGU	68	50	200	6	16	300	165	0	6	811	300	6	101.4	108.5	88.9
BEKI	0	0	0	0	1	0	0	0	1	2	1	1	1.0	-	22.2
#PAS	0	10	0	1	1	0	1	6	1	20	10	1	3.3	3.8	66.7
NOCR	0	10	0	0	0	0	1	0	0	11	10	1	5.5	6.4	22.2
POSP	0	0	0	1	0	0	0	0	1	2	1	1	1.0	-	22.2
SOSP	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
DEJU	0	0	0	0	0	0	0	6	0	6	6	6	6.0	-	11.1
#TOT	68	104	225	7	274	403	172	7	30	1290	403	7	143.3	136.6	100.0

Campbell River Estuary Bird Surveys of Station 6 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	2	0	0	0	0	2	2	2	2.0	-	14.3
COLO	0	0	2	0	0	0	0	2	2	2	2.0	-	14.3
#GRE	1	0	0	0	0	0	0	1	1	1	1.0	-	14.3
RNGR	1	0	0	0	0	0	0	1	1	1	1.0	-	14.3
#COR	0	6	0	0	3	0	6	15	6	3	5.0	1.7	42.9
DCCO	0	6	0	0	2	0	0	8	6	2	4.0	2.8	28.6
PECO	0	0	0	0	1	0	6	7	6	1	3.5	3.5	28.6
#SWA	0	0	4	0	11	0	0	15	11	4	7.5	4.9	28.6
TRUS	0	0	4	0	11	0	0	15	11	4	7.5	4.9	28.6
#DIV	0	14	2	4	8	2	8	38	14	2	6.3	4.6	85.7
OLDS	0	2	0	0	0	0	0	2	2	2	2.0	-	14.3
BLSC	0	0	0	0	0	0	8	8	8	8	8.0	-	14.3
SUSC	0	0	0	0	0	2	0	2	2	2	2.0	-	14.3
COGO	0	3	2	0	0	0	0	5	3	2	2.5	0.7	28.6
BAGO	0	0	0	4	0	0	0	4	4	4	4.0	-	14.3
BUFF	0	8	0	0	2	0	0	10	8	2	5.0	4.2	28.6
COME	0	0	0	0	6	0	0	6	6	6	6.0	-	14.3
RBME	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
#RAP	0	0	0	0	0	1	0	1	1	1	1.0	-	14.3
BAEA	0	0	0	0	0	1	0	1	1	1	1.0	-	14.3
#GUL	0	4	0	150	2	300	0	456	300	2	114.0	142.1	57.1
GWGU	0	4	0	150	2	300	0	456	300	2	114.0	142.1	57.1
BEKI	0	0	0	0	0	0	1	1	1	1	1.0	-	14.3
#PAS	0	12	0	15	4	0	0	31	15	4	10.3	5.7	42.9
NOCR	0	0	0	0	2	0	0	2	2	2	2.0	-	14.3
SOSP	0	2	0	0	2	0	0	4	2	2	2.0	-	28.6
DEJU	0	10	0	15	0	0	0	25	15	10	12.5	3.5	28.6
#TOT	1	36	8	169	28	303	15	560	303	1	80.0	114.0	100.0

Campbell River Estuary Bird Surveys of Station 6 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#DIV	15	0	15	15	15	15.0	-	50.0
SUSC	12	0	12	12	12	12.0	-	50.0
COGO	3	0	3	3	3	3.0	-	50.0
#GUL	1	40	41	40	1	20.5	27.6	100.0
BOGU	0	15	15	15	15	15.0	-	50.0
GWGU	1	25	26	25	1	13.0	17.0	100.0
#PAS	0	1	1	1	1	1.0	-	50.0
FOSP	0	1	1	1	1	1.0	-	50.0
#TOT	16	41	57	41	16	28.5	17.7	100.0

Campbell River Estuary Bird Surveys of Station 7 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	1	0	0	1	0	2	1	1	1.0	-	40.0
LOON	0	0	0	1	0	1	1	1	1.0	-	20.0
COLO	1	0	0	0	0	1	1	1	1.0	-	20.0
#COR	1	13	0	5	0	19	13	1	6.3	6.1	60.0
CORM	1	0	0	0	0	1	1	1	1.0	-	20.0
DCCO	0	12	0	1	0	13	12	1	6.5	7.8	40.0
PECO	0	1	0	4	0	5	4	1	2.5	2.1	40.0
#SWA	0	0	0	0	3	3	3	3	3.0	-	20.0
TRUS	0	0	0	0	3	3	3	3	3.0	-	20.0
#DAB	20	0	0	0	0	20	20	20	20.0	-	20.0
GWTE	4	0	0	0	0	4	4	4	4.0	-	20.0
MALL	16	0	0	0	0	16	16	16	16.0	-	20.0
#DIV	5	7	1	12	2	27	12	1	5.4	4.4	100.0
SCOT	0	7	0	0	0	7	7	7	7.0	-	20.0
SUSC	5	0	0	0	0	5	5	5	5.0	-	20.0
BAGO	0	0	0	1	0	1	1	1	1.0	-	20.0
BUFF	0	0	0	11	2	13	11	2	6.5	6.4	40.0
COME	0	0	1	0	0	1	1	1	1.0	-	20.0
#SHO	0	2	0	0	0	2	2	2	2.0	-	20.0
SHOR	0	2	0	0	0	2	2	2	2.0	-	20.0
#GUL	306	38	150	29	0	523	306	29	130.8	129.1	80.0
MEGU	0	13	0	10	0	23	13	10	11.5	2.1	40.0
HEGU	0	1	0	9	0	10	9	1	5.0	5.7	40.0
GWGU	306	24	150	10	0	490	306	10	122.5	137.6	80.0
BEKI	0	0	2	0	0	2	2	2	2.0	-	20.0
#PAS	6	0	1	3	0	10	6	1	3.3	2.5	60.0
NOCR	6	0	1	3	0	10	6	1	3.3	2.5	60.0
#TOT	339	60	154	50	5	608	339	5	121.6	133.1	100.0

Campbell River Estuary Bird Surveys of Station 7 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#COR	5	0	6	0	2	0	2	0	0	0	2	1	4	22	6	1	3.1	1.9	53.8
DCCO	1	0	4	0	1	0	2	0	0	0	2	1	0	11	4	1	1.8	1.2	46.2
PECO	4	0	2	0	1	0	0	0	0	0	0	0	4	11	4	1	2.8	1.5	30.8
#HER	0	0	0	0	6	0	12	0	15	0	0	0	2	35	15	2	8.8	5.9	30.8
GBHE	0	0	0	0	6	0	12	0	15	0	0	0	2	35	15	2	8.8	5.9	30.8
#DIV	13	9	2	2	7	7	5	3	6	3	5	6	4	72	13	2	5.5	3.1	100.0
OLDS	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
SUSC	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
COGO	1	0	0	0	0	0	0	0	0	0	2	0	2	5	2	1	1.7	0.6	23.1
BAGO	0	0	0	2	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
BUFF	8	8	2	0	5	5	4	3	6	1	1	5	2	50	8	1	4.2	2.4	92.3
COME	2	0	0	0	0	0	0	0	0	0	1	0	0	3	2	1	1.5	0.7	15.4
RBME	2	1	0	0	2	2	1	0	0	0	0	1	0	9	2	1	1.5	0.5	46.2
#RAP	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
BAEA	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#SHO	3	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
KILL	3	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
#GUL	120	100	25	0	202	200	192	0	425	0	534	2	25	1825	534	2	182.5	175.1	76.9
GULL	120	0	0	0	0	0	0	0	0	0	500	0	7	627	500	7	209.0	258.3	23.1
MEGU	0	0	0	0	2	0	0	0	25	0	10	0	1	38	25	1	9.5	11.1	30.8
RBGU	0	0	0	0	0	0	2	0	0	0	0	0	0	2	2	2	2.0	-	7.7
HEGU	0	0	0	0	0	0	60	0	100	0	0	0	17	177	100	17	59.0	41.5	23.1
GWGU	0	100	25	0	200	200	130	0	300	0	24	2	0	981	300	2	122.6	105.4	61.5
RODO	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	7.7
BEKI	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
#PAS	0	0	0	0	3	1	3	2	2	0	0	1	16	28	16	1	4.0	5.4	53.8
NOCR	0	0	0	0	3	1	3	2	2	0	0	0	16	27	16	1	4.5	5.7	46.2
SOSP	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
#TOT	142	109	33	2	220	208	214	5	448	4	541	10	53	1989	541	2	153.0	173.8	100.0

Campbell River Estuary Bird Surveys of Station 7 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
PALO	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
#DIV	7	7	3	0	18	7	7	8	0	0	0	1	0	58	18	1	7.3	5.0	61.5
COGO	5	1	0	0	0	0	0	0	0	0	0	0	0	6	5	1	3.0	2.8	15.4
BUFF	2	6	0	0	11	2	5	8	0	0	0	0	0	34	11	2	5.7	3.5	46.2
COME	0	0	3	0	7	5	2	0	0	0	0	1	0	18	7	1	3.6	2.4	38.5
#RAP	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	1	1.0	-	15.4
BAEA	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	1	1.0	-	15.4
#GUL	277	3	0	2	35	0	8	1	185	7	3	40	4	565	277	1	51.4	92.1	84.6
MEGU	27	0	0	0	0	0	0	0	0	0	0	0	0	27	27	27	27.0	-	7.7
HEGU	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
GWGU	250	3	0	2	35	0	8	0	185	7	3	40	4	537	250	2	53.7	88.7	76.9
RODO	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
#PAS	1	0	0	0	1	0	1	2	7	1	0	6	0	19	7	1	2.7	2.6	53.8
VGSW	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4	4	4.0	-	7.7
BASW	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
NOCR	0	0	0	0	0	0	0	0	7	0	0	0	0	7	7	7	7.0	-	7.7
CORA	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
EUST	0	0	0	0	1	0	1	1	0	0	0	0	0	3	1	1	1.0	-	23.1
SAVS	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
WCSP	0	0	0	0	0	0	0	1	0	0	0	1	0	2	1	1	1.0	-	15.4
#TOT	285	10	3	2	54	7	16	13	193	9	3	48	4	647	285	2	49.8	87.6	100.0

Campbell River Estuary Bird Surveys of Station 7 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	9.1
GBHE	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	9.1
#DIV	1	2	0	1	0	0	3	1	0	0	0	8	3	1	1.6	0.9	45.5
SUSC	0	2	0	0	0	0	0	1	0	0	0	3	2	1	1.5	0.7	18.2
BUFF	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
COME	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
RBME	0	0	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	9.1
#RAP	14	0	0	0	2	6	1	0	0	0	0	23	14	1	5.8	5.9	36.4
BAEA	14	0	0	0	2	6	1	0	0	0	0	23	14	1	5.8	5.9	36.4
#SHO	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
KILL	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
#GUL	100	0	0	0	75	15	22	0	62	2	1	277	100	1	39.6	39.2	63.6
BOGU	0	0	0	0	0	5	16	0	0	0	0	21	16	5	10.5	7.8	18.2
HEGU	0	0	0	0	25	0	0	0	0	0	0	25	25	25	25.0	-	9.1
GWGU	100	0	0	0	50	10	6	0	62	2	1	231	100	1	33.0	38.4	63.6
RODO	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
#PAS	14	0	21	0	5	14	4	0	31	4	1	94	31	1	11.8	10.3	72.7
BASW	8	0	1	0	0	0	0	0	0	0	0	9	8	1	4.5	4.9	18.2
NOCR	2	0	0	0	3	0	0	0	1	4	1	11	4	1	2.2	1.3	45.5
EUST	3	0	17	0	2	14	4	0	30	0	0	70	30	2	11.7	10.9	54.5
PUFI	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
HOFI	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	9.1
#TOT	129	2	21	1	82	35	31	1	93	7	3	405	129	1	36.8	44.5	100.0

Campbell River Estuary Bird Surveys of Station 7 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#COR	0	1	0	0	0	8	1	18	3	31	18	1	6.2	7.2	55.6
CORM	0	0	0	0	0	0	1	0	3	4	3	1	2.0	1.4	22.2
PECO	0	1	0	0	0	8	0	18	0	27	18	1	9.0	8.5	33.3
#HER	0	0	0	0	0	1	0	0	5	6	5	1	3.0	2.8	22.2
GBHE	0	0	0	0	0	1	0	0	5	6	5	1	3.0	2.8	22.2
#GEE	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
GWFG	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
#DAB	0	0	0	0	7	0	0	0	0	7	7	7	7.0	-	11.1
MALL	0	0	0	0	4	0	0	0	0	4	4	4	4.0	-	11.1
NOPI	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
NOSL	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
#DIV	0	9	0	0	4	0	0	0	0	13	9	4	6.5	3.5	22.2
SUSC	0	5	0	0	0	0	0	0	0	5	5	5	5.0	-	11.1
HOME	0	0	0	0	4	0	0	0	0	4	4	4	4.0	-	11.1
DUCK	0	4	0	0	0	0	0	0	0	4	4	4	4.0	-	11.1
#GUL	40	5	100	150	12	4	1	68	0	380	150	1	47.5	54.6	88.9
MEGU	0	3	0	0	0	4	0	0	0	7	4	3	3.5	0.7	22.2
GWGU	40	2	100	150	12	0	1	68	0	373	150	1	53.3	56.3	77.8
BEKI	0	0	2	0	0	0	0	0	0	2	2	2	2.0	-	11.1
#PAS	0	0	40	1	8	6	0	0	0	55	40	1	13.8	17.7	44.4
NOCR	0	0	0	0	6	5	0	0	0	11	6	5	5.5	0.7	22.2
EUST	0	0	40	0	1	0	0	0	0	41	40	1	20.5	27.6	22.2
FOSP	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	11.1
SOSP	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
GCSP	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
#TOT	40	15	142	151	32	19	2	86	8	495	151	2	55.0	57.5	100.0

Campbell River Estuary Bird Surveys of Station 7 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#COR	0	1	3	0	0	0	0	4	3	1	2.0	1.4	28.6
DCCO	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
PECO	0	0	3	0	0	0	0	3	3	3	3.0	-	14.3
#HER	0	0	1	0	0	23	0	24	23	1	12.0	15.6	28.6
GBHE	0	0	1	0	0	23	0	24	23	1	12.0	15.6	28.6
#GEE	0	0	0	25	0	0	0	25	25	25	25.0	-	14.3
CAGO	0	0	0	25	0	0	0	25	25	25	25.0	-	14.3
#DAB	0	0	0	0	0	0	5	5	5	5	5.0	-	14.3
MALL	0	0	0	0	0	0	5	5	5	5	5.0	-	14.3
#DIV	3	0	5	6	6	17	9	46	17	3	7.7	5.0	85.7
OLDS	0	0	0	0	2	1	1	4	2	1	1.3	0.6	42.9
COGO	0	0	5	0	0	0	0	5	5	5	5.0	-	14.3
BUFF	3	0	0	6	4	13	8	34	13	3	6.8	4.0	71.4
RBME	0	0	0	0	0	3	0	3	3	3	3.0	-	14.3
#RAP	0	0	2	0	0	0	0	2	2	2	2.0	-	14.3
BAEA	0	0	2	0	0	0	0	2	2	2	2.0	-	14.3
#GUL	10	100	8	0	1	200	280	599	280	1	99.8	117.3	85.7
GULL	0	0	0	0	0	0	30	30	30	30	30.0	-	14.3
MEGU	1	0	0	0	0	0	0	1	1	1	1.0	-	14.3
GWGU	9	100	8	0	1	200	250	568	250	1	94.7	108.5	85.7
#PAS	5	0	0	1	0	0	2	8	5	1	2.7	2.1	42.9
NOCR	5	0	0	0	0	0	0	5	5	5	5.0	-	14.3
SOSP	0	0	0	1	0	0	2	3	2	1	1.5	0.7	28.6
#TOT	18	101	19	32	7	240	296	713	296	7	101.9	118.7	100.0

Campbell River Estuary Bird Surveys of Station 7 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#COR	2	0	2	2	2	2.0	-	50.0
PECO	2	0	2	2	2	2.0	-	50.0
#DIV	5	0	5	5	5	5.0	-	50.0
BUFF	4	0	4	4	4	4.0	-	50.0
RBME	1	0	1	1	1	1.0	-	50.0
#GUL	6	2	8	6	2	4.0	2.8	100.0
GWGU	6	2	8	6	2	4.0	2.8	100.0
BEKI	1	0	1	1	1	1.0	-	50.0
#PAS	6	0	6	6	6	6.0	-	50.0
NOCR	5	0	5	5	5	5.0	-	50.0
SOSP	1	0	1	1	1	1.0	-	50.0
#TOT	20	2	22	20	2	11.0	12.7	100.0

Campbell River Estuary Bird Surveys of Station 8 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	1	0	1	1	1	1.0	-	20.0
LOON	0	0	0	1	0	1	1	1	1.0	-	20.0
#COR	0	1	0	2	1	4	2	1	1.3	0.6	60.0
CORM	0	0	0	0	1	1	1	1	1.0	-	20.0
DCCO	0	1	0	1	0	2	1	1	1.0	-	40.0
PECO	0	0	0	1	0	1	1	1	1.0	-	20.0
#HER	0	0	1	0	0	1	1	1	1.0	-	20.0
GBHE	0	0	1	0	0	1	1	1	1.0	-	20.0
#DAB	0	0	9	12	0	21	12	9	10.5	2.1	40.0
MALL	0	0	9	12	0	21	12	9	10.5	2.1	40.0
#DIV	0	47	14	6	0	67	47	6	22.3	21.7	60.0
GRSC	0	0	0	1	0	1	1	1	1.0	-	20.0
BLSC	0	3	0	0	0	3	3	3	3.0	-	20.0
BUFF	0	35	14	5	0	54	35	5	18.0	15.4	60.0
DUCK	0	9	0	0	0	9	9	9	9.0	-	20.0
#GUL	12	200	150	345	0	707	345	12	176.8	137.5	80.0
GULL	0	200	0	0	0	200	200	200	200.0	-	20.0
MEGU	0	0	0	20	0	20	20	20	20.0	-	20.0
HEGU	0	0	0	25	0	25	25	25	25.0	-	20.0
GWGU	12	0	150	300	0	462	300	12	154.0	144.0	60.0
RODO	0	0	0	18	0	18	18	18	18.0	-	20.0
#PAS	4	40	92	16	7	159	92	4	31.8	36.5	100.0
NOCR	0	40	17	10	2	69	40	2	17.3	16.4	80.0
EUST	4	0	75	3	5	87	75	3	21.8	35.5	80.0
SOSP	0	0	0	3	0	3	3	3	3.0	-	20.0
#TOT	16	288	266	400	8	978	400	8	195.6	175.2	100.0

Campbell River Estuary Bird Surveys of Station 8 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	1	0	1	0	0	0	0	0	0	0	0	0	0	2	1	1	1.0	-	15.4
COLO	1	0	1	0	0	0	0	0	0	0	0	0	0	2	1	1	1.0	-	15.4
#COR	2	1	0	0	2	0	0	3	3	0	0	0	0	11	3	1	2.2	0.8	38.5
DCCO	0	1	0	0	0	0	0	3	0	0	0	0	0	4	3	1	2.0	1.4	15.4
PECO	2	0	0	0	2	0	0	0	3	0	0	0	0	7	3	2	2.3	0.6	23.1
#HER	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	7.7
GBHE	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	7.7
#SWA	0	0	0	0	0	0	2	0	0	0	0	0	0	2	2	2	2.0	-	7.7
TRUS	0	0	0	0	0	0	2	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#DAB	0	14	0	14	0	0	4	0	0	2	0	0	0	34	14	2	8.5	6.4	30.8
MALL	0	14	0	14	0	0	4	0	0	0	0	0	0	32	14	4	10.7	5.8	23.1
AMWI	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
#DIV	15	22	4	2	1	3	3	5	5	6	2	4	5	77	22	1	5.9	5.9	100.0
SCAU	9	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9.0	-	7.7
GRSC	0	5	1	0	0	0	0	0	0	0	0	0	0	6	5	1	3.0	2.8	15.4
COGO	0	0	0	0	0	0	0	0	0	2	1	1	0	4	2	1	1.3	0.6	23.1
BAGO	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
BUFF	0	10	3	0	1	2	3	3	5	4	1	3	4	39	10	1	3.5	2.5	84.6
COME	5	7	0	0	0	0	0	0	0	0	0	0	0	12	7	5	6.0	1.4	15.4
RBME	1	0	0	2	0	1	0	0	0	0	0	0	1	5	2	1	1.3	0.5	30.8
#RAP	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
BAEA	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
#GUL	30	2	2	0	0	0	0	251	300	150	1	10	100	846	300	1	94.0	115.6	69.2
MEGU	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	2	2.0	-	7.7
HEGU	30	0	0	0	0	0	0	0	0	0	0	0	0	30	30	30	30.0	-	7.7
GWGU	0	2	2	0	0	0	0	251	300	150	1	8	100	814	300	1	101.8	121.2	61.5
RODO	16	0	0	0	0	0	12	0	0	0	0	0	20	48	20	12	16.0	4.0	23.1
#PAS	0	0	0	0	6	0	1	0	4	3	5	4	26	49	26	1	7.0	8.5	53.8
NOCR	0	0	0	0	3	0	1	0	4	0	5	2	6	21	6	1	3.5	1.9	46.2
CORA	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	7.7
EUST	0	0	0	0	3	0	0	0	0	0	0	2	20	25	20	2	8.3	10.1	23.1
#TOT	64	39	7	16	9	3	22	259	312	161	9	18	153	1072	312	3	82.5	105.0	100.0

Campbell River Estuary Bird Surveys of Station 8 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#COR	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
DCCO	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#HER	1	0	0	0	0	0	1	0	0	0	0	0	0	2	1	1	1.0	-	15.4
GBHE	1	0	0	0	0	0	1	0	0	0	0	0	0	2	1	1	1.0	-	15.4
#GEE	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
CAGO	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
#DAB	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
MALL	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#DIV	40	0	0	5	11	9	5	2	0	2	0	11	0	85	40	2	10.6	12.4	61.5
BUFF	30	0	0	4	11	5	5	2	0	0	0	0	0	57	30	2	9.5	10.5	46.2
COME	10	0	0	1	0	4	0	0	0	2	0	11	0	28	11	1	5.6	4.6	38.5
#RAP	1	1	0	0	0	0	0	0	0	1	1	0	0	4	1	1	1.0	-	30.8
BAEA	1	1	0	0	0	0	0	0	0	1	1	0	0	4	1	1	1.0	-	30.8
#SHO	0	0	0	0	6	0	0	0	1	66	0	0	0	73	66	1	24.3	36.2	23.1
KILL	0	0	0	0	6	0	0	0	1	1	0	0	0	8	6	1	2.7	2.9	23.1
WESA	0	0	0	0	0	0	0	0	0	60	0	0	0	60	60	60	60.0	-	7.7
DUNL	0	0	0	0	0	0	0	0	0	5	0	0	0	5	5	5	5.0	-	7.7
#GUL	250	27	40	300	18	106	0	142	287	2	0	7	65	1244	300	2	113.1	115.1	84.6
GULL	0	0	0	300	0	0	0	0	0	0	0	0	0	300	300	300	300.0	-	7.7
BOGU	0	0	0	0	0	0	0	40	0	0	0	0	38	78	40	38	39.0	1.4	15.4
MEGU	0	0	0	0	7	103	0	2	0	0	0	1	0	113	103	1	28.3	49.9	30.8
GWGU	250	27	40	0	11	3	0	100	287	2	0	6	27	753	287	2	75.3	106.1	76.9
RODO	0	0	0	0	0	2	0	0	0	0	4	8	0	14	8	2	4.7	3.1	23.1
#PAS	16	7	0	12	4	3	1	3	5	2	5	7	11	76	16	1	6.3	4.5	92.3
VGSW	0	0	0	0	0	0	0	0	0	1	0	2	0	3	2	1	1.5	0.7	15.4
BASW	0	0	0	0	0	0	0	2	0	0	1	1	0	4	2	1	1.3	0.6	23.1
NOCR	16	7	0	12	3	3	0	0	2	0	0	0	9	52	16	2	7.4	5.3	53.8
EUST	0	0	0	0	0	0	1	1	3	1	4	4	0	14	4	1	2.3	1.5	46.2
SOSP	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
RWBL	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	7.7
#TOT	310	35	40	317	40	120	7	147	293	75	10	33	76	1503	317	7	115.6	116.1	100.0

Campbell River Estuary Bird Surveys of Station 8 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	0	0	0	0	1	1	1	1	0	4	1	1	1.0	-	36.4
GBHE	0	0	0	0	0	0	1	1	1	1	0	4	1	1	1.0	-	36.4
#DAB	0	0	0	5	0	0	0	5	0	0	17	27	17	5	9.0	6.9	27.3
MALL	0	0	0	5	0	0	0	5	0	0	0	10	5	5	5.0	-	18.2
NOPI	0	0	0	0	0	0	0	0	0	0	17	17	17	17	17.0	-	9.1
#DIV	0	0	0	1	2	0	0	0	0	0	0	3	2	1	1.5	0.7	18.2
COME	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
RBME	0	0	0	0	2	0	0	0	0	0	0	2	2	2	2.0	-	9.1
#RAP	9	0	0	0	3	4	0	0	1	0	0	17	9	1	4.3	3.4	36.4
BAEA	9	0	0	0	3	4	0	0	1	0	0	17	9	1	4.3	3.4	36.4
#SHO	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
KILL	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
#GUL	1	0	0	2	11	3	19	0	60	206	13	315	206	1	39.4	70.0	72.7
BOGU	0	0	0	0	9	1	0	0	0	0	1	11	9	1	3.7	4.6	27.3
MEGU	0	0	0	0	2	0	0	0	0	0	6	8	6	2	4.0	2.8	18.2
HEGU	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
GWGU	1	0	0	2	0	2	19	0	60	200	5	289	200	1	41.3	73.1	63.6
BLKI	0	0	0	0	0	0	0	0	0	6	0	6	6	6	6.0	-	9.1
RODO	2	0	0	0	0	0	0	5	8	0	16	31	16	2	7.8	6.0	36.4
RUHU	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	9.1
BEKI	4	0	0	0	0	0	0	0	2	1	0	7	4	1	2.3	1.5	27.3
#PAS	9	0	2	8	16	20	102	0	45	1	0	203	102	1	25.4	34.0	72.7
BASW	4	0	2	0	1	0	0	0	0	0	0	7	4	1	2.3	1.5	27.3
NOCR	0	0	0	2	0	4	0	0	1	1	0	8	4	1	2.0	1.4	36.4
EUST	5	0	0	6	15	10	100	0	42	0	0	178	100	5	29.7	37.1	54.5
RWBL	0	0	0	0	0	6	2	0	2	0	0	10	6	2	3.3	2.3	27.3
#TOT	25	0	2	16	33	27	123	11	117	209	46	609	209	2	60.9	67.0	90.9

Campbell River Estuary Bird Surveys of Station 8 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#COR	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	11.1
CORM	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	11.1
#HER	0	0	3	0	0	0	0	0	0	3	3	3	3.0	-	11.1
GBHE	0	0	3	0	0	0	0	0	0	3	3	3	3.0	-	11.1
#SWA	0	0	0	0	0	0	0	2	5	7	5	2	3.5	2.1	22.2
TRUS	0	0	0	0	0	0	0	2	5	7	5	2	3.5	2.1	22.2
#DAB	0	11	0	5	0	9	0	9	0	34	11	5	8.5	2.5	44.4
MALL	0	0	0	5	0	0	0	9	0	14	9	5	7.0	2.8	22.2
NOPI	0	11	0	0	0	0	0	0	0	11	11	11	11.0	-	11.1
BWTE	0	0	0	0	0	9	0	0	0	9	9	9	9.0	-	11.1
#DIV	0	3	0	0	0	0	0	13	11	27	13	3	9.0	5.3	33.3
BUFF	0	0	0	0	0	0	0	13	11	24	13	11	12.0	1.4	22.2
COME	0	3	0	0	0	0	0	0	0	3	3	3	3.0	-	11.1
#SHO	0	0	2	0	0	3	0	0	0	5	3	2	2.5	0.7	22.2
KILL	0	0	2	0	0	0	0	0	0	2	2	2	2.0	-	11.1
SBDO	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	11.1
#GUL	1	84	0	50	222	1	19	300	5	682	300	1	85.3	114.1	88.9
GULL	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
BOGU	0	1	0	0	46	0	0	0	0	47	46	1	23.5	31.8	22.2
MEGU	0	2	0	0	1	0	0	0	0	3	2	1	1.5	0.7	22.2
GWGU	1	80	0	50	175	1	19	300	5	631	300	1	78.9	107.0	88.9
RODO	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
BEKI	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
#PAS	0	50	11	0	402	53	1	3	1	521	402	1	74.4	146.2	77.8
BASW	0	0	10	0	0	0	0	0	0	10	10	10	10.0	-	11.1
NOCR	0	20	0	0	1	3	1	3	1	29	20	1	4.8	7.5	66.7
CORA	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
EUST	0	30	0	0	400	50	0	0	0	480	400	30	160.0	208.1	33.3
RWBL	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	11.1
#TOT	1	148	16	55	626	67	21	327	22	1283	626	1	142.6	208.1	100.0

Campbell River Estuary Bird Surveys of Station 8 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#COR	0	0	1	0	0	0	0	1	1	1	1.0	-	14.3
PECO	0	0	1	0	0	0	0	1	1	1	1.0	-	14.3
#HER	0	0	0	0	0	0	1	1	1	1	1.0	-	14.3
GBHE	0	0	0	0	0	0	1	1	1	1	1.0	-	14.3
#SWA	0	5	16	0	0	9	11	41	16	5	10.3	4.6	57.1
TRUS	0	5	16	0	0	9	11	41	16	5	10.3	4.6	57.1
#DAB	0	5	10	0	2	2	0	19	10	2	4.8	3.8	57.1
MALL	0	5	10	0	0	2	0	17	10	2	5.7	4.0	42.9
AMWI	0	0	0	0	2	0	0	2	2	2	2.0	-	14.3
#DIV	5	0	5	3	2	6	4	25	6	2	4.2	1.5	85.7
COGO	0	0	5	0	0	2	0	7	5	2	3.5	2.1	28.6
BUFF	5	0	0	3	2	2	4	16	5	2	3.2	1.3	71.4
COME	0	0	0	0	0	2	0	2	2	2	2.0	-	14.3
#RAP	0	0	1	0	0	0	0	1	1	1	1.0	-	14.3
BAEA	0	0	1	0	0	0	0	1	1	1	1.0	-	14.3
#GUL	550	54	250	0	6	363	300	1523	550	6	253.8	201.6	85.7
MEGU	0	50	0	0	5	0	0	55	50	5	27.5	31.8	28.6
GWGU	550	4	250	0	1	363	300	1468	550	1	244.7	213.4	85.7
#PAS	0	0	0	0	2	1	0	3	2	1	1.5	0.7	28.6
NOCR	0	0	0	0	2	1	0	3	2	1	1.5	0.7	28.6
#TOT	555	64	283	3	12	381	316	1614	555	3	230.6	210.3	100.0

Campbell River Estuary Bird Surveys of Station 8 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#GRE	3	0	3	3	3	3.0	-	50.0
RNGR	3	0	3	3	3	3.0	-	50.0
#DAB	0	3	3	3	3	3.0	-	50.0
MALL	0	3	3	3	3	3.0	-	50.0
#DIV	5	0	5	5	5	5.0	-	50.0
BUFF	5	0	5	5	5	5.0	-	50.0
#GUL	251	2	253	251	2	126.5	176.1	100.0
MEGU	1	0	1	1	1	1.0	-	50.0
GWGU	250	2	252	250	2	126.0	175.4	100.0
#PAS	1	0	1	1	1	1.0	-	50.0
CORA	1	0	1	1	1	1.0	-	50.0
#TOT	260	5	265	260	5	132.5	180.3	100.0

Campbell River Estuary Bird Surveys of Station 9 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#COR	7	0	11	11	11	40	11	7	10.0	2.0	80.0
CORM	0	0	0	0	11	11	11	11	11.0	-	20.0
DCCO	7	0	10	11	0	28	11	7	9.3	2.1	60.0
PECO	0	0	1	0	0	1	1	1	1.0	-	20.0
#HER	0	0	0	1	0	1	1	1	1.0	-	20.0
GBHE	0	0	0	1	0	1	1	1	1.0	-	20.0
#SWA	0	0	0	13	20	33	20	13	16.5	4.9	40.0
TRUS	0	0	0	13	20	33	20	13	16.5	4.9	40.0
#DAB	1	0	0	11	3	15	11	1	5.0	5.3	60.0
MALL	1	0	0	11	3	15	11	1	5.0	5.3	60.0
#DIV	6	0	47	29	8	90	47	6	22.5	19.4	80.0
GRSC	0	0	20	25	0	45	25	20	22.5	3.5	40.0
BUFF	6	0	27	4	8	45	27	4	11.3	10.6	80.0
#GUL	0	2	30	0	0	32	30	2	16.0	19.8	40.0
GWGU	0	2	30	0	0	32	30	2	16.0	19.8	40.0
RODO	0	0	0	0	21	21	21	21	21.0	-	20.0
#PAS	5	0	6	4	1	16	6	1	4.0	2.2	80.0
NOCR	1	0	0	0	0	1	1	1	1.0	-	20.0
CORA	1	0	0	0	0	1	1	1	1.0	-	20.0
NOSH	1	0	0	0	0	1	1	1	1.0	-	20.0
EUST	0	0	0	0	1	1	1	1	1.0	-	20.0
RSTO	0	0	3	1	0	4	3	1	2.0	1.4	40.0
SOSP	0	0	3	3	0	6	3	3	3.0	-	40.0
SNBU	2	0	0	0	0	2	2	2	2.0	-	20.0
#TOT	19	2	94	69	64	248	94	2	49.6	37.9	100.0

Campbell River Estuary Bird Surveys of Station 9 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#COR	1	3	1	1	2	0	0	0	0	0	0	0	0	8	3	1	1.6	0.9	38.5
DCCO	0	3	1	1	1	0	0	0	0	0	0	0	0	6	3	1	1.5	1.0	30.8
PECO	1	0	0	0	1	0	0	0	0	0	0	0	0	2	1	1	1.0	-	15.4
#HER	0	0	0	0	0	0	0	0	0	0	14	0	1	15	14	1	7.5	9.2	15.4
GBHE	0	0	0	0	0	0	0	0	0	0	14	0	1	15	14	1	7.5	9.2	15.4
#SWA	13	0	8	0	6	19	8	12	10	15	21	16	20	148	21	6	13.5	5.2	84.6
TRUS	13	0	8	0	6	19	8	12	10	15	21	16	20	148	21	6	13.5	5.2	84.6
#DAB	0	1	0	1	0	0	0	0	0	12	4	4	0	22	12	1	4.4	4.5	38.5
MALL	0	1	0	1	0	0	0	0	0	12	4	4	0	22	12	1	4.4	4.5	38.5
#DIV	6	2	8	0	4	5	12	8	8	21	11	21	47	153	47	2	12.8	12.4	92.3
SCAU	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
GRSC	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
COGO	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4	4	4.0	-	7.7
BUFF	6	2	6	0	1	5	12	8	7	11	9	14	23	104	23	1	8.7	5.9	92.3
COME	0	0	0	0	0	0	0	0	0	4	2	7	10	23	10	2	5.8	3.5	30.8
RBME	0	0	1	0	3	0	0	0	0	2	0	0	1	7	3	1	1.8	1.0	30.8
DUCK	0	0	0	0	0	0	0	0	0	0	0	0	13	13	13	13	13.0	-	7.7
#RAP	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
BAEA	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#SHO	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
KILL	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
#GUL	11	3	0	0	0	60	10	0	150	0	0	12	2	248	150	2	35.4	54.3	53.8
GULL	0	0	0	0	0	0	0	0	150	0	0	0	0	150	150	150	150.0	-	7.7
MEGU	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	2	2.0	-	7.7
HEGU	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
GWGU	10	3	0	0	0	60	10	0	0	0	0	10	2	95	60	2	15.8	21.9	46.2
RODO	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#PAS	0	4	1	0	0	0	11	8	4	0	0	2	9	39	11	1	5.6	3.8	53.8
NOCR	0	0	0	0	0	0	10	8	4	0	0	0	9	31	10	4	7.8	2.6	30.8
RCKI	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
RSTO	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
SOSP	0	3	0	0	0	0	0	0	0	0	0	2	0	5	3	2	2.5	0.7	15.4
WCSP	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#TOT	31	14	20	2	12	84	41	29	172	48	50	55	79	637	172	2	49.0	44.5	100.0

Campbell River Estuary Bird Surveys of Station 9 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#COR	0	0	0	0	0	1	0	0	0	1	0	0	0	2	1	1	1.0	-	15.4
PECO	0	0	0	0	0	1	0	0	0	1	0	0	0	2	1	1	1.0	-	15.4
#HER	0	0	5	0	4	0	1	0	0	0	1	0	1	12	5	1	2.4	1.9	38.5
GBHE	0	0	5	0	4	0	1	0	0	0	1	0	1	12	5	1	2.4	1.9	38.5
#SWA	9	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9.0	-	7.7
TRUS	9	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9.0	-	7.7
#GEE	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
CAGO	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#DAB	6	0	0	11	15	14	1	0	1	4	2	0	0	54	15	1	6.8	5.8	61.5
GWTE	0	0	0	0	0	4	0	0	0	0	0	0	0	4	4	4	4.0	-	7.7
MALL	6	0	0	11	15	10	1	0	1	0	2	0	0	46	15	1	6.6	5.6	53.8
BWTE	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
NOSL	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
AMWI	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
#DIV	25	43	1	37	1	18	11	14	1	0	7	0	0	158	43	1	15.8	15.1	76.9
BUFF	20	20	0	36	1	17	9	11	0	0	0	0	0	114	36	1	16.3	11.0	53.8
COME	5	23	1	1	0	1	2	3	1	0	7	0	0	44	23	1	4.9	7.1	69.2
#RAP	0	0	0	0	0	1	0	0	0	0	0	2	1	4	2	1	1.3	0.6	23.1
BAEA	0	0	0	0	0	1	0	0	0	0	0	2	1	4	2	1	1.3	0.6	23.1
#SHO	0	0	0	1	0	2	1	0	0	0	0	2	1	7	2	1	1.4	0.5	38.5
KILL	0	0	0	1	0	2	1	0	0	0	0	2	1	7	2	1	1.4	0.5	38.5
#GUL	0	0	0	0	0	2	0	35	0	30	0	1	0	68	35	1	17.0	18.0	30.8
BOGU	0	0	0	0	0	0	0	35	0	0	0	0	0	35	35	35	35.0	-	7.7
GWGU	0	0	0	0	0	2	0	0	0	30	0	1	0	33	30	1	11.0	16.5	23.1
RODO	0	0	0	0	0	0	2	2	0	0	0	0	0	4	2	2	2.0	-	15.4
RUHU	0	0	0	0	0	0	0	0	0	2	0	1	0	3	2	1	1.5	0.7	15.4
BEKI	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#PAS	0	5	86	10	9	13	16	16	20	9	21	17	9	231	86	5	19.3	21.6	92.3
TRSW	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9	9.0	-	7.7
VGSW	0	0	0	0	0	0	0	0	0	2	3	0	0	5	3	2	2.5	0.7	15.4
BASW	0	0	0	0	0	0	0	2	0	0	7	12	0	21	12	2	7.0	5.0	23.1
NOCR	0	5	50	10	7	6	9	8	9	2	2	3	0	111	50	2	10.1	13.5	84.6
AMRO	0	0	0	0	0	0	0	2	1	0	0	0	0	3	2	1	1.5	0.7	15.4
EUST	0	0	35	0	0	2	4	1	9	2	0	1	0	54	35	1	7.7	12.4	53.8
YEWA	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
SAVS	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
FOSP	0	0	1	0	0	0	2	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
SOSP	0	0	0	0	1	0	0	0	0	1	0	0	0	2	1	1	1.0	-	15.4
WCSP	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
DEJU	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
RWBL	0	0	0	0	1	5	1	0	1	1	3	1	0	13	5	1	1.9	1.6	53.8
AMGO	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	2	2.0	-	7.7
HOSP	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4	4	4.0	-	7.7
#TOT	40	50	92	59	30	51	32	67	22	46	31	23	12	555	92	12	42.7	21.6	100.0

Campbell River Estuary Bird Surveys of Station 9 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#COR	0	3	0	0	0	0	0	7	0	0	0	10	7	3	5.0	2.8	18.2
CORM	0	3	0	0	0	0	0	7	0	0	0	10	7	3	5.0	2.8	18.2
#HER	0	0	0	1	0	1	0	3	1	0	0	6	3	1	1.5	1.0	36.4
GBHE	0	0	0	1	0	1	0	3	1	0	0	6	3	1	1.5	1.0	36.4
#DAB	0	0	0	7	0	0	0	22	0	0	0	29	22	7	14.5	10.6	18.2
MALL	0	0	0	7	0	0	0	22	0	0	0	29	22	7	14.5	10.6	18.2
#DIV	0	0	0	2	0	0	0	0	0	0	5	7	5	2	3.5	2.1	18.2
COME	0	0	0	2	0	0	0	0	0	0	5	7	5	2	3.5	2.1	18.2
#RAP	2	0	1	0	0	0	1	0	3	0	0	7	3	1	1.8	1.0	36.4
BAEA	2	0	1	0	0	0	1	0	3	0	0	7	3	1	1.8	1.0	36.4
#SHO	0	1	1	0	0	0	0	0	0	0	0	2	1	1	1.0	-	18.2
KILL	0	1	1	0	0	0	0	0	0	0	0	2	1	1	1.0	-	18.2
#GUL	2	0	0	0	6	44	18	0	9	10	9	98	44	2	14.0	14.1	63.6
BOGU	0	0	0	0	3	0	0	0	0	0	0	3	3	3	3.0	-	9.1
HEGU	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	9.1
GWGU	2	0	0	0	2	44	18	0	9	7	9	91	44	2	13.0	14.7	63.6
BLKI	0	0	0	0	0	0	0	0	0	3	0	3	3	3	3.0	-	9.1
RODO	0	0	0	3	2	0	0	0	0	0	1	6	3	1	2.0	1.0	27.3
BEKI	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
#PAS	30	3	18	4	34	9	3	21	8	7	4	141	34	3	12.8	11.2	100.0
VGSW	0	0	0	0	0	0	0	8	0	0	0	8	8	8	8.0	-	9.1
BASW	9	0	6	0	2	5	0	10	3	0	0	35	10	2	5.8	3.2	54.5
NOCR	4	0	2	0	1	3	3	0	2	7	3	25	7	1	3.1	1.8	72.7
CBCH	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
SWTH	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
AMRO	2	0	1	0	0	0	0	0	0	0	0	3	2	1	1.5	0.7	18.2
EUST	12	0	1	0	30	0	0	0	3	0	0	46	30	1	11.5	13.2	36.4
YEWA	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
COYE	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
SAVS	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
FOSP	0	0	0	2	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
SOSP	2	0	2	0	0	0	0	0	0	0	0	4	2	2	2.0	-	18.2
RWBL	0	3	0	2	1	1	0	3	0	0	0	10	3	1	2.0	1.0	45.5
PUFI	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
AMGO	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
#TOT	35	7	20	17	42	54	22	53	21	17	19	307	54	7	27.9	15.7	100.0

Campbell River Estuary Bird Surveys of Station 9 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#COR	0	0	0	0	2	1	5	0	11	19	11	1	4.8	4.5	44.4
CORM	0	0	0	0	0	0	5	0	11	16	11	5	8.0	4.2	22.2
DCCO	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
PECO	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
#HER	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	11.1
GBHE	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	11.1
#SWA	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	11.1
TRUS	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	11.1
#DAB	1	0	0	2	4	3	0	0	0	10	4	1	2.5	1.3	44.4
GWTE	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
MALL	1	0	0	2	0	0	0	0	0	3	2	1	1.5	0.7	22.2
NOPI	0	0	0	0	1	3	0	0	0	4	3	1	2.0	1.4	22.2
NOSL	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
#DIV	0	3	0	0	6	0	0	0	11	20	11	3	6.7	4.0	33.3
GRSC	0	0	0	0	6	0	0	0	0	6	6	6	6.0	-	11.1
LESC	0	0	0	0	0	0	0	0	10	10	10	10	10.0	-	11.1
HOME	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	11.1
COME	0	3	0	0	0	0	0	0	0	3	3	3	3.0	-	11.1
#SHO	0	0	0	15	2	0	0	0	0	17	15	2	8.5	9.2	22.2
KILL	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
GRYE	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
SHOR	0	0	0	15	0	0	0	0	0	15	15	15	15.0	-	11.1
#GUL	128	8	0	55	6	0	56	7	2	262	128	2	37.4	46.4	77.8
BOGU	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
GWGU	128	7	0	55	6	0	56	7	2	261	128	2	37.3	46.5	77.8
BEKI	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
#WOO	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	11.1
NOFL	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	11.1
#PAS	0	1	0	3	11	2	1	12	5	35	12	1	5.0	4.7	77.8
STJA	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
NOCR	0	1	0	0	2	2	1	9	0	15	9	1	3.0	3.4	55.6
CORA	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	11.1
EUST	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	11.1
RSTO	0	0	0	0	1	0	0	2	1	4	2	1	1.3	0.6	33.3
SAVS	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
FOSP	0	0	0	1	0	0	0	0	3	4	3	1	2.0	1.4	22.2
SOSP	0	0	0	0	3	0	0	1	0	4	3	1	2.0	1.4	22.2
RWBL	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	11.1
#TOT	129	12	0	75	31	7	63	19	32	368	129	7	46.0	41.1	88.9

Campbell River Estuary Bird Surveys of Station 9 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#COR	4	5	0	1	2	0	0	12	5	1	3.0	1.8	57.1
CORM	0	0	0	1	0	0	0	1	1	1	1.0	-	14.3
DCCO	4	5	0	0	0	0	0	9	5	4	4.5	0.7	28.6
PECO	0	0	0	0	2	0	0	2	2	2	2.0	-	14.3
#HER	0	0	1	6	1	0	0	8	6	1	2.7	2.9	42.9
GBHE	0	0	1	6	1	0	0	8	6	1	2.7	2.9	42.9
#SWA	13	0	0	20	4	0	0	37	20	4	12.3	8.0	42.9
TRUS	13	0	0	20	4	0	0	37	20	4	12.3	8.0	42.9
#DAB	0	1	0	0	0	1	0	2	1	1	1.0	-	28.6
MALL	0	1	0	0	0	1	0	2	1	1	1.0	-	28.6
#DIV	5	5	6	0	6	6	5	33	6	5	5.5	0.5	85.7
COGO	1	0	6	0	1	0	0	8	6	1	2.7	2.9	42.9
BUFF	2	5	0	0	5	5	5	22	5	2	4.4	1.3	71.4
COME	1	0	0	0	0	1	0	2	1	1	1.0	-	28.6
RBME	1	0	0	0	0	0	0	1	1	1	1.0	-	14.3
#SHO	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
COSN	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
#GUL	1	0	0	50	400	35	0	486	400	1	121.5	186.8	57.1
GULL	0	0	0	0	400	0	0	400	400	400	400.0	-	14.3
GWGU	1	0	0	50	0	35	0	86	50	1	28.7	25.1	42.9
#PAS	3	1	0	0	0	0	0	4	3	1	2.0	1.4	28.6
NOCR	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
EUST	3	0	0	0	0	0	0	3	3	3	3.0	-	14.3
#TOT	26	13	7	77	413	42	5	583	413	5	83.3	147.5	100.0

Campbell River Estuary Bird Surveys of Station 9 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#COR	2	6	8	6	2	4.0	2.8	100.0
CORM	0	6	6	6	6	6.0	-	50.0
DCCO	2	0	2	2	2	2.0	-	50.0
#HER	0	2	2	2	2	2.0	-	50.0
GBHE	0	2	2	2	2	2.0	-	50.0
#SWA	0	13	13	13	13	13.0	-	50.0
TRUS	0	13	13	13	13	13.0	-	50.0
#DAB	0	4	4	4	4	4.0	-	50.0
MALL	0	4	4	4	4	4.0	-	50.0
#DIV	22	0	22	22	22	22.0	-	50.0
BUFF	17	0	17	17	17	17.0	-	50.0
COME	5	0	5	5	5	5.0	-	50.0
#WOO	1	0	1	1	1	1.0	-	50.0
NOFL	1	0	1	1	1	1.0	-	50.0
#PAS	5	7	12	7	5	6.0	1.4	100.0
EUST	5	0	5	5	5	5.0	-	50.0
RWBL	0	7	7	7	7	7.0	-	50.0
#TOT	30	32	62	32	30	31.0	1.4	100.0

Campbell River Estuary Bird Surveys of Station 10 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	8	0	8	8	8	8.0	-	25.0
GBHE	0	0	8	0	8	8	8	8.0	-	25.0
#SWA	0	0	2	0	2	2	2	2.0	-	25.0
TRUS	0	0	2	0	2	2	2	2.0	-	25.0
#DAB	0	0	12	0	12	12	12	12.0	-	25.0
DABL	0	0	3	0	3	3	3	3.0	-	25.0
MALL	0	0	5	0	5	5	5	5.0	-	25.0
AMWI	0	0	4	0	4	4	4	4.0	-	25.0
#DIV	0	0	8	0	8	8	8	8.0	-	25.0
BUFF	0	0	8	0	8	8	8	8.0	-	25.0
#WOO	0	0	2	0	2	2	2	2.0	-	25.0
HAWO	0	0	1	0	1	1	1	1.0	-	25.0
NOFL	0	0	1	0	1	1	1	1.0	-	25.0
#PAS	2	0	0	0	2	2	2	2.0	-	25.0
CORA	2	0	0	0	2	2	2	2.0	-	25.0
#TOT	2	0	32	0	34	32	2	17.0	21.2	50.0

Campbell River Estuary Bird Surveys of Station 10 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#HER	1	1	3	0	1	8	0	0	0	2	0	0	0	16	8	1	2.7	2.7	46.2
GBHE	1	1	3	0	1	8	0	0	0	2	0	0	0	16	8	1	2.7	2.7	46.2
#SWA	0	0	20	0	0	0	0	7	9	9	0	5	0	50	20	5	10.0	5.8	38.5
TRUS	0	0	20	0	0	0	0	7	9	9	0	5	0	50	20	5	10.0	5.8	38.5
#DAB	0	1	2	0	0	31	16	12	33	0	8	12	2	117	33	1	13.0	12.0	69.2
GWTE	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
MALL	0	0	2	0	0	31	16	12	33	0	8	12	2	116	33	2	14.5	11.9	61.5
#DIV	0	3	1	0	0	3	2	5	2	0	6	0	3	25	6	1	3.1	1.6	61.5
BUFF	0	0	1	0	0	0	2	3	2	0	2	0	3	13	3	1	2.2	0.8	46.2
HOME	0	3	0	0	0	3	0	2	0	0	0	0	0	8	3	2	2.7	0.6	23.1
COME	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4	4	4.0	-	7.7
#RAP	1	0	0	0	0	0	0	0	1	0	0	0	0	2	1	1	1.0	-	15.4
BAEA	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
RTHA	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
#SHO	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
KILL	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
BEKI	0	0	0	0	0	1	0	0	1	0	0	0	0	2	1	1	1.0	-	15.4
#WOO	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
NOFL	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
#PAS	0	4	0	2	1	0	0	1	0	0	0	15	1	24	15	1	4.0	5.5	46.2
NOCR	0	0	0	0	0	0	0	1	0	0	0	0	1	2	1	1	1.0	-	15.4
WIWR	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
AMRO	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4	4	4.0	-	7.7
EUST	0	0	0	0	0	0	0	0	0	0	0	6	0	6	6	6	6.0	-	7.7
FOSP	0	0	0	2	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
SOSP	0	4	0	0	0	0	0	0	0	0	0	2	0	6	4	2	3.0	1.4	15.4
RWBL	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3	3	3.0	-	7.7
#TOT	2	9	26	2	2	43	18	26	46	11	14	33	6	238	46	2	18.3	15.3	100.0

Campbell River Estuary Bird Surveys of Station 10 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#HER	1	0	0	0	1	0	0	1	0	1	0	0	0	4	1	1	1.0	-	30.8
GBHE	1	0	0	0	1	0	0	1	0	1	0	0	0	4	1	1	1.0	-	30.8
#DAB	2	3	0	0	2	0	0	16	0	0	0	0	0	23	16	2	5.8	6.8	30.8
GWTE	0	3	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
TEAL	0	0	0	0	0	0	0	7	0	0	0	0	0	7	7	7	7.0	-	7.7
MALL	2	0	0	0	2	0	0	5	0	0	0	0	0	9	5	2	3.0	1.7	23.1
BWTE	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
CITE	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
#DIV	0	0	0	0	4	1	0	0	0	0	0	0	0	5	4	1	2.5	2.1	15.4
BUFF	0	0	0	0	2	1	0	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
HOME	0	0	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#RAP	2	1	0	0	0	0	0	1	0	0	0	0	0	4	2	1	1.3	0.6	23.1
BAEA	2	1	0	0	0	0	0	1	0	0	0	0	0	4	2	1	1.3	0.6	23.1
#SHO	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
COSN	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#GUL	0	0	0	30	0	0	0	30	0	2	0	0	0	62	30	2	20.7	16.2	23.1
GULL	0	0	0	30	0	0	0	0	0	0	0	0	0	30	30	30	30.0	-	7.7
BOGU	0	0	0	0	0	0	0	30	0	0	0	0	0	30	30	30	30.0	-	7.7
GWGU	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
RODO	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
HUMM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
ANHU	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
RUHU	0	0	0	0	0	0	0	0	0	1	1	2	0	4	2	1	1.3	0.6	23.1
#WOO	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
NOFL	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#PAS	0	37	0	1	2	24	1	15	1	14	3	13	5	116	37	1	10.5	11.6	84.6
NOCR	0	0	0	0	0	8	0	2	0	2	0	1	0	13	8	1	3.3	3.2	30.8
BEWR	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
AMRO	0	4	0	1	0	1	1	3	1	0	1	1	1	14	4	1	1.6	1.1	69.2
EUST	0	30	0	0	0	9	0	0	0	0	0	4	2	45	30	2	11.3	12.8	30.8
YEWA	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
YRWA	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
COYE	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
SOSP	0	1	0	0	0	0	0	0	0	2	0	0	0	3	2	1	1.5	0.7	15.4
RWBL	0	2	0	0	1	6	0	10	0	5	2	6	1	33	10	1	4.1	3.2	61.5
YHBL	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
AMGO	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
PASS	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
#TOT	5	42	0	31	10	25	1	64	2	18	5	15	5	223	64	1	18.6	19.1	92.3

Campbell River Estuary Bird Surveys of Station 10 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#HER	0	2	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
GBHE	0	2	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
#DAB	0	3	0	0	0	0	0	0	0	0	0	3	3	3	3.0	-	9.1
MALL	0	3	0	0	0	0	0	0	0	0	0	3	3	3	3.0	-	9.1
#RAP	4	0	2	0	1	0	0	0	0	0	0	7	4	1	2.3	1.5	27.3
BAEA	4	0	1	0	1	0	0	0	0	0	0	6	4	1	2.0	1.7	27.3
MERL	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
#GUL	0	0	0	0	1	0	0	0	2	3	0	6	3	1	2.0	1.0	27.3
GWGU	0	0	0	0	1	0	0	0	2	3	0	6	3	1	2.0	1.0	27.3
BTPI	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
#PAS	31	3	27	1	36	0	11	5	7	2	11	134	36	1	13.4	13.0	90.9
WIFL	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
BASW	0	0	0	0	3	0	0	0	0	0	1	4	3	1	2.0	1.4	18.2
NOCR	2	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
CORA	0	0	0	0	0	0	0	0	0	0	9	9	9	9	9.0	-	9.1
SWTH	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	9.1
AMRO	2	1	2	1	0	0	2	2	0	2	0	12	2	1	1.7	0.5	63.6
CEWA	0	0	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	9.1
EUST	22	0	8	0	30	0	0	0	4	0	0	64	30	4	16.0	12.1	36.4
YEWA	1	0	2	0	0	0	0	0	0	0	0	3	2	1	1.5	0.7	18.2
COYE	0	0	2	0	0	0	1	0	0	0	0	3	2	1	1.5	0.7	18.2
RSTO	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	9.1
FOSP	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	9.1
SOSP	0	0	1	0	0	0	2	0	0	0	0	3	2	1	1.5	0.7	18.2
RWBL	4	2	3	0	3	0	0	2	0	0	0	14	4	2	2.8	0.8	45.5
PUFI	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
HOFI	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
AMGO	0	0	0	0	0	0	4	0	3	0	0	7	4	3	3.5	0.7	18.2
#TOT	35	8	31	1	38	0	11	5	9	5	11	154	38	1	15.4	13.7	90.9

Campbell River Estuary Bird Surveys of Station 10 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#COR	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	11.1
CORM	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	11.1
#DAB	0	0	0	10	8	4	0	0	21	43	21	4	10.8	7.3	44.4
MALL	0	0	0	10	0	0	0	0	21	31	21	10	15.5	7.8	22.2
NOPI	0	0	0	0	8	4	0	0	0	12	8	4	6.0	2.8	22.2
#DIV	0	1	0	0	0	0	0	0	10	11	10	1	5.5	6.4	22.2
HOME	0	0	0	0	0	0	0	0	10	10	10	10	10.0	-	11.1
DUCK	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
#RAP	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
RTHA	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
#GUL	0	2	0	0	0	0	0	0	0	2	2	2	2.0	-	11.1
GWGU	0	2	0	0	0	0	0	0	0	2	2	2	2.0	-	11.1
#PAS	0	0	0	0	52	37	0	0	0	89	52	37	44.5	10.6	22.2
NOCR	0	0	0	0	0	15	0	0	0	15	15	15	15.0	-	11.1
AMRO	0	0	0	0	12	3	0	0	0	15	12	3	7.5	6.4	22.2
EUST	0	0	0	0	36	10	0	0	0	46	36	10	23.0	18.4	22.2
SOSP	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
RWBL	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
PUFI	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
PISI	0	0	0	0	0	9	0	0	0	9	9	9	9.0	-	11.1
#TOT	0	3	0	10	60	42	0	0	32	147	60	3	29.4	23.3	55.6

Campbell River Estuary Bird Surveys of Station 10 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	0	0	1	1	0	2	1	1	1.0	-	28.6
GBHE	0	0	0	0	1	1	0	2	1	1	1.0	-	28.6
#SWA	0	0	3	3	0	0	0	6	3	3	3.0	-	28.6
TRUS	0	0	3	3	0	0	0	6	3	3	3.0	-	28.6
#DIV	1	0	2	0	0	5	0	8	5	1	2.7	2.1	42.9
COGO	0	0	2	0	0	0	0	2	2	2	2.0	-	14.3
BUFF	1	0	0	0	0	5	0	6	5	1	3.0	2.8	28.6
#PAS	0	0	0	0	0	1	0	1	1	1	1.0	-	14.3
WREN	0	0	0	0	0	1	0	1	1	1	1.0	-	14.3
#TOT	1	0	5	3	1	7	0	17	7	1	3.4	2.6	71.4

Campbell River Estuary Bird Surveys of Station 10 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#HER	0	1	1	1	1	1.0	-	50.0
GBHE	0	1	1	1	1	1.0	-	50.0
#DAB	0	2	2	2	2	2.0	-	50.0
MALL	0	2	2	2	2	2.0	-	50.0
#DIV	1	0	1	1	1	1.0	-	50.0
COGO	1	0	1	1	1	1.0	-	50.0
#PAS	1	2	3	2	1	1.5	0.7	100.0
AMRO	1	0	1	1	1	1.0	-	50.0
FOSP	0	2	2	2	2	2.0	-	50.0
#TOT	2	5	7	5	2	3.5	2.1	100.0

Campbell River Estuary Bird Surveys of Station 11 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	1	0	1	1	1	1.0	-	25.0
GBHE	0	0	1	0	1	1	1	1.0	-	25.0
#DAB	0	0	0	5	5	5	5	5.0	-	25.0
WODU	0	0	0	1	1	1	1	1.0	-	25.0
MALL	0	0	0	4	4	4	4	4.0	-	25.0
#DIV	0	0	0	11	11	11	11	11.0	-	25.0
BUFF	0	0	0	11	11	11	11	11.0	-	25.0
#SHO	0	4	0	0	4	4	4	4.0	-	25.0
COSN	0	1	0	0	1	1	1	1.0	-	25.0
SHOR	0	3	0	0	3	3	3	3.0	-	25.0
#GUL	0	0	3	6	9	6	3	4.5	2.1	50.0
GWGU	0	0	3	6	9	6	3	4.5	2.1	50.0
#WOO	0	0	1	0	1	1	1	1.0	-	25.0
DOWO	0	0	1	0	1	1	1	1.0	-	25.0
#PAS	0	0	0	1	1	1	1	1.0	-	25.0
AMRO	0	0	0	1	1	1	1	1.0	-	25.0
#TOT	0	4	5	23	32	23	4	10.7	10.7	75.0

Campbell River Estuary Bird Surveys of Station 11 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	0	2	3	0	0	0	0	0	0	1	1	7	3	1	1.8	1.0	30.8
GBHE	0	0	0	2	3	0	0	0	0	0	0	1	1	7	3	1	1.8	1.0	30.8
#SWA	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	7.7
TRUS	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	7.7
#DIV	9	8	6	0	1	0	1	0	3	0	0	1	1	30	9	1	3.8	3.4	61.5
BUFF	9	8	6	0	1	0	1	0	3	0	0	1	1	30	9	1	3.8	3.4	61.5
#RAP	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
COHA	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
#GUL	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	2	2.0	-	7.7
GWGU	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	2	2.0	-	7.7
#WOO	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
NOFL	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#PAS	27	0	1	0	17	0	0	0	1	0	3	3	8	60	27	1	8.6	9.9	53.8
NOCR	4	0	0	0	17	0	0	0	1	0	0	0	3	25	17	1	6.3	7.3	30.8
GCKI	1	0	0	0	0	0	0	0	0	0	3	0	0	4	3	1	2.0	1.4	15.4
AMRO	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3.0	-	7.7
EUST	1	0	0	0	0	0	0	0	0	0	0	2	0	3	2	1	1.5	0.7	15.4
FOSP	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
SOSP	1	0	1	0	0	0	0	0	0	0	0	1	0	3	1	1	1.0	-	23.1
DEJU	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
PISI	20	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20.0	-	7.7
#TOT	37	8	7	2	21	0	1	0	6	0	3	7	11	103	37	1	10.3	11.0	76.9

Campbell River Estuary Bird Surveys of Station 11 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#DAB	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
MALL	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
#DIV	0	1	0	0	0	3	0	0	0	0	0	0	0	4	3	1	2.0	1.4	15.4
BUFF	0	1	0	0	0	2	0	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
COME	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#RAP	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
BAEA	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
#SHO	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
COSN	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#GUL	0	0	0	0	0	1	0	16	0	0	0	6	0	23	16	1	7.7	7.6	23.1
BOGU	0	0	0	0	0	0	0	16	0	0	0	0	0	16	16	16	16.0	-	7.7
GWGU	0	0	0	0	0	1	0	0	0	0	0	6	0	7	6	1	3.5	3.5	15.4
RUHU	0	0	0	0	0	1	0	0	0	3	0	4	0	8	4	1	2.7	1.5	23.1
BEKI	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
#PAS	0	102	0	2	0	7	0	5	0	11	1	10	1	139	102	1	17.4	34.4	61.5
NOCR	0	0	0	2	0	0	0	3	0	0	1	0	1	7	3	1	1.8	1.0	30.8
BUSH	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
WIWR	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
AMRO	0	100	0	0	0	3	0	2	0	3	0	0	0	108	100	2	27.0	48.7	30.8
EUST	0	0	0	0	0	2	0	0	0	1	0	10	0	13	10	1	4.3	4.9	23.1
YEWA	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
RSTO	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
SOSP	0	1	0	0	0	1	0	0	0	2	0	0	0	4	2	1	1.3	0.6	23.1
RWBL	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
PUFI	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#TOT	0	103	0	2	0	13	0	24	0	15	1	20	1	179	103	1	22.4	33.8	61.5

Campbell River Estuary Bird Surveys of Station 11 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#DAB	9	0	0	0	0	0	0	0	0	0	0	9	9	9	9.0	-	9.1
MALL	9	0	0	0	0	0	0	0	0	0	0	9	9	9	9.0	-	9.1
#SHO	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	9.1
LGPL	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	9.1
#GUL	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	9.1
GWGU	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	9.1
BTPI	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
ANHU	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
#WOO	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	9.1
NOFL	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	9.1
#PAS	13	0	23	0	8	0	14	3	3	0	6	70	23	3	10.0	7.2	63.6
WIFL	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
STJA	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	9.1
NOCR	3	0	4	0	0	0	0	0	0	0	0	7	4	3	3.5	0.7	18.2
CBCH	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	9.1
GCKI	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4.0	-	9.1
SWTH	0	0	4	0	0	0	0	0	0	0	0	4	4	4	4.0	-	9.1
AMRO	2	0	1	0	2	0	1	3	0	0	0	9	3	1	1.8	0.8	45.5
CEWA	0	0	4	0	0	0	0	0	0	0	0	4	4	4	4.0	-	9.1
EUST	6	0	0	0	6	0	8	0	0	0	0	20	8	6	6.7	1.2	27.3
YEWA	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	9.1
COYE	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
SOSP	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
RWBL	2	0	1	0	0	0	0	0	1	0	0	4	2	1	1.3	0.6	27.3
PUFI	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	9.1
PISI	0	0	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	9.1
AMGO	0	0	0	0	0	0	2	0	1	0	0	3	2	1	1.5	0.7	18.2
#TOT	22	0	25	0	8	0	14	4	4	0	8	85	25	4	12.1	8.5	63.6

Campbell River Estuary Bird Surveys of Station 11 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	11.1
GBHE	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	11.1
#DIV	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	11.1
HOME	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	11.1
BEKI	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	11.1
#PAS	0	0	0	4	61	62	0	3	2	132	62	2	26.4	32.1	55.6
NOCR	0	0	0	0	12	2	0	0	0	14	12	2	7.0	7.1	22.2
CORA	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	11.1
AMRO	0	0	0	4	31	8	0	0	0	43	31	4	14.3	14.6	33.3
VATH	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
CEWA	0	0	0	0	5	0	0	0	0	5	5	5	5.0	-	11.1
EUST	0	0	0	0	0	50	0	0	0	50	50	50	50.0	-	11.1
RSTO	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
SOSP	0	0	0	0	2	1	0	0	0	3	2	1	1.5	0.7	22.2
GCSP	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
DEJU	0	0	0	0	0	0	0	3	0	3	3	3	3.0	-	11.1
RWBL	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
HOFI	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	11.1
PISI	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	11.1
AMGO	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
#TOT	0	0	1	5	61	62	0	3	3	135	62	1	22.5	30.2	66.7

Campbell River Estuary Bird Surveys of Station 11 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#DAB	16	5	0	0	0	0	0	21	16	5	10.5	7.8	28.6
GWTE	2	1	0	0	0	0	0	3	2	1	1.5	0.7	28.6
MALL	11	4	0	0	0	0	0	15	11	4	7.5	4.9	28.6
AMWI	3	0	0	0	0	0	0	3	3	3	3.0	-	14.3
#DIV	11	2	0	0	0	0	0	13	11	2	6.5	6.4	28.6
COGO	2	0	0	0	0	0	0	2	2	2	2.0	-	14.3
BUFF	9	2	0	0	0	0	0	11	9	2	5.5	4.9	28.6
#RAP	0	0	0	0	0	0	1	1	1	1	1.0	-	14.3
BAEA	0	0	0	0	0	0	1	1	1	1	1.0	-	14.3
#PAS	0	14	0	0	0	0	0	14	14	14	14.0	-	14.3
SOSP	0	1	0	0	0	0	0	1	1	1	1.0	-	14.3
DEJU	0	3	0	0	0	0	0	3	3	3	3.0	-	14.3
PISI	0	10	0	0	0	0	0	10	10	10	10.0	-	14.3
#TOT	27	21	0	0	0	0	1	49	27	1	16.3	13.6	42.9

Campbell River Estuary Bird Surveys of Station 11 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#DIV	2	0	2	2	2	2.0	-	50.0
BUFF	2	0	2	2	2	2.0	-	50.0
#WOO	0	1	1	1	1	1.0	-	50.0
NOFL	0	1	1	1	1	1.0	-	50.0
#PAS	0	11	11	11	11	11.0	-	50.0
NOCR	0	3	3	3	3	3.0	-	50.0
AMRO	0	5	5	5	5	5.0	-	50.0
FOSP	0	3	3	3	3	3.0	-	50.0
#TOT	2	12	14	12	2	7.0	7.1	100.0

Campbell River Estuary Bird Surveys of Station 12 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#COR	8	0	0	0	0	8	8	8	8.0	-	20.0
CORM	8	0	0	0	0	8	8	8	8.0	-	20.0
#HER	5	1	0	3	5	14	5	1	3.5	1.9	80.0
GBHE	5	1	0	3	5	14	5	1	3.5	1.9	80.0
#DIV	0	1	0	3	0	4	3	1	2.0	1.4	40.0
BUFF	0	1	0	3	0	4	3	1	2.0	1.4	40.0
#RAP	0	0	0	0	1	1	1	1	1.0	-	20.0
BAEA	0	0	0	0	1	1	1	1	1.0	-	20.0
#GUL	60	14	0	0	1	75	60	1	25.0	31.0	60.0
GULL	0	14	0	0	0	14	14	14	14.0	-	20.0
GWGU	60	0	0	0	1	61	60	1	30.5	41.7	40.0
#PAS	3	2	0	0	0	5	3	2	2.5	0.7	40.0
NOCR	2	0	0	0	0	2	2	2	2.0	-	20.0
RSTO	0	1	0	0	0	1	1	1	1.0	-	20.0
SOSP	1	0	0	0	0	1	1	1	1.0	-	20.0
RECR	0	1	0	0	0	1	1	1	1.0	-	20.0
#TOT	76	18	0	6	7	107	76	6	26.8	33.3	80.0

Campbell River Estuary Bird Surveys of Station 12 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	2	0	0	0	0	1	0	0	0	0	0	0	0	3	2	1	1.5	0.7	15.4
RTLO	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
COLO	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#COR	3	0	1	0	0	0	0	0	0	0	4	0	0	8	4	1	2.7	1.5	23.1
DCCO	3	0	1	0	0	0	0	0	0	0	4	0	0	8	4	1	2.7	1.5	23.1
#HER	8	4	5	10	0	1	0	7	0	0	3	0	0	38	10	1	5.4	3.1	53.8
GBHE	8	4	5	10	0	1	0	7	0	0	3	0	0	38	10	1	5.4	3.1	53.8
#SWA	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
MUSW	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#DAB	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
MALL	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
#DIV	4	0	2	1	4	0	1	0	0	18	0	4	4	38	18	1	4.8	5.5	61.5
BUFF	1	0	0	0	1	0	1	0	0	0	0	2	4	9	4	1	1.8	1.3	38.5
COME	3	0	2	1	2	0	0	0	0	18	0	2	0	28	18	1	4.7	6.6	46.2
RBME	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#RAP	0	0	0	1	1	0	2	0	0	1	0	2	1	8	2	1	1.3	0.5	46.2
BAEA	0	0	0	1	1	0	2	0	0	1	0	2	1	8	2	1	1.3	0.5	46.2
#GUL	0	1	0	0	16	0	0	10	0	7	1	6	14	55	16	1	7.9	5.9	53.8
GULL	0	0	0	0	0	0	0	0	0	0	0	0	7	7	7	7	7.0	-	7.7
GWGU	0	1	0	0	16	0	0	10	0	7	1	6	7	48	16	1	6.9	5.2	53.8
BEKI	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#WOO	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
NOFL	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
#PAS	0	0	0	5	19	0	4	17	0	26	7	20	7	105	26	4	13.1	8.3	61.5
NOCR	0	0	0	0	19	0	4	17	0	0	5	0	6	51	19	4	10.2	7.2	38.5
CBCH	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4	4	4.0	-	7.7
WIWR	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
HETH	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
AMRO	0	0	0	0	0	0	0	0	0	0	0	2	1	3	2	1	1.5	0.7	15.4
EUST	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
SOSP	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
DEJU	0	0	0	0	0	0	0	0	0	26	0	0	0	26	26	26	26.0	-	7.7
HOFI	0	0	0	5	0	0	0	0	0	0	0	0	0	5	5	5	5.0	-	7.7
PISI	0	0	0	0	0	0	0	0	0	0	0	12	0	12	12	12	12.0	-	7.7
#TOT	17	5	9	17	40	3	7	34	0	54	15	33	26	260	54	3	21.7	15.9	92.3

Campbell River Estuary Bird Surveys of Station 12 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#GEE	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
SNGO	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#DAB	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
MALL	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#DIV	11	6	2	14	6	0	0	1	4	10	0	6	0	60	14	1	6.7	4.3	69.2
COGO	0	0	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
COME	11	6	2	14	3	0	0	1	4	10	0	5	0	56	14	1	6.2	4.5	69.2
DUCK	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	7.7
#RAP	0	0	0	1	0	0	0	0	0	0	1	1	4	7	4	1	1.8	1.5	30.8
BAEA	0	0	0	1	0	0	0	0	0	0	1	1	4	7	4	1	1.8	1.5	30.8
#GUL	0	0	0	3	0	0	0	35	0	0	0	0	0	38	35	3	19.0	22.6	15.4
BOGU	0	0	0	0	0	0	0	35	0	0	0	0	0	35	35	35	35.0	-	7.7
GWGU	0	0	0	3	0	0	0	0	0	0	0	0	0	3	3	3	3.0	-	7.7
HUMM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	7.7
RUHU	0	0	0	0	0	1	0	0	0	2	0	0	0	3	2	1	1.5	0.7	15.4
BEKI	0	1	1	0	0	0	0	0	0	1	0	0	0	3	1	1	1.0	-	23.1
#PAS	19	0	0	0	0	3	3	3	0	8	7	9	79	131	79	3	16.4	25.9	61.5
PSFL	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
TRSW	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15.0	-	7.7
BASW	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3	3	3.0	-	7.7
NOCR	19	0	0	0	0	2	0	3	0	2	7	5	1	39	19	1	5.6	6.3	53.8
CBCH	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
AMRO	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	1	1.0	-	15.4
EUST	0	0	0	0	0	0	3	0	0	0	0	0	61	64	61	3	32.0	41.0	15.4
SOSP	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
RWBL	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2	2.0	-	7.7
YHBL	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	7.7
PUFI	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
#TOT	32	8	3	18	6	4	3	40	4	21	8	16	83	246	83	3	18.9	22.5	100.0

Campbell River Estuary Bird Surveys of Station 12 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	0	4	0	0	1	0	0	0	0	5	4	1	2.5	2.1	18.2
GBHE	0	0	0	4	0	0	1	0	0	0	0	5	4	1	2.5	2.1	18.2
#DIV	0	0	0	0	0	0	11	0	0	0	0	11	11	11	11.0	-	9.1
COME	0	0	0	0	0	0	11	0	0	0	0	11	11	11	11.0	-	9.1
#RAP	1	0	4	0	2	0	3	1	0	0	3	14	4	1	2.3	1.2	54.5
TUVU	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3.0	-	9.1
BAEA	1	0	4	0	2	0	3	1	0	0	0	11	4	1	2.2	1.3	45.5
#SHO	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	9.1
KILL	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
SBDO	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
#GUL	0	0	0	0	2	0	0	15	14	0	66	97	66	2	24.3	28.5	36.4
BOGU	0	0	0	0	0	0	0	0	13	0	45	58	45	13	29.0	22.6	18.2
MEGU	0	0	0	0	0	0	0	0	0	0	17	17	17	17	17.0	-	9.1
HEGU	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3.0	-	9.1
GWGU	0	0	0	0	2	0	0	15	1	0	1	19	15	1	4.8	6.8	36.4
BTPI	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
BEKI	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
#WOO	0	0	4	0	0	0	1	0	0	0	1	6	4	1	2.0	1.7	27.3
HAWO	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
NOFL	0	0	1	0	0	0	1	0	0	0	0	2	1	1	1.0	-	18.2
PIWO	0	0	3	0	0	0	0	0	0	0	0	3	3	3	3.0	-	9.1
#PAS	10	0	34	0	1	2	19	5	0	0	26	97	34	1	13.9	12.8	63.6
PSFL	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
BASW	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15.0	-	9.1
STJA	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2.0	-	9.1
NOCR	4	0	7	0	0	2	0	0	0	0	0	13	7	2	4.3	2.5	27.3
CORA	0	0	0	0	0	0	0	2	0	0	2	4	2	2	2.0	-	18.2
CBCH	0	0	5	0	0	0	0	0	0	0	0	5	5	5	5.0	-	9.1
BRCR	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
BEWR	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
RCKI	0	0	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	9.1
SWTH	0	0	4	0	0	0	0	0	0	0	0	4	4	4	4.0	-	9.1
AMRO	1	0	1	0	0	0	0	0	0	0	4	6	4	1	2.0	1.7	27.3
EUST	1	0	6	0	0	0	14	0	0	0	0	21	14	1	7.0	6.6	27.3
OCWA	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
YEWA	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
YRWA	0	0	1	0	0	0	0	0	0	0	1	2	1	1	1.0	-	18.2
WETA	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
FOSP	0	0	0	0	0	0	0	3	0	0	0	3	3	3	3.0	-	9.1
SOSP	2	0	1	0	0	0	0	0	0	0	0	3	2	1	1.5	0.7	18.2
WCSP	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
DEJU	2	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
RWBL	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	9.1
BRBL	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	9.1
PUFI	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
AMGO	0	0	2	0	0	0	1	0	0	0	1	4	2	1	1.3	0.6	27.3
#TOT	11	0	43	4	5	2	35	21	14	0	99	234	99	2	26.0	30.8	81.8

Campbell River Estuary Bird Surveys of Station 12 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	11.1
GBHE	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	11.1
#DAB	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
GWTE	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
#DIV	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	11.1
COGO	0	0	0	0	0	0	0	0	1	1	1	1	1.0	-	11.1
#RAP	0	0	2	0	1	1	2	0	1	7	2	1	1.4	0.5	55.6
BAEA	0	0	2	0	1	0	2	0	1	6	2	1	1.5	0.6	44.4
MERL	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
#GUL	0	1	0	3	178	100	0	0	0	282	178	1	70.5	85.3	44.4
BOGU	0	0	0	0	140	0	0	0	0	140	140	140	140.0	-	11.1
MEGU	0	0	0	0	38	100	0	0	0	138	100	38	69.0	43.8	22.2
GWGU	0	1	0	3	0	0	0	0	0	4	3	1	2.0	1.4	22.2
BEKI	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
#PAS	7	0	7	13	8	55	1	0	0	91	55	1	15.2	19.9	66.7
NOCR	0	0	7	0	1	35	0	0	0	43	35	1	14.3	18.1	33.3
CORA	0	0	0	8	0	0	1	0	0	9	8	1	4.5	4.9	22.2
AMRO	6	0	0	5	2	0	0	0	0	13	6	2	4.3	2.1	33.3
EUST	0	0	0	0	1	20	0	0	0	21	20	1	10.5	13.4	22.2
FOSP	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
SOSP	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
EVGR	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	11.1
#TOT	7	1	10	16	189	156	3	0	2	384	189	1	48.0	77.5	88.9

Campbell River Estuary Bird Surveys of Station 12 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#COR	1	0	0	0	0	0	0	1	1	1	1.0	-	14.3
DCCO	1	0	0	0	0	0	0	1	1	1	1.0	-	14.3
#HER	0	0	0	0	0	1	0	1	1	1	1.0	-	14.3
GBHE	0	0	0	0	0	1	0	1	1	1	1.0	-	14.3
#SWA	0	0	0	0	0	0	9	9	9	9	9.0	-	14.3
TRUS	0	0	0	0	0	0	9	9	9	9	9.0	-	14.3
#DAB	0	0	0	0	0	2	0	2	2	2	2.0	-	14.3
MALL	0	0	0	0	0	2	0	2	2	2	2.0	-	14.3
#DIV	5	0	3	0	2	18	0	28	18	2	7.0	7.4	57.1
BAGO	0	0	0	0	0	12	0	12	12	12	12.0	-	14.3
BUFF	2	0	0	0	2	2	0	6	2	2	2.0	-	42.9
COME	3	0	3	0	0	4	0	10	4	3	3.3	0.6	42.9
#RAP	0	2	0	0	2	2	0	6	2	2	2.0	-	42.9
HAWK	0	0	0	0	0	1	0	1	1	1	1.0	-	14.3
BAEA	0	2	0	0	2	1	0	5	2	1	1.7	0.6	42.9
#GUL	150	0	46	0	0	0	2	198	150	2	66.0	76.0	42.9
MEGU	0	0	9	0	0	0	0	9	9	9	9.0	-	14.3
GWGU	150	0	37	0	0	0	2	189	150	2	63.0	77.3	42.9
#PAS	0	0	5	0	0	29	3	37	29	3	12.3	14.5	42.9
NOCR	0	0	5	0	0	7	3	15	7	3	5.0	2.0	42.9
DEJU	0	0	0	0	0	22	0	22	22	22	22.0	-	14.3
#TOT	156	2	54	0	4	52	14	282	156	2	47.0	58.2	85.7

Campbell River Estuary Bird Surveys of Station 12 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#HER	0	3	3	3	3	3.0	-	50.0
GBHE	0	3	3	3	3	3.0	-	50.0
#RAP	0	2	2	2	2	2.0	-	50.0
BAEA	0	2	2	2	2	2.0	-	50.0
#GUL	0	30	30	30	30	30.0	-	50.0
BOGU	0	20	20	20	20	20.0	-	50.0
GWGU	0	10	10	10	10	10.0	-	50.0
#PAS	0	10	10	10	10	10.0	-	50.0
CORA	0	3	3	3	3	3.0	-	50.0
AMRO	0	3	3	3	3	3.0	-	50.0
FOSP	0	2	2	2	2	2.0	-	50.0
HOFI	0	2	2	2	2	2.0	-	50.0
#TOT	0	45	45	45	45	45.0	-	50.0

Campbell River Estuary Bird Surveys of Station 13 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	28Nov	Total	Max	Min	Mean	SD	%Freq
#COR	7	1	0	0	4	12	7	1	4.0	3.0	60.0
CORM	7	0	0	0	4	11	7	4	5.5	2.1	40.0
PECO	0	1	0	0	0	1	1	1	1.0	-	20.0
#HER	0	0	2	0	3	5	3	2	2.5	0.7	40.0
GBHE	0	0	2	0	3	5	3	2	2.5	0.7	40.0
#DAB	10	0	0	0	0	10	10	10	10.0	-	20.0
MALL	10	0	0	0	0	10	10	10	10.0	-	20.0
#DIV	45	12	0	8	5	70	45	5	17.5	18.6	80.0
SCAU	5	0	0	0	0	5	5	5	5.0	-	20.0
BUFF	40	12	0	4	5	61	40	4	15.3	16.9	80.0
COME	0	0	0	4	0	4	4	4	4.0	-	20.0
#SHO	14	0	0	0	0	14	14	14	14.0	-	20.0
KILL	14	0	0	0	0	14	14	14	14.0	-	20.0
#GUL	230	305	5	75	45	660	305	5	132.0	128.9	100.0
GULL	0	250	0	0	0	250	250	250	250.0	-	20.0
MEGU	0	5	0	25	0	30	25	5	15.0	14.1	40.0
GWGU	150	50	5	50	15	270	150	5	54.0	57.4	100.0
BLKI	80	0	0	0	30	110	80	30	55.0	35.4	40.0
BEKI	1	0	0	0	1	2	1	1	1.0	-	40.0
#PAS	28	10	7	0	0	45	28	7	15.0	11.4	60.0
NOCR	27	10	7	0	0	44	27	7	14.7	10.8	60.0
EUST	1	0	0	0	0	1	1	1	1.0	-	20.0
#TOT	335	328	14	83	58	818	335	14	163.6	155.3	100.0

Campbell River Estuary Bird Surveys of Station 13 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	28Jan	06Feb	13Feb	26Feb	27Feb	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
COLO	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#GRE	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
HOGR	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	7.7
#COR	0	0	2	0	4	0	0	0	5	0	0	0	0	11	5	2	3.7	1.5	23.1
DCCO	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
PECO	0	0	0	0	4	0	0	0	5	0	0	0	0	9	5	4	4.5	0.7	15.4
#HER	0	2	0	1	0	0	8	0	0	0	0	0	2	13	8	1	3.3	3.2	30.8
GBHE	0	2	0	1	0	0	8	0	0	0	0	0	2	13	8	1	3.3	3.2	30.8
#SWA	0	0	0	2	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
TRUS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#GEE	0	0	0	2	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
CAGO	0	0	0	2	0	0	0	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#DAB	0	0	0	6	0	0	2	0	0	0	0	0	0	8	6	2	4.0	2.8	15.4
MALL	0	0	0	6	0	0	2	0	0	0	0	0	0	8	6	2	4.0	2.8	15.4
#DIV	13	2	26	20	18	10	13	12	10	1	5	2	27	159	27	1	12.2	8.7	100.0
COGO	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
BAGO	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
BUFF	9	2	7	7	10	0	4	3	5	0	5	2	6	60	10	2	5.5	2.7	84.6
COME	4	0	17	0	8	10	9	7	5	1	0	0	21	82	21	1	9.1	6.3	69.2
RBME	0	0	2	12	0	0	0	0	0	0	0	0	0	14	12	2	7.0	7.1	15.4
#SHO	0	0	0	0	0	0	2	0	0	0	0	0	0	2	2	2	2.0	-	7.7
KILL	0	0	0	0	0	0	2	0	0	0	0	0	0	2	2	2	2.0	-	7.7
#GUL	42	34	475	17	260	0	720	235	321	22	0	500	173	2799	720	17	254.5	232.7	84.6
GULL	0	0	0	0	0	0	0	0	0	0	0	0	150	150	150	150	150.0	-	7.7
MEGU	0	0	75	0	0	0	0	0	1	0	0	50	1	127	75	1	31.8	36.9	30.8
RBGU	0	0	0	0	0	0	0	0	0	22	0	0	0	22	22	22	22.0	-	7.7
HEGU	12	0	100	0	60	0	50	0	320	0	0	0	20	562	320	12	93.7	115.2	46.2
GWGU	30	34	300	5	200	0	670	230	0	0	0	450	2	1921	670	2	213.4	230.9	69.2
BLKI	0	0	0	12	0	0	0	5	0	0	0	0	0	17	12	5	8.5	4.9	15.4
BEKI	0	0	0	2	0	0	1	0	0	1	0	0	0	4	2	1	1.3	0.6	23.1
#PAS	11	0	1	105	450	0	15	83	130	2	0	0	40	837	450	1	93.0	142.0	69.2
NOCR	11	0	1	105	380	0	15	83	130	0	0	0	40	765	380	1	95.6	124.2	61.5
CORA	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
EUST	0	0	0	0	70	0	0	0	0	0	0	0	0	70	70	70	70.0	-	7.7
SOSP	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
#TOT	66	38	505	155	732	10	761	330	467	26	5	502	242	3839	761	5	295.3	274.5	100.0

Campbell River Estuary Bird Surveys of Station 13 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	14May	20May	29May	Total	Max	Min	Mean	SD	%Freq
#COR	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
CORM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#HER	1	0	2	0	1	0	0	0	1	0	2	0	0	7	2	1	1.4	0.5	38.5
GBHE	1	0	2	0	1	0	0	0	1	0	2	0	0	7	2	1	1.4	0.5	38.5
#DAB	0	0	2	0	0	0	2	0	0	0	0	0	0	4	2	2	2.0	-	15.4
MALL	0	0	2	0	0	0	2	0	0	0	0	0	0	4	2	2	2.0	-	15.4
#DIV	10	6	37	28	14	20	36	24	7	0	2	0	0	184	37	2	18.4	12.6	76.9
BUFF	9	0	20	21	12	9	33	13	0	0	0	0	0	117	33	9	16.7	8.7	53.8
HOME	0	0	0	0	0	11	0	0	0	0	0	0	0	11	11	11	11.0	-	7.7
COME	1	6	17	7	2	0	3	11	7	0	2	0	0	56	17	1	6.2	5.2	69.2
#RAP	0	0	0	1	0	0	1	0	0	0	0	2	0	4	2	1	1.3	0.6	23.1
BAEA	0	0	0	1	0	0	1	0	0	0	0	2	0	4	2	1	1.3	0.6	23.1
#SHO	0	0	2	0	0	0	0	0	0	0	4	0	0	6	4	2	3.0	1.4	15.4
KILL	0	0	2	0	0	0	0	0	0	0	2	0	0	4	2	2	2.0	-	15.4
SHOR	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	2	2.0	-	7.7
#GUL	0	205	160	242	1	220	75	229	150	0	30	14	0	1326	242	1	132.6	94.5	76.9
GULL	0	0	0	200	0	0	0	0	0	0	0	0	0	200	200	200	200.0	-	7.7
BOGU	0	0	0	0	0	0	0	150	0	0	0	0	0	150	150	150	150.0	-	7.7
MEGU	0	55	0	42	0	200	0	7	0	0	0	0	0	304	200	7	76.0	85.1	30.8
CAGU	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	7.7
HEGU	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
GWGU	0	150	160	0	1	19	75	70	150	0	30	14	0	669	160	1	74.3	64.1	69.2
BEKI	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	7.7
#WOO	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
NOFL	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
#PAS	0	0	14	19	0	14	5	5	25	1	3	3	0	89	25	1	9.9	8.4	69.2
VGSW	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	2	2.0	-	7.7
CLSW	0	0	0	0	0	0	0	0	25	0	0	0	0	25	25	25	25.0	-	7.7
NOCR	0	0	14	19	0	6	5	2	0	0	1	3	0	50	19	1	7.1	6.8	53.8
AMRO	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
EUST	0	0	0	0	0	8	0	1	0	0	0	0	0	9	8	1	4.5	4.9	15.4
SOSP	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	7.7
RWBL	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	7.7
#TOT	11	211	217	290	16	254	121	258	183	2	41	19	0	1623	290	2	135.3	111.9	92.3

Campbell River Estuary Bird Surveys of Station 13 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	13Aug	20Aug	28Aug	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	0	0	0	0	0	0	1	0	3	4	3	1	2.0	1.4	18.2
GBHE	0	0	0	0	0	0	0	0	1	0	3	4	3	1	2.0	1.4	18.2
#DAB	0	0	0	2	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
MALL	0	0	0	2	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
#DIV	0	0	17	7	0	0	0	11	0	0	0	35	17	7	11.7	5.0	27.3
BUFF	0	0	0	5	0	0	0	0	0	0	0	5	5	5	5.0	-	9.1
HOME	0	0	17	0	0	0	0	0	0	0	0	17	17	17	17.0	-	9.1
COME	0	0	0	2	0	0	0	11	0	0	0	13	11	2	6.5	6.4	18.2
#RAP	7	0	2	0	0	3	1	0	0	0	0	13	7	1	3.3	2.6	36.4
OSPR	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	9.1
BAEA	7	0	2	0	0	3	0	0	0	0	0	12	7	2	4.0	2.6	27.3
#SHO	1	0	1	3	0	0	3	8	19	0	1	36	19	1	5.1	6.6	63.6
KILL	1	0	0	3	0	0	0	3	4	0	1	12	4	1	2.4	1.3	45.5
SPSA	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
SURF	0	0	0	0	0	0	0	5	0	0	0	5	5	5	5.0	-	9.1
WESA	0	0	0	0	0	0	3	0	15	0	0	18	15	3	9.0	8.5	18.2
#GUL	0	70	0	86	1	4	8	90	54	0	0	313	90	1	44.7	39.6	63.6
BOGU	0	0	0	0	0	0	8	20	0	0	0	28	20	8	14.0	8.5	18.2
GWGU	0	70	0	86	1	4	0	70	54	0	0	285	86	1	47.5	36.3	54.5
RODO	0	0	0	0	0	0	0	0	4	0	0	4	4	4	4.0	-	9.1
BTPI	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
BEKI	0	0	2	0	0	0	0	1	1	0	0	4	2	1	1.3	0.6	27.3
#WOO	0	0	2	0	0	0	0	0	0	0	0	2	2	2	2.0	-	9.1
DOWO	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
PIWO	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
#PAS	14	0	18	12	0	6	238	25	65	0	9	387	238	6	48.4	78.9	72.7
VGSW	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
CLSW	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3.0	-	9.1
BASW	1	0	2	0	0	4	0	0	0	0	0	7	4	1	2.3	1.5	27.3
NOCR	3	0	0	10	0	1	5	20	5	0	0	44	20	1	7.3	6.9	54.5
AMRO	0	0	3	0	0	1	0	0	0	0	1	5	3	1	1.7	1.2	27.3
CEWA	0	0	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	9.1
EUST	9	0	12	2	0	0	230	5	60	0	0	318	230	2	53.0	89.3	54.5
SOSP	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	9.1
PISI	0	0	0	0	0	0	0	0	0	0	5	5	5	5	5.0	-	9.1
#TOT	22	70	44	110	1	13	250	135	144	0	13	802	250	1	80.2	79.5	90.9

Campbell River Estuary Bird Surveys of Station 13 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	17Oct	30Oct	13Nov	27Nov	Total	Max	Min	Mean	SD	%Freq
#COR	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	11.1
PECO	0	0	0	0	0	0	0	1	0	1	1	1	1.0	-	11.1
#HER	1	0	1	0	0	3	1	0	0	6	3	1	1.5	1.0	44.4
GBHE	1	0	1	0	0	3	1	0	0	6	3	1	1.5	1.0	44.4
#SWA	0	0	0	0	0	0	0	0	6	6	6	6	6.0	-	11.1
TRUS	0	0	0	0	0	0	0	0	6	6	6	6	6.0	-	11.1
#DAB	9	3	0	4	2	0	3	0	4	25	9	2	4.2	2.5	66.7
MALL	9	0	0	4	0	0	3	0	4	20	9	3	5.0	2.7	44.4
NOPI	0	3	0	0	2	0	0	0	0	5	3	2	2.5	0.7	22.2
#DIV	11	5	0	6	2	3	8	16	32	83	32	2	10.4	9.8	88.9
LESC	0	0	0	0	0	0	0	0	12	12	12	12	12.0	-	11.1
HADU	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	11.1
COGO	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
BUFF	11	0	0	0	0	0	7	12	16	46	16	7	11.5	3.7	44.4
HOME	0	0	0	0	0	1	0	0	0	1	1	1	1.0	-	11.1
COME	0	5	0	6	0	2	0	4	4	21	6	2	4.2	1.5	55.6
#SHO	2	4	0	0	0	0	3	0	0	9	4	2	3.0	1.0	33.3
KILL	1	1	0	0	0	0	0	0	0	2	1	1	1.0	-	22.2
WHIM	0	2	0	0	0	0	0	0	0	2	2	2	2.0	-	11.1
WESA	0	1	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
COSN	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
SHOR	0	0	0	0	0	0	3	0	0	3	3	3	3.0	-	11.1
#GUL	50	200	150	300	18	77	160	47	540	1542	540	18	171.3	164.5	100.0
BOGU	0	20	0	150	0	2	10	0	0	182	150	2	45.5	70.1	44.4
MEGU	0	0	0	0	16	0	0	0	0	16	16	16	16.0	-	11.1
HEGU	0	0	0	0	1	35	0	0	0	36	35	1	18.0	24.0	22.2
GWGU	50	180	150	150	1	40	150	47	540	1308	540	1	145.3	161.1	100.0
BEKI	1	0	0	0	0	0	0	0	0	1	1	1	1.0	-	11.1
#WOO	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
NOFL	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	11.1
#PAS	10	10	1	56	57	0	2	0	1	137	57	1	19.6	25.5	77.8
NOCR	10	10	0	56	15	0	2	0	1	94	56	1	15.7	20.5	66.7
EUST	0	0	0	0	40	0	0	0	0	40	40	40	40.0	-	11.1
YRWA	0	0	0	0	2	0	0	0	0	2	2	2	2.0	-	11.1
WETA	0	0	1	0	0	0	0	0	0	1	1	1	1.0	-	11.1
#TOT	84	222	152	366	80	83	177	64	583	1811	583	64	201.2	172.3	100.0

Campbell River Estuary Bird Surveys of Station 13 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	13Feb	Total	Max	Min	Mean	SD	%Freq
#COR	2	0	0	0	0	0	0	2	2	2	2.0	-	14.3
PECO	2	0	0	0	0	0	0	2	2	2	2.0	-	14.3
#HER	0	0	0	1	0	0	0	1	1	1	1.0	-	14.3
GBHE	0	0	0	1	0	0	0	1	1	1	1.0	-	14.3
#SWA	0	0	0	1	8	0	0	9	8	1	4.5	4.9	28.6
TRUS	0	0	0	1	8	0	0	9	8	1	4.5	4.9	28.6
#DAB	0	3	0	9	2	0	0	14	9	2	4.7	3.8	42.9
MALL	0	3	0	9	2	0	0	14	9	2	4.7	3.8	42.9
#DIV	11	21	3	19	4	0	0	58	21	3	11.6	8.3	71.4
LESC	0	6	0	0	0	0	0	6	6	6	6.0	-	14.3
BUFF	7	2	0	14	2	0	0	25	14	2	6.3	5.7	57.1
COME	4	13	3	5	2	0	0	27	13	2	5.4	4.4	71.4
#RAP	0	0	0	2	0	0	1	3	2	1	1.5	0.7	28.6
BAEA	0	0	0	2	0	0	1	3	2	1	1.5	0.7	28.6
#GUL	9	0	49	150	40	0	3	251	150	3	50.2	59.1	71.4
MEGU	0	0	0	0	40	0	0	40	40	40	40.0	-	14.3
GWGU	9	0	49	150	0	0	3	211	150	3	52.8	68.0	57.1
#PAS	4	0	0	8	5	0	0	17	8	4	5.7	2.1	42.9
NOCR	4	0	0	8	5	0	0	17	8	4	5.7	2.1	42.9
#TOT	26	24	52	190	59	0	4	355	190	4	59.2	67.2	85.7

Campbell River Estuary Bird Surveys of Station 13 for Spring 1984

Date	11Mar	18Mar	Total	Max	Min	Mean	SD	%Freq
#DIV	0	7	7	7	7	7.0	-	50.0
COME	0	7	7	7	7	7.0	-	50.0
#GUL	0	180	180	180	180	180.0	-	50.0
BOGU	0	30	30	30	30	30.0	-	50.0
GWGU	0	150	150	150	150	150.0	-	50.0
#PAS	0	27	27	27	27	27.0	-	50.0
NOCR	0	27	27	27	27	27.0	-	50.0
#TOT	0	214	214	214	214	214.0	-	50.0

Campbell River Estuary Bird Surveys of Station 14 for Autumn 1982

Date	31Oct	08Nov	13Nov	20Nov	Total	Max	Min	Mean	SD	%Freq
#LOO	0	0	0	2	2	2	2	2.0	-	25.0
COLO	0	0	0	2	2	2	2	2.0	-	25.0
#DAB	0	0	4	0	4	4	4	4.0	-	25.0
MALL	0	0	4	0	4	4	4	4.0	-	25.0
#DIV	0	0	17	0	17	17	17	17.0	-	25.0
BUFF	0	0	15	0	15	15	15	15.0	-	25.0
COME	0	0	2	0	2	2	2	2.0	-	25.0
#RAP	0	0	1	0	1	1	1	1.0	-	25.0
BAEA	0	0	1	0	1	1	1	1.0	-	25.0
#GUL	153	0	14	140	307	153	14	102.3	76.8	75.0
GWGU	3	0	14	100	117	100	3	39.0	53.1	75.0
BLKI	150	0	0	40	190	150	40	95.0	77.8	50.0
#PAS	0	0	50	0	50	50	50	50.0	-	25.0
EUST	0	0	50	0	50	50	50	50.0	-	25.0
#TOT	153	0	86	142	381	153	86	127.0	35.9	75.0

Campbell River Estuary Bird Surveys of Station 14 for Winter 1982-1983

Date	05Dec	11Dec	19Dec	26Dec	03Jan	08Jan	15Jan	23Jan	Total	Max	Min	Mean	SD	%Freq
#GRE	0	0	0	0	1	0	0	0	1	1	1	1.0	-	12.5
WEGR	0	0	0	0	1	0	0	0	1	1	1	1.0	-	12.5
#COR	1	0	0	1	0	0	0	0	2	1	1	1.0	-	25.0
PECO	1	0	0	1	0	0	0	0	2	1	1	1.0	-	25.0
#HER	0	9	19	0	13	0	0	0	41	19	9	13.7	5.0	37.5
GBHE	0	9	19	0	13	0	0	0	41	19	9	13.7	5.0	37.5
#SWA	0	1	0	0	0	0	0	0	1	1	1	1.0	-	12.5
TRUS	0	1	0	0	0	0	0	0	1	1	1	1.0	-	12.5
#DAB	0	6	9	0	4	0	0	0	19	9	4	6.3	2.5	37.5
MALL	0	6	9	0	4	0	0	0	19	9	4	6.3	2.5	37.5
#DIV	4	6	14	1	27	8	7	0	67	27	1	9.6	8.7	87.5
COGO	0	1	3	0	0	0	0	0	4	3	1	2.0	1.4	25.0
BUFF	3	4	8	0	7	7	1	0	30	8	1	5.0	2.8	75.0
COME	1	1	3	1	20	1	6	0	33	20	1	4.7	7.0	87.5
#RAP	1	4	0	0	2	0	0	2	9	4	1	2.3	1.3	50.0
BAEA	0	4	0	0	2	0	0	2	8	4	2	2.7	1.2	37.5
NOGO	1	0	0	0	0	0	0	0	1	1	1	1.0	-	12.5
#GUL	0	5	0	1	836	0	160	0	1002	836	1	250.5	397.3	50.0
MEGU	0	0	0	1	0	0	45	0	46	45	1	23.0	31.1	25.0
GWGU	0	5	0	0	836	0	115	0	956	836	5	318.7	451.4	37.5
BEKI	0	1	0	0	0	0	2	0	3	2	1	1.5	0.7	25.0
#WOO	0	0	1	0	0	0	0	0	1	1	1	1.0	-	12.5
NOFL	0	0	1	0	0	0	0	0	1	1	1	1.0	-	12.5
#PAS	1	5	9	0	15	0	0	2	32	15	1	6.4	5.7	62.5
NOCR	1	5	9	0	0	0	0	2	17	9	1	4.3	3.6	50.0
CORA	0	0	0	0	5	0	0	0	5	5	5	5.0	-	12.5
DEJU	0	0	0	0	6	0	0	0	6	6	6	6.0	-	12.5
PASS	0	0	0	0	4	0	0	0	4	4	4	4.0	-	12.5
#TOT	7	37	52	3	898	8	169	4	1178	898	3	147.3	308.4	100.0

Campbell River Estuary Bird Surveys of Station 14 for Spring 1983

Date	06Mar	13Mar	20Mar	26Mar	03Apr	10Apr	16Apr	23Apr	01May	08May	Total	Max	Min	Mean	SD	%Freq
#HER	0	2	3	4	0	0	6	0	0	0	15	6	2	3.8	1.7	40.0
GBHE	0	2	3	4	0	0	6	0	0	0	15	6	2	3.8	1.7	40.0
#DIV	0	0	11	10	4	1	15	11	0	0	52	15	1	8.7	5.2	60.0
BUFF	0	0	5	2	4	1	0	9	0	0	21	9	1	4.2	3.1	50.0
COME	0	0	6	8	0	0	15	2	0	0	31	15	2	7.8	5.4	40.0
#RAP	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	10.0
BAEA	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	10.0
#SHO	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	10.0
WESA	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	10.0
#GUL	0	0	0	0	0	3	0	175	3	0	181	175	3	60.3	99.3	30.0
BOGU	0	0	0	0	0	0	0	125	0	0	125	125	125	125.0	-	10.0
GWGU	0	0	0	0	0	3	0	50	3	0	56	50	3	18.7	27.1	30.0
BEKI	0	0	0	0	1	0	0	0	0	0	1	1	1	1.0	-	10.0
#WOO	0	0	0	1	0	1	0	0	0	0	2	1	1	1.0	-	20.0
NOFL	0	0	0	1	0	1	0	0	0	0	2	1	1	1.0	-	20.0
#PAS	0	4	0	7	0	5	0	2	4	2	24	7	2	4.0	1.9	60.0
VGSW	0	0	0	0	0	3	0	0	0	0	3	3	3	3.0	-	10.0
NOCR	0	4	0	2	0	0	0	0	2	0	8	4	2	2.7	1.2	30.0
AMRO	0	0	0	2	0	1	0	0	1	0	4	2	1	1.3	0.6	30.0
EUST	0	0	0	3	0	0	0	1	1	2	7	3	1	1.8	1.0	40.0
SOSP	0	0	0	0	0	0	0	1	0	0	1	1	1	1.0	-	10.0
DEJU	0	0	0	0	0	1	0	0	0	0	1	1	1	1.0	-	10.0
#TOT	0	6	14	22	5	11	21	189	7	2	277	189	2	30.8	59.7	90.0

Campbell River Estuary Bird Surveys of Station 14 for Summer 1983

Date	11Jun	20Jun	26Jun	11Jul	16Jul	24Jul	30Jul	08Aug	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	0	0	2	0	0	0	2	2	2	2.0	-	12.5
GBHE	0	0	0	0	2	0	0	0	2	2	2	2.0	-	12.5
#DIV	2	0	0	0	0	0	0	4	6	4	2	3.0	1.4	25.0
HADU	0	0	0	0	0	0	0	3	3	3	3	3.0	-	12.5
HOME	0	0	0	0	0	0	0	1	1	1	1	1.0	-	12.5
COME	2	0	0	0	0	0	0	0	2	2	2	2.0	-	12.5
#RAP	5	2	2	1	1	0	0	0	11	5	1	2.2	1.6	62.5
HAWK	0	0	0	1	0	0	0	0	1	1	1	1.0	-	12.5
BAEA	5	2	2	0	1	0	0	0	10	5	1	2.5	1.7	50.0
#SHO	0	0	0	0	1	0	0	0	1	1	1	1.0	-	12.5
KILL	0	0	0	0	1	0	0	0	1	1	1	1.0	-	12.5
#GUL	1	2	0	2	6	6	0	255	272	255	1	45.3	102.7	75.0
BOGU	0	0	0	0	0	0	0	5	5	5	5	5.0	-	12.5
MEGU	0	0	0	0	0	0	0	1	1	1	1	1.0	-	12.5
HEGU	0	0	0	0	0	0	0	25	25	25	25	25.0	-	12.5
GWGU	1	2	0	2	6	6	0	224	241	224	1	40.2	90.1	75.0
RUHU	1	0	0	0	0	0	0	0	1	1	1	1.0	-	12.5
BEKI	2	0	0	0	0	0	0	0	2	2	2	2.0	-	12.5
#WOO	1	0	0	0	0	0	0	0	1	1	1	1.0	-	12.5
NOFL	1	0	0	0	0	0	0	0	1	1	1	1.0	-	12.5
#PAS	2	6	0	7	40	25	0	33	113	40	2	18.8	16.0	75.0
NOCR	1	1	0	7	14	5	0	1	29	14	1	4.8	5.2	75.0
SWTH	0	1	0	0	0	0	0	0	1	1	1	1.0	-	12.5
AMRO	0	1	0	0	0	0	0	0	1	1	1	1.0	-	12.5
EUST	1	2	0	0	24	20	0	30	77	30	1	15.4	13.2	62.5
SOSP	0	1	0	0	0	0	0	0	1	1	1	1.0	-	12.5
RECR	0	0	0	0	0	0	0	2	2	2	2	2.0	-	12.5
PISI	0	0	0	0	2	0	0	0	2	2	2	2.0	-	12.5
#TOT	14	10	2	10	50	31	0	292	409	292	2	58.4	104.3	87.5

Campbell River Estuary Bird Surveys of Station 14 for Autumn 1983

Date	02Sep	10Sep	18Sep	26Sep	01Oct	Total	Max	Min	Mean	SD	%Freq
#HER	0	0	0	3	0	3	3	3	3.0	-	20.0
GBHE	0	0	0	3	0	3	3	3	3.0	-	20.0
#DAB	0	0	11	3	0	14	11	3	7.0	5.7	40.0
GWTE	0	0	1	0	0	1	1	1	1.0	-	20.0
MALL	0	0	10	3	0	13	10	3	6.5	4.9	40.0
#DIV	0	0	0	2	0	2	2	2	2.0	-	20.0
COME	0	0	0	2	0	2	2	2	2.0	-	20.0
#SHO	0	0	2	0	0	2	2	2	2.0	-	20.0
KILL	0	0	1	0	0	1	1	1	1.0	-	20.0
COSN	0	0	1	0	0	1	1	1	1.0	-	20.0
#GUL	1	8	70	1	1	81	70	1	16.2	30.2	100.0
MEGU	0	0	17	0	0	17	17	17	17.0	-	20.0
HEGU	0	0	0	1	0	1	1	1	1.0	-	20.0
GWGU	1	8	53	0	1	63	53	1	15.8	25.1	80.0
BEKI	2	0	0	0	0	2	2	2	2.0	-	20.0
#PAS	1	42	441	0	0	484	441	1	161.3	243.1	60.0
BASW	0	25	0	0	0	25	25	25	25.0	-	20.0
NOCR	0	17	32	0	0	49	32	17	24.5	10.6	40.0
EUST	0	0	400	0	0	400	400	400	400.0	-	20.0
WARB	1	0	0	0	0	1	1	1	1.0	-	20.0
YRWA	0	0	2	0	0	2	2	2	2.0	-	20.0
SAVS	0	0	5	0	0	5	5	5	5.0	-	20.0
SOSP	0	0	1	0	0	1	1	1	1.0	-	20.0
BHCO	0	0	1	0	0	1	1	1	1.0	-	20.0
#TOT	4	50	524	9	1	588	524	1	117.6	228.0	100.0

Campbell River Estuary Bird Surveys of Station 14 for Winter 1983-1984

Date	10Dec	17Dec	07Jan	23Jan	29Jan	05Feb	Total	Max	Min	Mean	SD	%Freq
#SWA	0	0	0	0	11	0	11	11	11	11.0	-	16.7
TRUS	0	0	0	0	11	0	11	11	11	11.0	-	16.7
#DAB	0	8	0	0	0	0	8	8	8	8.0	-	16.7
MALL	0	8	0	0	0	0	8	8	8	8.0	-	16.7
#DIV	2	5	13	0	0	2	22	13	2	5.5	5.2	66.7
BUFF	2	5	4	0	0	2	13	5	2	3.3	1.5	66.7
COME	0	0	9	0	0	0	9	9	9	9.0	-	16.7
#RAP	0	0	0	0	1	0	1	1	1	1.0	-	16.7
BAEA	0	0	0	0	1	0	1	1	1	1.0	-	16.7
#SHO	0	4	0	0	0	2	6	4	2	3.0	1.4	33.3
KILL	0	4	0	0	0	2	6	4	2	3.0	1.4	33.3
#GUL	0	0	0	0	0	8	8	8	8	8.0	-	16.7
GWGU	0	0	0	0	0	8	8	8	8	8.0	-	16.7
BEKI	0	0	1	0	0	0	1	1	1	1.0	-	16.7
#PAS	209	5	3	0	0	0	217	209	3	72.3	118.4	50.0
NOCR	0	0	3	0	0	0	3	3	3	3.0	-	16.7
GCKI	200	0	0	0	0	0	200	200	200	200.0	-	16.7
RCKI	0	1	0	0	0	0	1	1	1	1.0	-	16.7
RSTO	0	2	0	0	0	0	2	2	2	2.0	-	16.7
SOSP	0	2	0	0	0	0	2	2	2	2.0	-	16.7
DEJU	9	0	0	0	0	0	9	9	9	9.0	-	16.7
#TOT	211	22	17	0	12	12	274	211	12	54.8	87.4	83.3

Campbell River Estuary Bird Surveys of Station 14 for Spring 1984

Date	11Mar	Total	Max	Min	Mean	SD	%Freq
#HER	1	1	1	1	1.0	-	100.0
GBHE	1	1	1	1	1.0	-	100.0
#DIV	9	9	9	9	9.0	-	100.0
COME	9	9	9	9	9.0	-	100.0
#GUL	5	5	5	5	5.0	-	100.0
GWGU	5	5	5	5	5.0	-	100.0
#PAS	6	6	6	6	6.0	-	100.0
NOCR	4	4	4	4	4.0	-	100.0
AMRO	2	2	2	2	2.0	-	100.0
#TOT	21	21	21	21	21.0	-	100.0