



# Slaty-backed gulls as a commensal at a sympatric rookery of Steller sea lions and northern fur seals (Dolgaya Rock, Kuril Islands)

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## Background

- Rookeries of eared seals (Otariidae) are abundant sources of nutrition for different types of organisms.
- Dolgaya Rock (DR) is one of only a few sympatric rookeries of Steller sea lions (SSL; *Eumetopias jubatus*) and northern fur seals (NFS; *Callorhinus ursinus*).
- Slaty-backed gulls (SBG, *Larus schistisagus*) annually form a breeding colony of more than a hundred nests on DR (May-June – brooding period, July-August – fledging).

Objective: to investigate the use of pinniped waste products on the sympatric rookery of eared seals as food of breeding SBG.

## Methods



Breeding colony of the slaty-backed gull on top of the DR rookery. Some of the nests were located directly on the pinniped rookeries.

- The study was conducted in May-July 2010 using daily visual observations.
- SSL visual counts were performed daily, for a total of 50 counts for the season and a total of 3 counts for NFS. The maximum number of SSL was 906 adults (23 June) and 450 pups (5 July), while the maximum number of NFS (9,830 adults and more than 6,000 pups) occurred a month later on 20 July.
- Adult gulls were counted from a set of 1,600 panoramic photographs of the rookery which were taken daily during the midday SSL counts.

At Dolgaya Rock SBG ate invertebrates, fish and birds – predominantly whiskered auklets (*Aethia pygmaea*) and occasionally crested auklets (*Aethia cristatella*) – shown in the photo below.

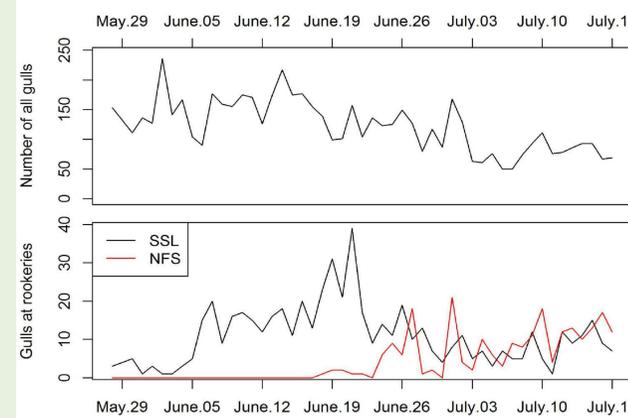


But gulls and their nestlings also ate afterbirths, dead bodies and other waste products on the rookery (regurgitations, feces, blood, etc).

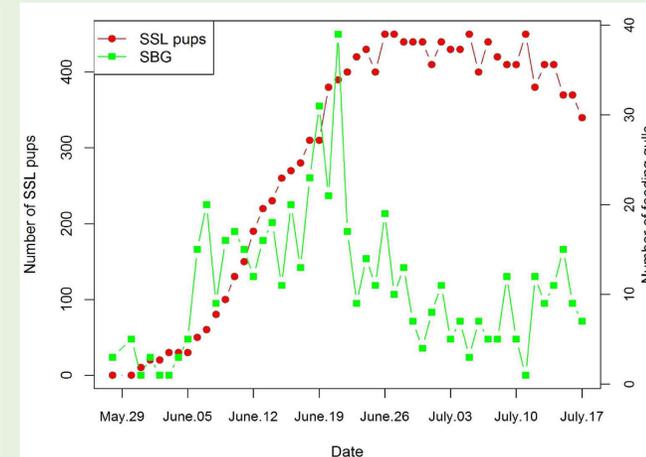
## Results



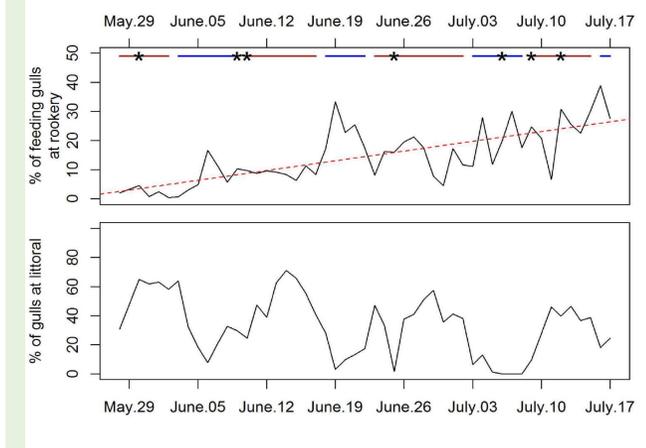
SBG on the pinniped rookery eating SSL and NFS placentas.



The number of gulls declined through the observation period due to seasonal migration patterns. SBG were distributed unequally between SSL and NFS sites. Their presence on the rookery reflects the timing of SSL and NFS pup births; gull presence increased steadily on the SSL rookery in the first twenty days of June than was split between SSL and NFS sites.



The number of feeding gulls associated with SSL sites increased in the middle of June, a period of intense SSL pupping, and then decreased, likely due to the reduced number of placentas available. The remaining gulls ate placentas of NFS which were gradually replacing SSL on the same sites by the end of the SSL breeding period.



\* stormy days, brown line – low tide, blue line – high tide. The relative number of adult gulls feeding on both NFS and SSL sites increased from May to July (red dashed line,  $r = 0.73$ ,  $p < 0.001$ ), from 1% to 40% of the overall number of counted gulls. But their relative number at the littoral zone depended only on tide dynamics and weather conditions.

## Conclusions

- SBG regularly foraged on SSL and NFS waste products at the DR rookeries. We found that the feeding intensity of gulls on the rookeries correlated with birthing intensity of SSL and NFS. The main feeding sources for gulls were placentas.
- The offset in the timing of SSL and NFS pupping allows nesting gulls to use important nutrition resources on the pinniped rookery during their entire breeding period.



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