

Nuka Bay Summary Report

Research regarding black bear disturbance potential was performed in Nuka Bay, Kenai Fjords National Park from May 5th through May 20th, 2003. Several sources of data were collected during this time.

I. Bear approaches 2003

A) Data Collected

A total of 28 approaches were conducted in Nuka Bay in 2003. Of this total, 27 approaches were determined to be usable data, one was omitted due to confounding factors. Of the 27 usable approaches, 8 occurred in Beauty Bay, 2 in Shelter Cove, 6 in Kavishnikov Bay, 4 in Middle Bay, 4 in Pilot Harbor, 2 in Palisades Lagoon, and 1 in Yalik Bay. 20 of the approaches were made on foot, 4 in kayaks, and 3 in a power skiff. Bear were displaced during 24 of the approaches, often leaving the meadow area entirely and retreating to cover. In 3 of the approaches bears showed little evidence of disturbance, mainly keeping an eye on approachers but continuing previous activities. The average distance at which bears first noticed approachers was 157.8 ± 90.4 meters (range 57m to 392 m). In 18 of the approaches bears first responded to approachers simply by looking up briefly and continuing their previous activity (generally herbaceous foraging). In 7 of the cases bears stopped foraging and stared intently at approachers. In 2 of the approaches bears bolted immediately upon seeing the approachers. For approaches in which bears were displaced, the average flushing distance (distance at which bears left area) was 101.17 ± 76.99 m (range 31 to 392 m). In the 3 cases where bears were not displaced approachers reached an average distance of 33.67 ± 21.25 m before ending approach.

B) Intended Analysis

Data on disturbance due to approaches will be edited and analyzed (when possible) to determine: 1) distance at which the average bear was displaced from area, 2) test differences between the different approach modes (foot, kayak, powerskiff), and 3) test differences between areas (Nuka vs Aialik). The scope of this analysis will depend, in large part, on whether sample size requirements are met for various statistical tests.

II. Remote Camera Data

A) Data Collected

Two remote cameras were installed in Nuka Bay. A camera was installed in Palisades Lagoon on the 7th of May and ran until the 19th of May. A camera was also installed at Pilot Harbor on the 12th of May and ran until the 19th of May .

B) Intended Analysis

All tapes will be reviewed and the information regarding total bear numbers and also bear location in the meadow will be recorded. From this data a general activity profile will be created relating bear numbers to time of day. Also an estimate of bear forage bout length will be made by viewing the tapes. This data will be compared to direct observations (see below) to determine what percentage of meadow use was captured by the camera and also whether remote time lapse photography is appropriate to monitor activity in these meadows. Periods where campsites were established (see

below) can also be compared to general activity patterns to determine what, if any, effect these campsites had on bear use in the area.

III. Direct Observation

A) Data Collected

During the course of the field season, direct observations of meadow activity were performed on 8 occasions. These observation sessions were performed at both Pilot Harbor and Palisades Lagoon. Data regarding bear forage times as well as bite counts on specific vegetation types was collected.

B) Intended Analysis

Direct observation data will be compared to remote camera data to determine: 1) what percentage of activity was detected on tapes, 2) how average foraging times determined through observation and camera data compare, and 3) what time interval is appropriate to capture the majority of activity in these meadow areas.

IV. Plant Collection

A) Data Collected

During the course of the study plant samples representing bear forage items were collected. A total of 23 samples were collected: 4 samples of common meadow grass (*Festuca* spp), 6 samples of rye-grass (*Elymus mollis*), 8 samples of sedge (*Carex lynbeii*), 2 samples of common hill grass (*Calamagrostis* spp), 2 samples of water plantain (*Plantago maritima*), and 1 sample of Angelica leaves (*Angelica lucida*). Collection sites were determined by directly observing bear foraging or seeing evidence of recent bear foraging and collecting plants from that location. Only plant parts actually removed by bears was collected from areas adjacent to bear forage locations.

B) Intended Analysis

Vegetation samples will be analyzed for nutritional content (% Dry Matter, Gross Energy, % Crude Protein, Total Dietary Fiber). Using these values along with data regarding bear foraging obtained from direct observations will allow us to calculate digestibility coefficients and estimate energy intake per unit time. These values will allow an estimation of total forage time required to meet maintenance requirements, as well as a quantitative measure of the value of meadow use to meeting bears' nutritional requirements.

V. Campsite Tests

A) Data Collected

Campsites were established in both Pilot Harbor and Palisades Lagoon. The Palisades camp was established the evening of May 15th and was struck the morning of the 17th. The Pilot Harbor camp was established the evening of the 15th and was struck the evening of the 16th. Campsites were left unoccupied during the day and personnel in the camps were instructed not to move around in the meadows excessively.

B) Data Collected

Using direct observation as well as remote camera data we will test whether the presence of the camp significantly affected bears' use of the meadows. Depending on how the data looks, if disturbance was significant we should see reduction in the overall activity pattern and/or reduced foraging effort by the bears.