

# PREY SELECTION BY PIGEON GUILLEMOTS NESTING ON WHIDBEY ISLAND, WASHINGTON



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Pigeon Guillemots (*Cephus columba*) are an important indicator species for the Puget Sound because they are one of the few seabirds that breed here and many remain through the winter. In spring, approximately 1000 birds gathered at 24 breeding colonies around Whidbey Island where they nest in bluff burrows. Whidbey Audubon Society volunteers have monitored those colonies since 2004. Beginning in 2007, paid interns were charged with identifying the prey delivered to the chicks. During the breeding season (late June through late August), volunteers visited each colony weekly and observed the birds for one hour/visit. They counted the birds, mapped the active burrows and identified prey delivered to the nest burrows. A burrow was deemed active if adults entered the burrow or if they delivered food to the burrow. In 2008, 225 active burrows were identified, in 2009, 255 were identified and in 2010, 227 were identified. About 45% of the birds attempted to breed. Prey deliveries began in late June and reached a peak in late July. Prey were identified visually using binoculars and spotting scopes. Prey was delivered to 70% of the active burrows indicating at least one chick had hatched. In 2008 we observed 754 fish deliveries to 161 burrows, in 2009 we observed 1288 deliveries to 183 burrows and in 2010 we observed 1237 deliveries to 227 burrows. The fish delivered to the burrows were primarily gunnels (56%) or sculpins (25%). The other 19% of the deliveries were either unidentified or were prey other than gunnels or sculpins. The success of the Pigeon Guillemot population appears to be dependent upon the population of these bottom fish.

**Table 1:** Summary of volunteer observations  
Pigeon Guillemot colonies on Whidbey Island, Washington.

Year	2008	2009	2010	Mean	s.d.**
# of Adult Birds	1082	1069	1000	1050	44.1
# Burrows	225	255	227	236	16.8
# Burrows with Chicks	161	183	159	168	13.3
% Attempting to Breed*	41.6	47.7	45.4	44.9	3.1
% Hatching Chicks**	71.6	71.7	70.0	71.1	1.0

\* ((# Burrows x 2) / Max # Birds) x 100  
\*\* (# Burrows with Chicks / # Burrows) x 100  
\*\*\* standard deviation

**Table 2:** Prey Delivery

Number and type of prey delivered to chicks in 2008, 2009 and 2010.

Year	Gunnels	Sculpin	Other
2008	405	181	154
2009	866	271	171
2010	548	376	313
<b>Total</b>	<b>1819</b>	<b>828</b>	<b>638</b>
% of Prey	56	25	19

**Table 3:** Fledging success

Deliveries of prey observed by the intern for 3 consecutive weeks was interpreted a successful fledging.

Year	Burrows*	Fledged**	% Fledged
2009	38	29	76
2010	50	30	60

\* Number of burrows that received at least one prey delivery  
\*\* Number of burrows that received prey for 3 consecutive weeks

## METHODS

**Time Period:** Late June through the end of prey delivery in late August. Each volunteer observed for one hour weekly. Interns observed for 25 hours weekly.

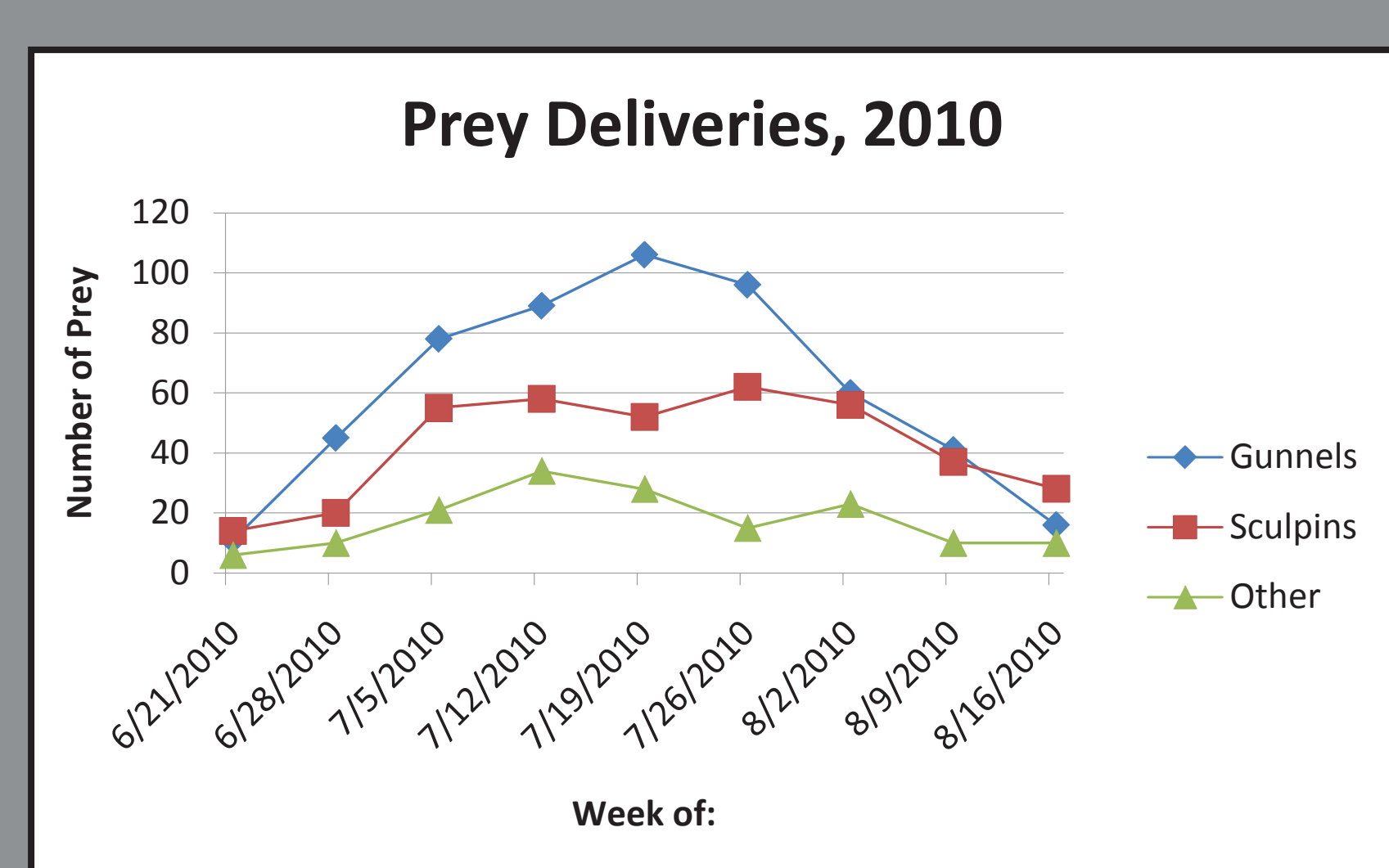
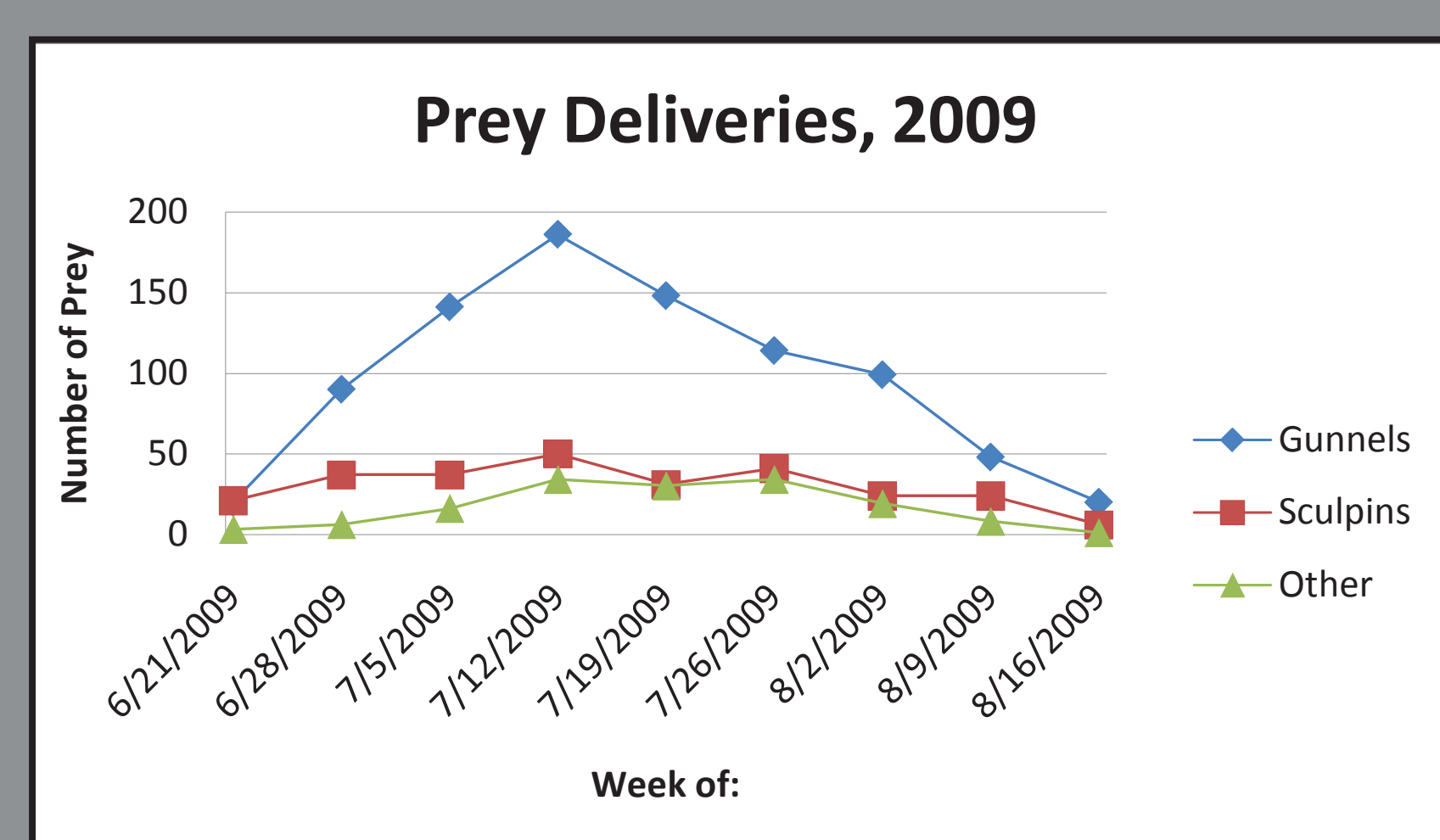
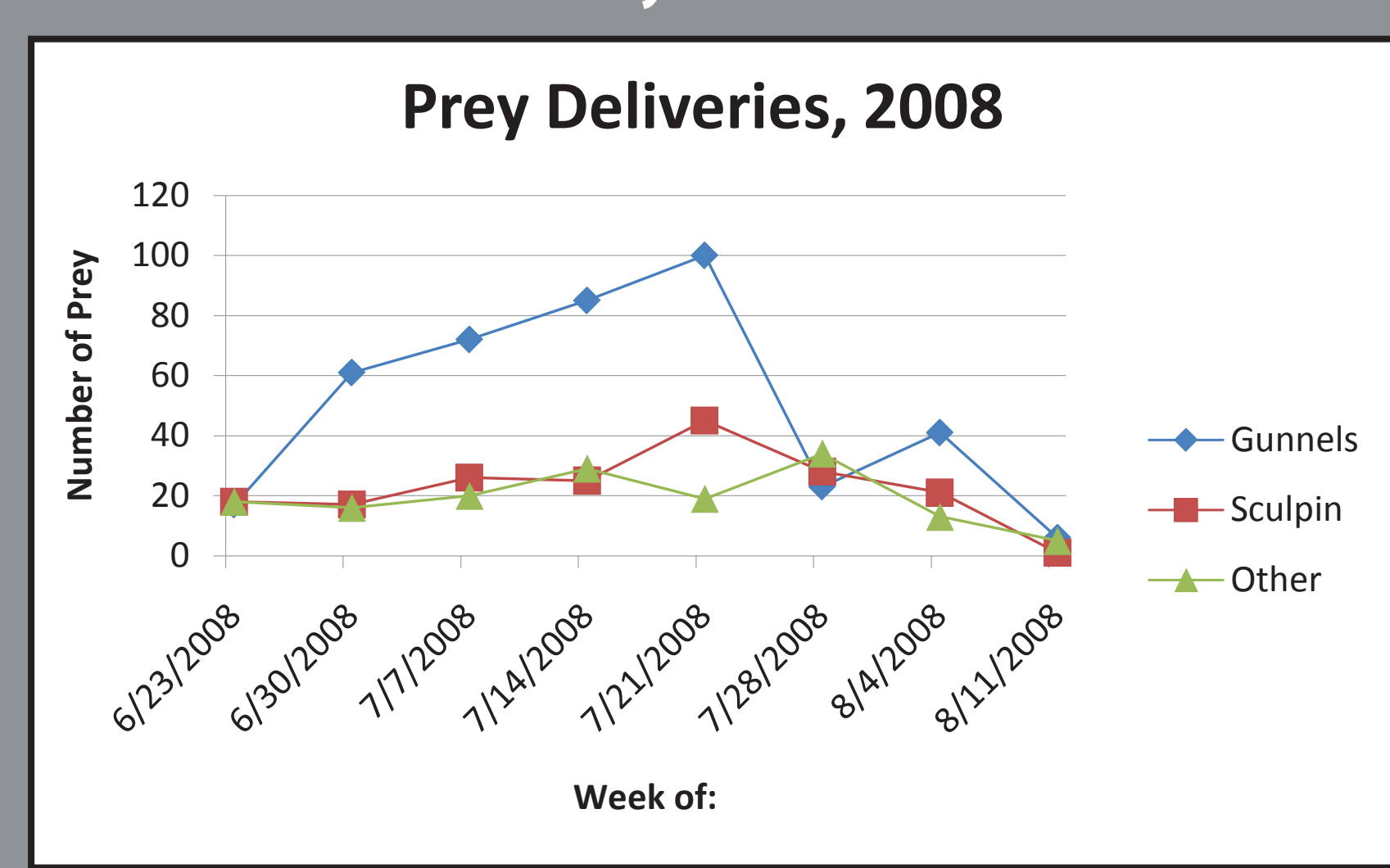
**Volunteers:** Volunteers arrived at their assigned colony before 8:45 a.m. During their visit, they counted the adult birds, identified active burrows and noted prey delivered to those burrows. They also recorded any disturbances such as Bald Eagles, dogs running on the beach or walkers.

**Intern:** Interns monitored 5 colonies (one each day of the week) chosen to represent different habitats on Whidbey Island. Interns arrived at the colony within ½ hour of sunrise and observed for 5 hours. They counted the adult birds, identified active burrows and the prey delivered to those burrows. They documented their findings by still and video photography. They also recorded any disturbances.

## IN CONCLUSION

1. Approximately 1,000 Pigeon Guillemots gathered in colonies on Whidbey Island, Washington each breeding season.
2. During 2008 to 2010, guillemot populations remained stable.
3. Prey delivered to the chicks was primarily gunnels and sculpins.
4. About 70% of the active burrows hatched at least one chick as indicated by delivery of prey.
5. Interns (2009 and 2010) monitored 88 burrows weekly. Fifty-nine of those burrows received prey for at least three consecutive weeks indicating chicks probably survived to fledging age.

**Figure 1:** Weekly delivery of prey to chicks in burrows noted by volunteers and interns.



## Pigeon Guillemot Colonies on Whidbey Island

With the exception of Deception Pass and Keystone, all colonies are found in erosional bluffs. Erosional bluff shore segments identified by Coastal Geologic Services, 2005.



Photography by Craig Johnson and Govinda Rosling  
Poster, Three Cheers Design