

bears_SALMON_FLATS_tables

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SALMON: Southern Alaska Lithosphere and Mantle Observation Network (28 stations in southern Alaska)

FLATS: Fault Locations and Alaska Tectonics from Seismicity (13 stations in central Alaska)

Classification for site remoteness

- R1. Road access from mainland; significant presence of human activity
- R2. Landing strip or road access from mainland; some presence of human activity
- R3. No road access from mainland; some presence of human activity
- R4. No road access from mainland; no presence of human activity

Classification for bear encounters with stations

- B1. No sign of bears at site or in vicinity.
- B2. No damage, but signs of bear at site or in vicinity (tracks or damage nearby; or on video).
- B3. Light damage: definite or possible bear encounter; station still running.
- B4. Significant bear disruption*, and station still running.
- B5. Significant bear disruption*, and station is out; data loss <6 months (post-winter outage).
- B6. Significant bear disruption*, and station is out; data loss >6 months (pre-winter outage).

*Significant bear disruption = box moved, box deformed, box top removed, or cables dug up

Bear encounters with SALMON stations.

Each entry in the table corresponds to a station-year, for example BING/15 is for station BING for the time period summer-2015 to summer-2016. Three stations are omitted from the table for sites where there are no bears, on Kalgin Island (KALS+, KALN+) and inside a 2 km² gated moose pen (MPEN+). The * indicates a site where the sensor cable was ruined (which leads to an automatic B5/B6 category). The bold entries denote stations with Lysol used as bear deterrent. HOLG and JUDD were 2015-6 only; JOES was 2016-7 only.

	B1 <i>undisturbed by bears</i>	B2	B3	B4	B5	B6 <i>most disturbed by bears</i>
R1 [7] <i>least remote site</i> BING, CLAM, GOOS, MPEN+, NNIL, NSKI, SOLD	BING/15, BING/16, CLAM/15, CLAM/16, GOOS/15, GOOS/16, NNIL/15, NNIL/16, NSKI/15, NSKI/16, SOLD/15, SOLD/16					
R2 [2] HOPE, KALS+	HOPE/15				HOPE/16	
R3 [7] BULG, CONG, HOLG, SALA, WHIP, JUDD, JOES	CONG/15, CONG/16, BULG/16, WHIP/16, JUDD/15, JOES/16			SALA/15, WHIP/15		HOLG/15*, BULG/15, SALA/16*
R4 [12] <i>most remote site</i> LTUW, LTUX, LTUY, KALN+, HARR, HLC1, HLC2, HLC3, HLC4, HLC5, WFLS, WFLW	LTUX/15, LTUY/15, LTUY/16	HLC5/16, WFLW/16	LTUW/16, HLC4/16, HLC5/15, WFLW/15	HLC2/16, HLC3/15, WFLS/15, WFLS/16	HLC3/16	LTUW/15, LTUX/16, HARR/15, HARR/16* , HLC1/15*, HLC1/16, HLC2/15*, HLC4/15*

Non-remote sites [7]: BING, CLAM, GOOS, NNIL, NSKI, SOLD, HOPE

Remote sites [18]: BULG, CONG, HOLG, SALA, WHIP, JUDD, JOES, HARR, HLC1, HLC2, HLC3, HLC4, HLC5, LTUW, LTUX, LTUY, WFLS, WFLW

Other sites [3]: KALS, KALN, MPEN

Notes on SALMON bear encounters [B2–B6: 25 total; 13 outages]

- summer 2016 [13]
 - SALA/15 (5/2015–5/2016) -- sensor cable pulled almost entirely outside the box (kinked 180 deg inside)
 - WHIP/15 (5/2015–5/2016) -- Ted Whip reported that the station box was pulled up and on its side 3 weeks after we installed it.
 - HOLG/15 (5/2015–5/2016) -- sensor cable severed; box deformed such that it filled with water
 - BULG/15 (5/2015–5/2016) -- sensor cable partially pulled out of box; GPS cable severed; toothmarks in box lid
 - LTUW/15 (7/2015–5/2016) -- total destruction (box pulled from hole)
 - HARR/15 (5/2015–5/2016) -- box moved out of hole, bite marks on sensor cable
 - HLC1/15 (7/2015–7/2016) -- box moved ~10 m and punctured; sensor cable severed; GPS cable severed
 - HLC2/15 (7/2015–7/2016) -- box moved ~10 m and pervasively punctured; sensor cable punctured and ruined; GPS cable severed
 - HLC3/15 (7/2015–7/2016) -- box tipped sideways; bite marks in box and GPS antenna
 - HLC4/15 (7/2015–7/2016) -- box moved ~10 m and pervasively punctured; sensor cable severed
 - HLC5/15 (7/2015–7/2016) -- tarp removed; scratch marks on tarp; rebar for GPS bent
 - WFLS/15 (7/2015–7/2016) -- box tipped on its side in original hole, punctured with bite marks, exposed to rain, cables exposed
 - WFLW/15 (7/2015–7/2016) -- disturbed tarp and soil covering
- summer 2017 [12]
 - HOPE/16 (5/2016–7/2017) -- tarp partly remove, toothmarks in box lid, box bulging outward and filled with water
 - SALA/16 (5/2016–5/2017) -- total destruction (box pulled from hole)
 - LTUW/16 (5/2016–5/2017) -- tarp removed, LYSOL-soaked shirt slashed by bear and sitting next to site
 - LTUX/16 (5/2016–5/2017) -- box top removed; box filled with water
 - HARR/16 (5/2016–5/2017) -- total destruction (box pulled from hole)
 - HLC1/16 (7/2016–7/2017) -- box moved ~3 m downhill and punctured and shredded; one battery outside box
 - HLC2/16 (7/2016–7/2017) -- box moved ~4 m downhill and pervasively punctured; sensor cable partially dug up
 - HLC3/16 (7/2016–7/2017) -- box top removed and punctured with holes; box filled with water
 - HLC4/16 (7/2016–7/2017) -- box top punctured; tarp removed
 - HLC5/16 (7/2016–7/2017) -- grizzly spotted ~50 m from site
 - WFLS/16 (7/2016–7/2017) -- box pulled out of original hole, punctured with bite marks, sensor cable dug up
 - WFLW/16 (7/2016–7/2017) -- black bears spotted ~100 m from site

Bear encounters with FLATS stations.

Each entry in the table corresponds to a station-year, for example FPAP/14 is for station FPAP for the time period fall-2014 to fall-2015. If a station was visited multiple times, the time periods are denoted by, e.g., F3TN/15-1, F3N/15-2, etc. The **bold** entries denote stations with Lysol used as bear deterrent. The * indicates a site where the sensor cable was ruined (which leads to an automatic B5/B6 category).

	B1 <i>undisturbed by bears</i>	B2	B3	B4	B5	B6 <i>most disturbed by bears</i>
R1 [2] <i>least remote site</i> FAPT, FPAP	FPAP/14, FPAP/15, FPAP/16, FPAP/17, FPAP/18, FAPT/15, FAPT/16, FAPT/17, FAPT/18					
R2 [2] FTGH, F5MN	FTGH/15, FTGH/16, FTGH/17, FTGH/18, F5MN/15-1, F5MN/16, F5MN/17, F5MN/18	F5MN/15-2				
R3 [3] FNN1, FNN2, F7TV	F7TV/15, F7TV/16, F7TV/17, F7TV/18, FNN1/15, FNN1/16		FNN1/17, FNN1/18. FNN2/15-1, FNN2/16, FNN2/17, FNN2/18		FNN2/15-2*	
R4 [6] <i>most remote site</i> F1TN, F2TN, F3TN, F4TN, F6TP, F8KN	F1TN/15, F1TN/17-1, F1TN/18-2, F2TN/15-0, F2TN/15-2, F2TN/16, F2TN/17, F2TN/18, F3TN/17, F3TN/18-1, F4TN/15, F4TN/16-1, F4TN/17-1, F8KN/15	F1TN/16-1, F1TN/16-2, F1TN/17-2, F2TN/15-1, F3TN/16-1	F1TN/18-1, F3TN/15-1, F3TN/15-2, F3TN/16-2, F4TN/16-2, F4TN/17-2, F4TN/18-1, F4TN/18-2, F6TP/15-1, F6TP/15-2, F6TP/16-1, F6TP/16-2, F6TP/17-1, F6TP/17-2, F6TP/18-1, F6TP/18-2, F8KN/16-1, F8KN/16-2, F8KN/17-1, F8KN/17-2, F8KN/18-1, F8KN/18-2	F1TN/15-0, F3TN/14-1, F3TN/14-2		

Non-remote sites [4]: FAPT, FPAP, FTGH, F5MN

Remote sites [9]: FNN1, FNN2, F7TV, F1TN, F2TN, F3TN, F4TN, F6TP, F8KN

Notes on FLATS bear encounters [B2–B6: 38 total; 1 outage]

- summer 2015 [3]
 - staged batteries at F1, F2, F3
 - F3TN/14-1 (2014-09 to 2015-06) -- major disruption: conduit dug up, tarp and sod removed, bite marks in box (and poster)
 - F3TN/14-2 (2015-06 to 2015-08) -- major disruption: conduit dug up, staged box of batteries tipped up
 - F1TN/15-0 (2015-06 to 2015-08) -- major disruption (no installed station): tarp removed, box opened, batteries pulled out
 - F2TN/15-0 (2015-06 to 2015-08) -- no disruption (no installed station)
- summer 2016 [8]
 - F2TN/15-1 (2015-09 to 2016-06) -- bear broke into cabin in the vicinity of F2TN, but no bear evidence at F2TN
 - F3TN/15-1 (2015-09 to 2016-06) -- torn tarp (bears on video in May 2016)
 - F6TP/15-1 (2014-09 to 2015-06) -- tarp removed
 - June 2016: party of bear hunters at Tolovana Roadhouse (F7TV) had killed 9 black bears
 - FNN1/15-1 (2015-07 to 2016-07) -- widespread bear tracks in sand near FNN2; servicing team included 5 people total (3 outreach) and probably food at site (big no-no)
 - FNN2/15-2 (2016-07 to 2016-09) -- sensor cable chewed through on 2016-08-01, 6 days after servicing
 - F3TN/15-2 (2016-06 to 2016-09) -- torn tarp
 - F5MN/15-2 (2016-06 to 2016-09) -- bear poop right at F5MN (no deterrent)
 - F6TP/15-2 (2016-06 to 2016-09) -- tarp disturbed and possibly scratched/bitten
- summer 2017 [10]
 - F1TN/16-1 (2016-09 to 2017-06) -- bear tracks on the shore
 - F3TN/16-1 (2016-09 to 2017-06) -- brown and black bears on video (no disruption)
 - F6TP/16-1 (2016-09 to 2017-06) -- tarp removed, tooth marks in box, small holes in box
 - F8KN/16-1 (2016-09 to 2017-06) -- tarp removed, tooth marks in box
 - June 2017: black bear hunting party, with several killed black bears, at Tolovana Roadhouse (F7TV)
 - F1TN/16-2 (2017-06 to 2017-09) -- (brown) bear tracks nearby
 - F3TN/16-2 (2017-06 to 2017-09) -- torn/disrupted tarp
 - F4TN/16-2 (2017-06 to 2017-09) -- torn/disrupted tarp (no photo)
 - F6TP/16-2 (2017-06 to 2017-09) -- tarp removed, more tooth marks and chewing, scratching on sensor able
 - F8KN/16-2 (2017-06 to 2017-09) -- tarp removed
 - FNN2/16 -- light bear damage, including some tooth marks and scratched (and removed) tarp
- summer 2018 [8]
 - F3TN/17-1 (2017-09 to 2018-06) -- zero bears on cameras
 - F6TP/17-1 (2017-09 to 2018-06) -- tarp/logs removed, metal-bolted radio antenna rotated 90 deg
 - F8KN/17-1 (2017-09 to 2018-06) -- tarp disrupted
 - F1TN/17-2 (2018-06 to 2018-08) -- small black bear tracks at the shore
 - F4TN/17-2 (2018-06 to 2018-08) -- tarp disturbed; bite mark on box
 - F6TP/17-2 (2018-06 to 2018-08) -- tarp removed
 - F8KN/17-2 (2018-06 to 2018-08) -- tarp disrupted
 - FNN1/17 -- scratched tarp and scratched box

- FNN2/17 -- tarp removed and shredded tarp; new puncture holes in box
- summer 2019 [9]
 - F1TN/18-1 (2018-08 to 2019-06) -- tarp removed, tooth/scratch marks on box
 - F4TN/18-1 (2018-08 to 2019-06) -- torn and disrupted tarp
 - F6TP/18-1 (2018-08 to 2019-06) -- tarp removed, tooth/scratch marks on box
 - F8KN/18-1 (2018-08 to 2019-06) -- tarp removed, tooth mark on sensor cable, tooth/scratch marks on box, camera broken off from tree; extensive bear visits recorded on camera between early August and early October, 2018
 - note: F3TN/18-2 not identified, since station was buried in an extreme erosion event
 - F4TN-2 (2019-06 to 2019-09) -- log upended, tarp mostly removed
 - F6TP-2 (2019-06 to 2019-09) -- log upended, tarp disturbed
 - F8KN-2 (2019-06 to 2019-09) -- tarp torn and partly removed, logs disturbed
 - FNN1 (2018-07 to 2019-08) -- hole in tarp, with toothmarks in box underneath
 - FNN2 (2018-07 to 2019-08) -- deep toothmarks in box, tarp removed