

A survey of the auklet colony at Village Cove Beach, St. Paul Island, Alaska  
in 1988

by  
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Village cove beach (hereafter VCB) is an approximately one kilometre long boulder beach extending between the eastern edge of the cliff base of Tolstoi Point and the outlet channel of Salt Lagoon (Figure 1). It constitutes the largest discrete area of Least Auklet nesting habitat on St. Paul Island and is the site of a colony of several thousand birds. About two thirds of the Least Auklets and more than three quarters of the Crested Auklets on St. Paul Island nest at VCB and nearby Tolstoi Point (personal observation). Over the past few years, auklet counts have been conducted at study plots (Byrd 1987) and a preliminary survey conducted (Jones 1986) at VCB. In order to add to the data on the VCB Least Auklet colony, a second survey was conducted by S. Stephenson and I.L. Jones on July 28 1988.

The survey consisted of an 820 meter transect along VCB, set to pass along the crest of the boulder beach and through the centre of the area occupied by nesting auklets. The starting point of the transect was located at a brown 'carsonite' stake set near where the US Coast Guard fuel pipeline meets the shore of Village Cove (Figure 1). Every 20 meters along the transect, the following measurements were taken: 1. a compass bearing parallel to the colony at the station; 2. the width of the habitat occupied by nesting auklets, measured perpendicular to the shoreline and inferred by the presence of auklet droppings; 3. an index of substrate size (a count of the number of surface boulders the measuring tape passed over during the width measurement, corrected for the length of tape set out [boulders/m]); 4. a count of the number of auklet droppings within 15 centimetres either side of the tape when it was laid out for the habitat width measurement. There had been little heavy precipitation in the week preceding the survey so the number of droppings visible on the surface boulders of the colony was fairly high. For the purpose of this survey the density of droppings on the surface was presumed to be correlated with the number of auklets nesting below. To make the distribution data easier to interpret, the data has been presented here as a series of means, each from the data of 3 stations (60 m) along the transect. To further clarify the data, the dropping counts were converted into percentages of the total count and presented as means for each 3 stations. Assuming there is a close correlation between droppings density and nesting birds, the percentage figures can be taken as an estimate of the percentage of the total birds of the VCB colony occupying each 60 meter portion of the transect.

The results of the survey are presented in Table 1 and Figures 1-3. Although the entire VCB was occupied by nesting auklets, the birds were unevenly distributed

along the habitat. The width of the occupied habitat did not vary greatly (Table 1, Figure 1), but the density of nesting birds (as inferred from dropping density) increased towards the southeastern end of VCB near the Salt Lagoon inlet (Table 1, Figures 2,3). The southeasternmost stations had especially high densities of droppings, and an estimated 47% of birds in the colony use the southeasternmost 240 m of VCB. An estimated 51.5% of the birds use the section of VCB within the area to be enclosed by the proposed detached breakwater. In contrast, the density of droppings was relatively low along the northwestern portion of VCB, with only an estimated 12.2% of the birds using the westernmost 300 m of the beach.

### Recommendations

1. This form of survey should be carried out at regular intervals over the next few years, to monitor the distribution of auklets at the VCB colony.
2. The auklet study plots set up by the USFWS should be relocated and counted during early-mid June of the next few years to monitor population trends.
3. The VCB auklet colony is occupied by birds between late April and mid-August. To avoid disturbance to the birds, breakwater construction should be planned to avoid the period between April 15 and August 20.
4. Should the breakwater result in changes to the present VCB auklet habitat, measures should be taken to restore the habitat to its present extent and location or to create new habitat of the appropriate substrate size nearby.

Table 1 Village cove beach auklet colony survey (July 28 1988)

Transect distance	Bearing (true)	Habitat width (m)	Substrate size index	Dropping count	Dropping density (d/m <sup>2</sup> )	Proportion of colony (%)
0-60	111	6.8	6.0	57.3	26.7	2.9
60-120	117	9.5	5.9	18.0	6.4	0.9
120-180	125	8.9	4.5	33.3	11.7	1.7
180-240	130	12.9	4.5	44.7	11.6	2.3
240-300	140	16.2	3.4	87.0	15.4	4.4
300-360	147	11.9	5.8	110.3	27.9	5.6
360-420	147	18.4	4.3	206.7	38.0	10.5
420-480	152	13.2	3.7	153.7	38.5	7.8
480-540	150	15.3	3.6	240.7	52.1	12.3
540-600	160	8.4	3.9	88.0	36.5	4.5
600-660	157	15.7	3.3	220.3	44.8	11.2
660-720	168	9.2	3.5	244.3	87.7	12.5
720-780	181	9.5	3.1	281.0	98.7	14.3
780-820	149	9.6	2.5	265.5	66.7	9.0

Note: Each measure represents a mean from three stations (60 m).



Figure 1 A chart illustrating the extent of the Least Auklet colony at Village Cove, St. Paul Island.

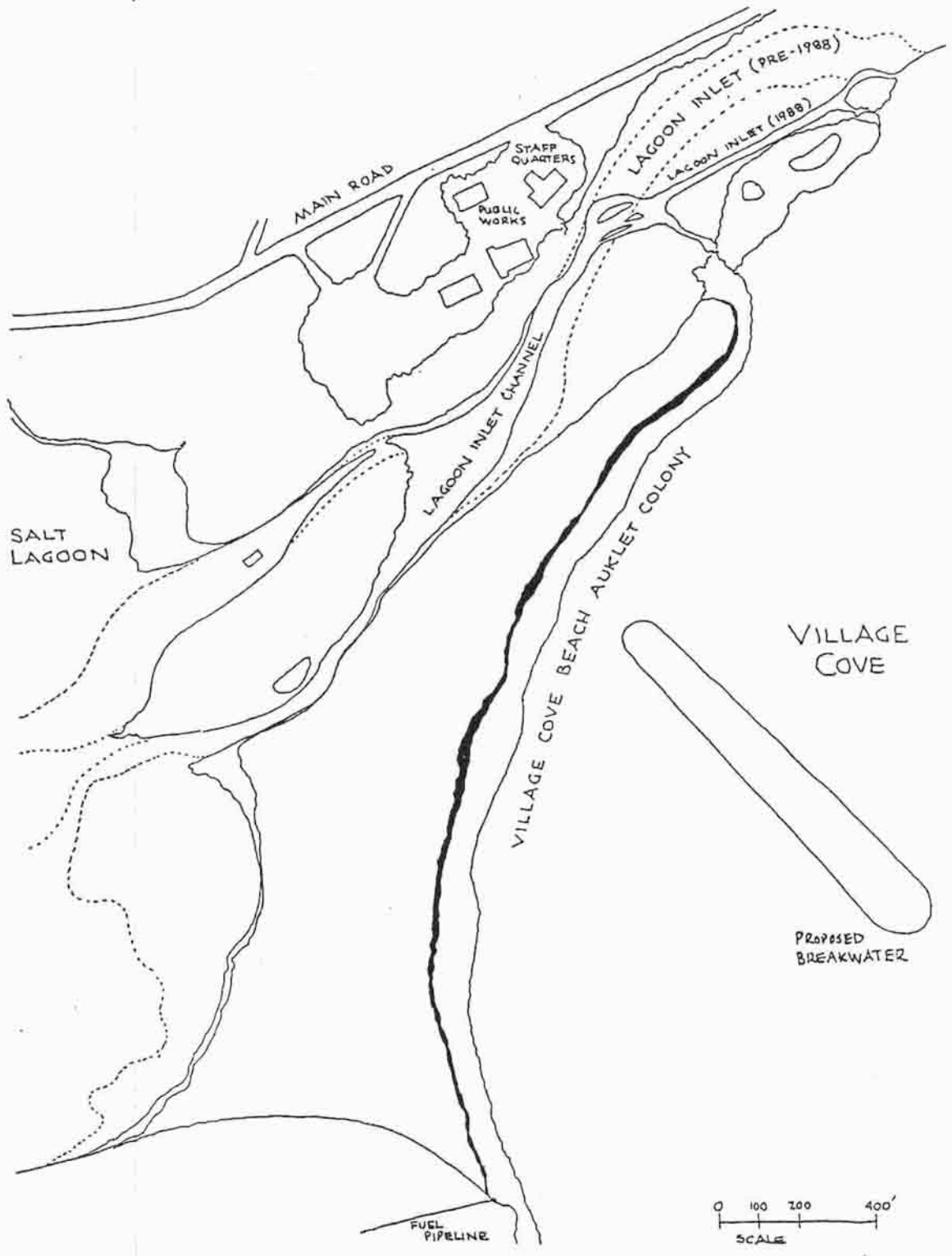
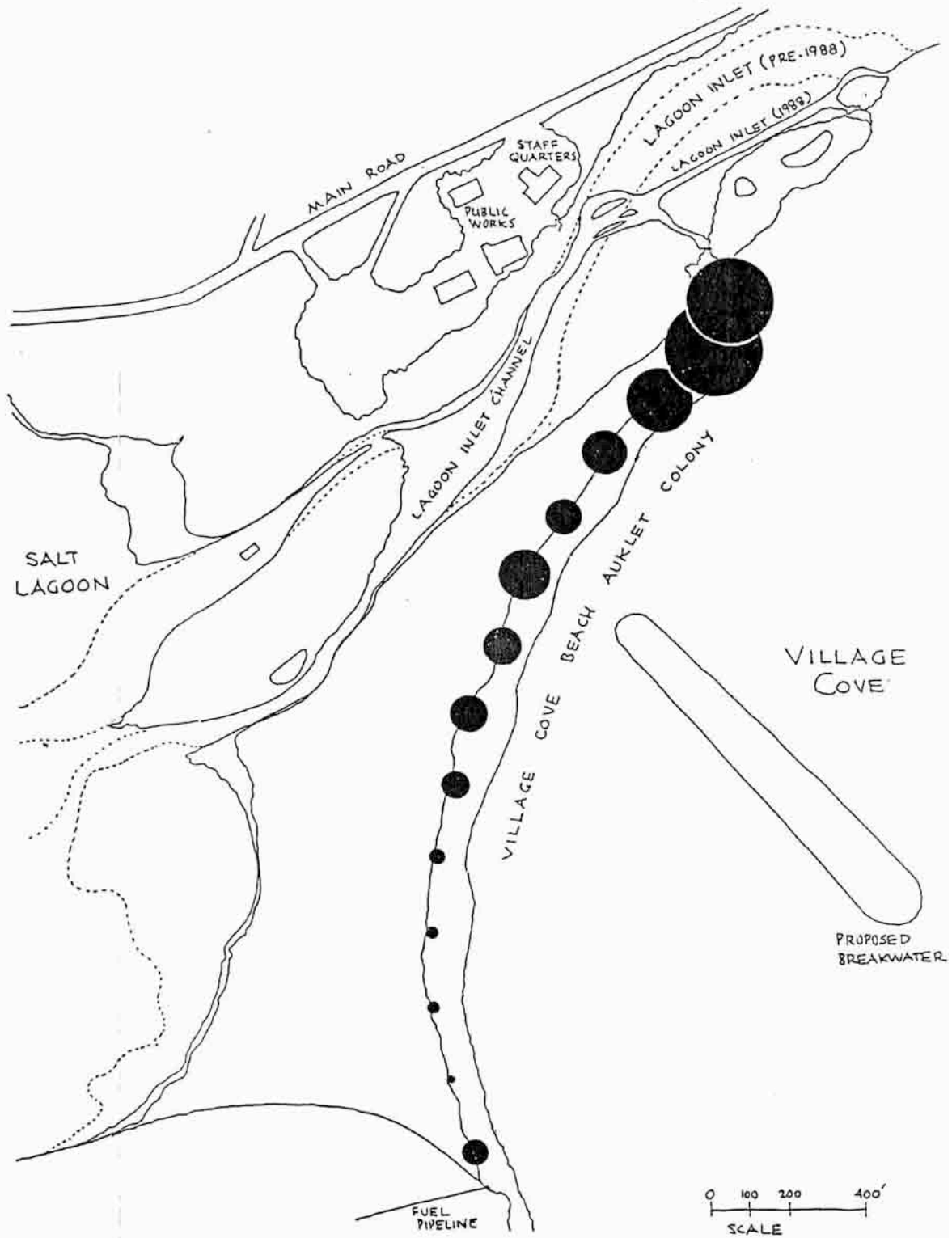
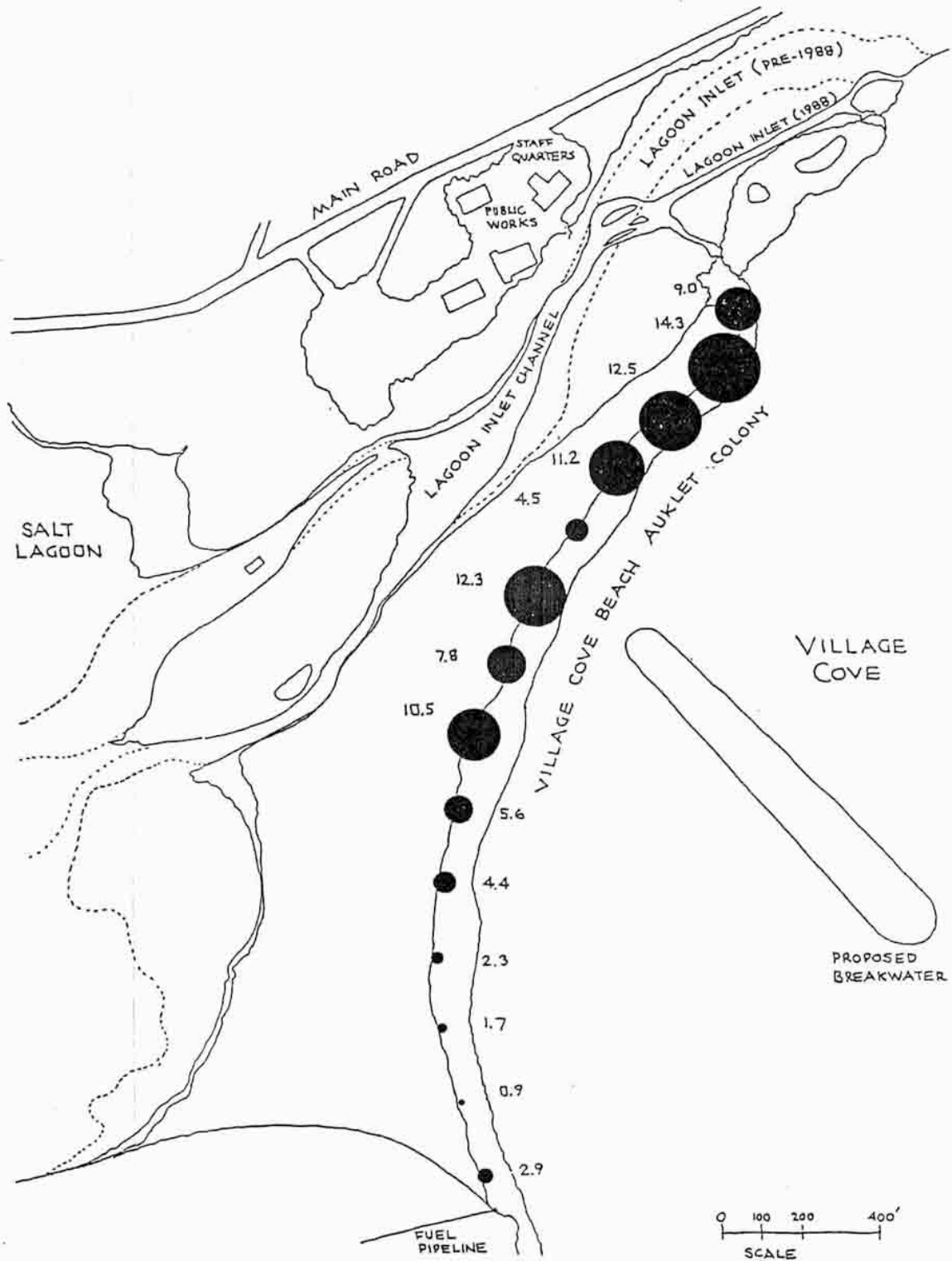


Figure 2 The density of Least Auklet droppings along the colony.



The size of each black dot represents the relative mean density of Least Auklet droppings along the adjacent 60 meters of colony.

Figure 3 The distribution of Least Auklets at the colony.



The size of each dot represents the proportion of the auklet population in each 60 meter section of the colony, as inferred from the count of droppings. The percent values are presented alongside each dot.