# Rocky Intertidal Nucella, Lirabuccinum, Katharina, and Lottia Counts from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park

Metadata also available as - [[Questions & Answers](https://www1.usgs.gov/mp/validation/phpoWmUGr.faq.html)] - [[Parseable text](https://www1.usgs.gov/mp/validation/phpoWmUGr-new.txt)] - [[XML](https://www1.usgs.gov/mp/validation/phpoWmUGr-new.xml)]

### Metadata:

* [Identification\_Information](https://www1.usgs.gov/mp/validation/phpoWmUGr.html#1)
* [Data\_Quality\_Information](https://www1.usgs.gov/mp/validation/phpoWmUGr.html#2)
* [Spatial\_Data\_Organization\_Information](https://www1.usgs.gov/mp/validation/phpoWmUGr.html#3)
* [Entity\_and\_Attribute\_Information](https://www1.usgs.gov/mp/validation/phpoWmUGr.html#4)
* [Distribution\_Information](https://www1.usgs.gov/mp/validation/phpoWmUGr.html#5)
* [Metadata\_Reference\_Information](https://www1.usgs.gov/mp/validation/phpoWmUGr.html#6)

Identification\_Information:

Citation:

Citation\_Information:

Originator: U.S. Geological Survey - Alaska Science Center  
Originator:

National Park Service - Southwest Alaska Inventory and Monitoring Network

Publication\_Date: 20220927  
Title:

Rocky Intertidal Nucella, Lirabuccinum, Katharina, and Lottia Counts from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park

Geospatial\_Data\_Presentation\_Form: tabular digital data  
Series\_Information:

Series\_Name:

Rocky Intertidal Data from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park

Issue\_Identification: ver 2.0, October 2023

Publication\_Information:

Publication\_Place: Anchorage, Alaska  
Publisher: U.S. Geological Survey, Alaska Science Center

Other\_Citation\_Details:

Suggested Citation: U.S. Geological Survey - Alaska Science Center, National Park Service - Southwest Alaska Inventory and Monitoring Network, 2022, Rocky intertidal data from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park (ver 2.0, October 2023): U.S. Geological Survey data release, <https://doi.org/10.5066/F7513WCB>

Online\_Linkage: <https://doi.org/10.5066/F7513WCB>  
Larger\_Work\_Citation:

Citation\_Information:

Originator: U.S. Geological Survey, Alaska Science Center  
Publication\_Date: 2005  
Title: Nearshore Marine Ecosystem Research Program  
Geospatial\_Data\_Presentation\_Form: website  
Series\_Information:

Series\_Name: Alaska Science Portal  
Issue\_Identification: 99

Publication\_Information:

Publication\_Place: Anchorage, Alaska  
Publisher: U.S. Geological Survey, Alaska Science Center

Other\_Citation\_Details:

This is a link to the broader USGS Alaska Science Center research project supported by these data. Users will find a description of the research project and links to associated reports, publications, and data products.

Online\_Linkage: <https://alaska.usgs.gov/portal/project.php?project_id=99>

Description:

Abstract:

These data are part of the Gulf Watch Alaska (GWA) long-term monitoring program, nearshore monitoring component. The dataset has three comma separated values (.csv) file exported from a Microsoft Access relational database. The data consist of 1) counts of Nucella spp., Lottia spp., Lirabuccinum dirum, and Katharina tunicata, 2) a taxonomic classification table, and 3) a table of Gulf Watch Alaska contributors.

Purpose:

These data provide counts of Nucella spp., Lirabuccinum dirum, Katharina tunicata, and Lottia spp. at sites in sheltered rocky habitats. These data are used to estimate densities of Nucella spp., Lirabuccinum dirum, Katharina tunicata, and Lottia spp. on sheltered rocky shorelines to assess change in intertidal invertebrate communities on rocky shorelines.

Sampling was conducted within regions of Alaska including: Kenai Peninsula (KEP; Kenai Fjords National Park), Alaska Peninsula (AKP; Katmai National Park and Preserve), and Prince William Sound (PWS; northern, western, and eastern Prince William Sound). Study site locations are described in the "Monitoring Site Locations" data release: <https://doi.org/10.5066/F78S4N3R> (Coletti et al. 2017).

Supplemental\_Information:

This dataset is a component of the nearshore monitoring portion of the Gulf Watch Alaska (GWA) program. There are multiple datasets associated with the rocky site sampling; see "KATMKEFJWPWS\_2006-2023\_Rocky\_Intertidal\_Sampling\_Project\_Metadata" for a list of all associated datasets.

Two additional closely related USGS Data Releases from these sampling locations are available: (1) temperature logger data (<https://doi.org/10.5066/F7WH2N3T>) and (2) mussel (Mytilus) sampling (<https://doi.org/10.5066/F7FN1498)>.

Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 2006  
Ending\_Date: 2023

Currentness\_Reference: observed

Status:

Progress: In work  
Maintenance\_and\_Update\_Frequency: Annually

Spatial\_Domain:

Description\_of\_Geographic\_Extent:

Prince William Sound (east, north, and west), Kenai Fjords National Park, Katmai National Park and Preserve.

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -156.643  
East\_Bounding\_Coordinate: -145.415  
North\_Bounding\_Coordinate: 61.122  
South\_Bounding\_Coordinate: 57.938

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: USGS Metadata Identifier  
Theme\_Keyword: USGS:ASC484

Theme:

Theme\_Keyword\_Thesaurus: ISO 19115 Topic Category  
Theme\_Keyword: Biota  
Theme\_Keyword: Environment

Theme:

Theme\_Keyword\_Thesaurus: NASA GCMD Earth Science Keyword Thesaurus  
Theme\_Keyword: Animals/Invertebrates  
Theme\_Keyword: Mollusks  
Theme\_Keyword: Aquatic ecosystems  
Theme\_Keyword: Intertidal zone  
Theme\_Keyword: Biospheric indicators

Theme:

Theme\_Keyword\_Thesaurus: USGS CSA Biocomplexity Thesaurus  
Theme\_Keyword: Intertidal environments  
Theme\_Keyword: Marine invertebrates

Theme:

Theme\_Keyword\_Thesaurus: USGS Thesaurus  
Theme\_Keyword: Ecology  
Theme\_Keyword: Marine ecosystems  
Theme\_Keyword: Community ecology  
Theme\_Keyword: Ecosystem monitoring

Theme:

Theme\_Keyword\_Thesaurus: None  
Theme\_Keyword: Benthic  
Theme\_Keyword: Intertidal  
Theme\_Keyword: Nucella  
Theme\_Keyword: Snail  
Theme\_Keyword: Katharina  
Theme\_Keyword: Lirabuccinum  
Theme\_Keyword: Chiton  
Theme\_Keyword: Nearshore ecology  
Theme\_Keyword: Density

Place:

Place\_Keyword\_Thesaurus: USGS Geographic Names Information System (GNIS)  
Place\_Keyword: Alaska  
Place\_Keyword: Gulf of Alaska  
Place\_Keyword: Prince William Sound  
Place\_Keyword: Alaska Peninsula

Place:

Place\_Keyword\_Thesaurus: None  
Place\_Keyword: Kenai Fjords National Park  
Place\_Keyword: Katmai National Park and Preserve

Taxonomy:

Keywords/Taxon:

Taxonomic\_Keyword\_Thesaurus: None  
Taxonomic\_Keywords: Invertebrates

Taxonomic\_System:

Classification\_System/Authority:

Classification\_System\_Citation:

Citation\_Information:

Originator: ITIS Integrated Taxonomic Information System  
Publication\_Date: Unknown  
Title: ITIS Integrated Taxonomic Information System  
Geospatial\_Data\_Presentation\_Form: online database  
Publication\_Information:

Publication\_Place: online  
Publisher: ITIS-North America

Other\_Citation\_Details:

Taxonomic details retrieved October 25, 2023, from the Integrated Taxonomic Information System online database [https://www.itis.gov](https://www.itis.gov/)

Online\_Linkage: <https://doi.org/10.5066/F7KH0KBK>

Classification\_System/Authority:

Classification\_System\_Citation:

Citation\_Information:

Originator: World Register of Marine Species (WoRMS)  
Publication\_Date: Unknown  
Title: World Register of Marine Species (WoRMS)  
Geospatial\_Data\_Presentation\_Form: online database  
Publication\_Information:

Publication\_Place: online  
Publisher: WoRMS Editorial Board

Other\_Citation\_Details:

Taxonomic details retrieved October 25, 2023, from the World Register of Marine Species online database [https://www.marinespecies.org](https://www.marinespecies.org/)

Online\_Linkage: <https://doi.org/10.14284/170>

Taxonomic\_Procedures:

Invertebrate species were identified by trained observers in the field using physical characteristics.

Taxonomic\_Completeness:

Provided here is the classification of marine invertebrates to the taxonomic rank of 'Genus' or 'Species'. Further details of taxonomy are provided in the table "KATMKEFJWPWS\_2006-2023\_Nucella\_Katharina\_Lirabuccinum\_Taxonomy.csv" included with this data package.

Taxonomic\_Classification:

Taxon\_Rank\_Name: Kingdom  
Taxon\_Rank\_Value: Animalia  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Subkingdom  
Taxon\_Rank\_Value: Bilateria  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Infrakingdom  
Taxon\_Rank\_Value: Protostomia  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Superphylum  
Taxon\_Rank\_Value: Lophozoa  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Phylum  
Taxon\_Rank\_Value: Mollusca  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Class  
Taxon\_Rank\_Value: Gastropoda  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Subclass  
Taxon\_Rank\_Value: Prosobranchia  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Order  
Taxon\_Rank\_Value: Neogastropoda  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Family  
Taxon\_Rank\_Value: Muricidae  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Genus  
Taxon\_Rank\_Value: Nucella  
Applicable\_Common\_Name: TSN: 73292

Taxonomic\_Classification:

Taxon\_Rank\_Name: Family  
Taxon\_Rank\_Value: Buccinidae  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Genus  
Taxon\_Rank\_Value: Lirabuccinum  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Species  
Taxon\_Rank\_Value: Lirabuccinum dirum  
Applicable\_Common\_Name: TSN: 567784

Taxonomic\_Classification:

Taxon\_Rank\_Name: Order  
Taxon\_Rank\_Value: Patellogastropoda  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Family  
Taxon\_Rank\_Value: Lottiidae  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Genus  
Taxon\_Rank\_Value: Lottia  
Applicable\_Common\_Name: TSN: 69731

Taxonomic\_Classification:

Taxon\_Rank\_Name: Class  
Taxon\_Rank\_Value: Polyplacophora  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Subclass  
Taxon\_Rank\_Value: Neoloricata  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Order  
Taxon\_Rank\_Value: Chitonida  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Suborder  
Taxon\_Rank\_Value: Ischnochitonina  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Family  
Taxon\_Rank\_Value: Mopaliidae  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Genus  
Taxon\_Rank\_Value: Katharina  
Taxonomic\_Classification:

Taxon\_Rank\_Name: Species  
Taxon\_Rank\_Value: Katharina tunicata  
Applicable\_Common\_Name: TSN: 78979

Access\_Constraints: None  
Use\_Constraints:

It is requested that the authors and the USGS Alaska Science Center be cited for any subsequent publications that reference this dataset.

Point\_of\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: U.S. Geological Survey, Alaska Science Center

Contact\_Address:

Address\_Type: Mailing and Physical  
Address: 4210 University Drive  
City: Anchorage  
State\_or\_Province: Alaska  
Postal\_Code: 99508  
Country: USA

Contact\_Voice\_Telephone: 907-786-7000  
Contact\_Electronic\_Mail\_Address: ascweb@usgs.gov

Data\_Set\_Credit:

Many people (USGS staff, contractors, and volunteers, NPS staff and volunteers, NOAA staff, UCSC students, Cook Inlet RCAC Staff) deserve thanks and recognition for the collection of the invertebrate and algae observations contained in this data set. The following is a non-comprehensive list of personnel involved in data collection for this dataset: Brenda Ballachey, James Bodkin, Kelly Bodkin, Heather Coletti, Ashley Coletti, Katie Corliss, Angie Doroff, George Esslinger, Dan Esler, Allan Fukuyama, Yvette Gillies, Kim Kloecker, Mandy Lindeberg, Melissa Miner, Dan Monson, John Paszalek, Jessica Perry, Brian Robinson, Max Rintoul, Michelle Staedler, Tjibbe Stelwagen, Sarah Traiger, Carissa Turner, Ken Vicknair, Vanessa Von Biela, Ben Weitzman.

Cross\_Reference:

Citation\_Information:

Originator: Konar, B.  
Originator: Iken, K.  
Originator: Coletti, H.A.  
Originator: Monson, D.H.  
Originator: Weitzman, B.P.  
Publication\_Date: 2016  
Title:

Influence of Static Habitat Attributes on Local and Regional Rocky Intertidal Community Structure

Geospatial\_Data\_Presentation\_Form: journal article  
Series\_Information:

Series\_Name: Estuaries and Coasts  
Issue\_Identification: 39:1735-1745

Publication\_Information:

Publication\_Place: online  
Publisher: SpringerLink

Other\_Citation\_Details:

Konar, B., Iken, K., Coletti, H.A., Monson, D.H., Weitzman, 2016. Influence of static habitat attributes on local and regional rocky intertidal community structure. Estuaries and Coasts 39:1735-1745. doi:10.1007/s12237-016-0114-0

Online\_Linkage: <https://doi.org/10.1007/s12237-016-0114-0>

Cross\_Reference:

Citation\_Information:

Originator: Bodkin, J.L.  
Originator: Coletti, H.A.  
Originator: Ballachey, B.E.  
Originator: Monson, D.H.  
Originator: Esler, D.  
Originator: Dean, T.A.  
Publication\_Date: 2018  
Title:

Variation in abundance of Pacific Blue Mussel (Mytilus trossulus) in the Northern Gulf of Alaska, 2006–2015

Geospatial\_Data\_Presentation\_Form: journal article  
Series\_Information:

Series\_Name: Deep Sea Research Part II: Topical Studies in Oceanography  
Issue\_Identification: 147:87-97

Publication\_Information:

Publication\_Place: online  
Publisher: Elsevier

Other\_Citation\_Details:

Bodkin, J.L., Coletti, H.A., Ballachey, B.E., Monson, D.H., Esler, D., Dean, T.A. 2018. Variation in abundance of Pacific Blue Mussel (Mytilus trossulus) in the Northern Gulf of Alaska, 2006–2015. Deep Sea Research Part II: Topical Studies in Oceanography 147:87-97. doi:10.1016/j.dsr2.2017.04.008

Online\_Linkage: <https://doi.org/10.1016/j.dsr2.2017.04.008>

Cross\_Reference:

Citation\_Information:

Originator: Weitzman, B.P.  
Originator: Konar, B.  
Originator: Iken, K.  
Originator: Coletti, H.A.  
Originator: Monson, D.H.  
Originator: Suryan, R.  
Originator: Dean, T.A.  
Originator: Hondolero, D.  
Originator: Lindeberg, M.  
Publication\_Date: 2021  
Title:

Changes in Rocky Intertidal Community Structure During a Marine Heatwave in the Northern Gulf of Alaska

Geospatial\_Data\_Presentation\_Form: journal article  
Series\_Information:

Series\_Name: Frontiers in Marine Science  
Issue\_Identification: 8:556820

Publication\_Information:

Publication\_Place: online  
Publisher: Frontiers

Other\_Citation\_Details:

Weitzman, B.P., Konar, B., Iken, K., Coletti, H.A., Monson, D.H., Suryan, R., Dean, T.A., Hondolero, D., Lindeberg, M. 2021. Changes in rocky intertidal community structure during a marine heatwave in the northern Gulf of Alaska. Frontiers in Marine Science 8:556820. doi:10.3389/fmars.2021.556820

Online\_Linkage: <https://doi.org/10.3389/fmars.2021.556820>

Cross\_Reference:

Citation\_Information:

Originator: Suryan, R.M.  
Originator: Arimitsu, M.L.  
Originator: Coletti, H.A.  
Originator: Hopcroft, R.R.  
Originator: Lindeberg, M.R.  
Originator: Barbeaux, S.J.  
Originator: Batten, S.D.  
Originator: Burt, W.J.  
Originator: Bishop, M.A.  
Originator: Bodkin, J.L.  
Originator: Brenner, R.  
Originator: Campbell, R.W.  
Originator: Cushing, D.A.  
Originator: Danielson, S.L.  
Originator: Dorn, M.W.  
Originator: Drummond, B.  
Originator: Esler, D.  
Originator: Gelatt, T.  
Originator: Hanselman, D.H.  
Originator: Hatch, S.A.  
Originator: Haught, S.  
Originator: Holderied, K.  
Originator: Iken, K.  
Originator: Irons, D.B.  
Originator: Kettle, A.B.  
Originator: Kimmel, D.G.  
Originator: Konar, B.  
Originator: Kuletz, K.J.  
Originator: Laurel, B.J.  
Originator: Maniscalco, J.M.  
Originator: Matkin, C.  
Originator: McKinstry, C.A.E.  
Originator: Monson, D.H.  
Originator: Moran, J.R.  
Originator: Olsen, D.  
Originator: Palsson, W.A.  
Originator: Pegau, W.S.  
Originator: Piatt, J.F.  
Originator: Rogers, L.A.  
Originator: Rojek, N.A.  
Originator: Schaefer, A.  
Originator: Spies, I.B.  
Originator: Straley, J.M.  
Originator: Strom, S.L.  
Originator: Sweeney, K.L.  
Originator: Szymkowiak, M.  
Originator: Weitzman, B.P.  
Originator: Yasumiishi, E.M.  
Originator: Zador, S.G.  
Publication\_Date: 2021  
Title: Ecosystem Response Persists After a Prolonged Marine Heatwave  
Geospatial\_Data\_Presentation\_Form: journal article  
Series\_Information:

Series\_Name: Nature Scientific Reports  
Issue\_Identification: 11:6235

Publication\_Information:

Publication\_Place: online  
Publisher: Nature Briefing

Other\_Citation\_Details:

Suryan, R.M., Arimitsu, M.L., Coletti, H.A., et al., 2021. Ecosystem response persists after a prolonged marine heatwave. Nature Scientific Reports 11:6235. doi:10.1038/s41598-021-83818-5

Online\_Linkage: <https://doi.org/10.1038/s41598-021-83818-5>

Cross\_Reference:

Citation\_Information:

Originator: Traiger, S.B.  
Originator: Bodkin, J.L.  
Originator: Coletti, H.A.  
Originator: Ballachey, B.  
Originator: Dean, T.  
Originator: Esler, D.  
Originator: Iken, K.  
Originator: Konar, B.  
Originator: Lindeberg, M.R.  
Originator: Monson, D.  
Originator: Robinson, B.  
Originator: Suryan, R.M.  
Originator: Weitzman, B.P.  
Publication\_Date: 2022  
Title:

Evidence of Increased Mussel Abundance Related to the Pacific Marine Heatwave and Sea Star Wasting

Geospatial\_Data\_Presentation\_Form: journal article  
Series\_Information:

Series\_Name: Marine Ecology  
Issue\_Identification: e12715

Publication\_Information:

Publication\_Place: online  
Publisher: Wiley

Other\_Citation\_Details:

Traiger, S.B, Bodkin, J.L., Coletti, H.A., Ballachey, B., Dean, T., Esler, D., Iken, K., Konar, B., Lindeberg, M.R., Monson, D., Robinson, B., Suryan, R.M., Weitzman, B.P., 2022. Evidence of increased mussel abundance related to the Pacific marine heatwave and sea star wasting. Marine Ecology e12715. <https://doi.org/10.1111/maec.12715>

Online\_Linkage: <https://doi.org/10.1111/maec.12715>

Data\_Quality\_Information:

Attribute\_Accuracy:

Attribute\_Accuracy\_Report:

Quality Assurance and Quality Control (QAQC) protocols for these data included: 1) entering identification data directly into the electronic databases in the field, thus avoiding transcription errors while copying from data sheets, 2) algae and invertebrate names were verified and standardized by using drop-down lists on electronic data entry forms, 3) data were proofed and edited immediately after each site was sampled and before beginning a new site, 4) all records were checked for missing values, duplicates, outliers, and inconsistencies, and 5) field notes and other data sheets associated with rocky intertidal monitoring were checked against the database.

Logical\_Consistency\_Report:

Count data were entered electronically in the field as a way to prevent transcription errors. After a site has been sampled, the data are proofed and edited in the field before beginning a new site. Field notes and other data sheets associated with rocky intertidal monitoring are checked against the database.

Quadrat sizes were 1 sq. m at all sites in 2006 and 2007 and 2 sq. m at all other times and sites with the following exceptions: KEP\_B5\_RI\_05 Harris Bay on 6/19/08, 0.5 M MLLW: Q8 and Q10 were 0.5 sq m, and Q9 was 1 sq m. KEP\_B5\_RI\_05 Harris Bay on 6/23/09, 0.5 M MLLW: Q1 and Q2 were 1 sq m KEP\_B5\_RI\_05 Harris Bay on 6/23/09, 1.5 M MLLW: Q1, Q4, Q5, Q6, Q8, Q10, Q11 were 0.5 sq. m and, Q2 and Q9 were 1 sq. m KEP\_B5\_RI\_05 Harris Bay on 6/19/15, 0.5 M MLLW: Q11 was 0.25 sq. m AKP\_B10\_RI\_05 Takli Island on 7/10/21, 0.5 M MLLW: Q10 was 1 sq. m Counts and density data given for all sites/quads were adjusted so that all are number per 2 square meters.

Completeness\_Report:

In 2011, sites in Katmai (AKP site codes) were not sampled. In 2020, no sites were sampled due to the Covid-19 pandemic. In 2021, KEP\_B5\_RI\_03 Nuka Bay was not sampled due to weather. In 2022, AKP\_B10\_RI\_02 is missing replicates because the site was sampled on a +0.2 m MLLW tide day due to weather. In 2022, KEP\_B05\_RI\_03 was affected by a landslide, including the end of the 1.5 m transect. In 2022, there were no counts from quadrats M8-11 and U9-11 at PWS\_B08\_RI\_01 because quadrats were located on a sleep cliff that could be accessed at high tide. In 2023, KEP\_B05\_RI\_02 was not sampled due to inclement weather.

Positional\_Accuracy:

Horizontal\_Positional\_Accuracy:

Horizontal\_Positional\_Accuracy\_Report:

Transects for rocky intertidal sampling are marked with stainless steel eye-bolts and a site ID marker plate to ensure consistency in sampling location. Additionally, several eye-bolts are placed along the transects' horizontal lengths to ensure similar placement of the lines. Coordinates are not recorded for each eye-bolt.

Lineage:

Methodology:

Methodology\_Type: Field  
Methodology\_Description:

Nucella spp. and Katharina tunicata were counted in 12 systematically placed quadrats at each of 2 tidal elevations (0.5 and 1.5 m MLLW) within 50 to 100 m long transects at randomly selected sites within sheltered rocky shorelines. In 2006, 100 m long transects were sampled. Thereafter, sampling was conducted along 50 m long transects. Quadrat sizes were 1 sq. m at all sites in 2006 and 2007 and 2 sq. m at all other times and sites with the exceptions noted in this metadata record. Counts of Lottia spp. were added in 2017. Observers used transect tapes and quadrat frames to count these motile invertebrates on rocky sites. Sampling date, observers, slope and substrate characteristics, and other site sampling data are all recorded.

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator: Dean, T.A.  
Originator: Bodkin, J.L.  
Publication\_Date: 2011  
Title:

SOP for Sampling of Intertidal Invertebrates and Algae on Sheltered Rocky Shores - Version 4.6

Geospatial\_Data\_Presentation\_Form: report  
Series\_Information:

Series\_Name: Natural Resource Report NPS/SWAN/NRR  
Issue\_Identification: 2011/397

Publication\_Information:

Publication\_Place: Fort Collins, Colorado  
Publisher: National Park Service

Other\_Citation\_Details:

Dean, T.A., Bodkin, J.L. 2011. SOP for sampling of intertidal invertebrates and algae on sheltered rocky shores - Version 4.6: Southwest Alaska Inventory and Monitoring Network. Natural Resource Report NPS/SWAN/NRR - 2011/397. National Park Service, Fort Collins, Colorado.

Published report archived by U.S. National Park Service Catalog (IRMA Data Store) <https://irma.nps.gov/DataStore> [reference code: 2170950]

Online\_Linkage: <https://irma.nps.gov/DataStore/Reference/Profile/2170950>

Type\_of\_Source\_Media: Digital Report  
Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Single\_Date/Time:

Calendar\_Date: 2011

Source\_Currentness\_Reference: publication date

Source\_Citation\_Abbreviation: Dean and Bodkin 2011  
Source\_Contribution:

Sampling protocol used for sampling Rocky intertidal invertebrates and algae at each study site.

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator: Dean, T.A.  
Originator: Bodkin, J.L.  
Originator: Coletti, H.  
Publication\_Date: 2014  
Title:

Protocol Narrative for Nearshore Marine Ecosystem Monitoring in the Gulf of Alaska - Version 1.1

Geospatial\_Data\_Presentation\_Form: report  
Series\_Information:

Series\_Name: Natural Resource Report NPS/SWAN/NRR  
Issue\_Identification: 2014/756

Publication\_Information:

Publication\_Place: Fort Collins, Colorado  
Publisher: National Park Service

Other\_Citation\_Details:

Dean, T.A., Bodkin, J.L. Coletti, H.A. 2014. Protocol narrative for marine nearshore ecosystem monitoring in the Gulf of Alaska: Version 1.1. Natural Resource Report NPS/SWAN/NRR— 2014/756. National Park Service, Fort Collins, Colorado.

Published report archived by U.S. National Park Service Catalog (IRMA Data Store) <https://irma.nps.gov/DataStore> [reference code: 2206501]

Online\_Linkage: <https://irma.nps.gov/DataStore/Reference/Profile/2206501>

Type\_of\_Source\_Media: Digital Report  
Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Single\_Date/Time:

Calendar\_Date: 2014

Source\_Currentness\_Reference: publication date

Source\_Citation\_Abbreviation: Dean et al. 2014  
Source\_Contribution:

Protocol for monitoring marine nearshore ecosystems in the Gulf of Alaska.

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator: Coletti, H.A.  
Originator: Kloecker, K.A.  
Originator: Bodkin, J.L.  
Originator: Dean, T.A.  
Publication\_Date: 2017  
Title:

Gulf Watch Alaska Nearshore Component: Monitoring Site Locations from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park

Geospatial\_Data\_Presentation\_Form: tabular digital data  
Series\_Information:

Series\_Name: USGS Data Release  
Issue\_Identification: doi:10.5066/F78S4N3R

Publication\_Information:

Publication\_Place: online  
Publisher: U.S. Geological Survey, Alaska Science Center

Other\_Citation\_Details:

Coletti, H.A., Kloecker, K.A., Bodkin, J.L., Dean, T.A., 2017. Gulf Watch Alaska nearshore component: monitoring site locations from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park: U.S. Geological Survey data release, <https://doi.org/10.5066/F78S4N3R>

Online\_Linkage: <https://doi.org/10.5066/F78S4N3R>

Type\_of\_Source\_Media: tabular digital data  
Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Single\_Date/Time:

Calendar\_Date: 2017

Source\_Currentness\_Reference: publication date

Source\_Citation\_Abbreviation: Coletti et al. 2017  
Source\_Contribution:

A U.S. Geological Survey data release containing site location information for nearshore Rocky Intertidal studies.

Process\_Step:

Process\_Description:

Most field data were entered directly into a Microsoft Access database using data entry forms. Some data were recorded on field data sheets for entry later.

Process\_Date: Unknown

Process\_Step:

Process\_Description:

Database QAQC queries were completed and any items flagged were corrected in the field.

Process\_Date: Unknown

Process\_Step:

Process\_Description:

Notes were compiled on items that couldn't be addressed in the field (e.g., new species ID) by combining data from multiple field laptops. Field entered data and notes were provided to the database administrator at National Park Service - Southwest Alaska Network for updates, corrections to the master database.

Process\_Date: Unknown

Process\_Step:

Process\_Description:

A copy of the data was provided to Dr. Sarah Traiger (or Dr. Tom Dean prior to 2022) for an additional round of QAQC. Any fixes were communicated back to the NPS-SWAN database administrator. Finally, a comma separated values (.csv) file of each table was exported. Each file contains the whole time series.

Process\_Date: Unknown

Spatial\_Data\_Organization\_Information:

Indirect\_Spatial\_Reference:

The only spatial information in this dataset are the named locations for the sampling sites. Sites are documented with start and end coordinates and are also referred to by name (e.g., Herring Bay rocky sampling site). Please refer to Coletti et al. 2017, a USGS data release which provides for geographic coordinates of all sites: <https://doi.org/10.5066/F78S4N3R>

Entity\_and\_Attribute\_Information:

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label:

KATMKEFJWPWS\_2006-2023\_Nucella\_Katharina\_Lirabuccinum\_Taxonomy.csv

Entity\_Type\_Definition:

Table containing the taxonomic classification of invertebrates and algae sampled along transects. Presented in a Comma Separated Value (CSV) formatted table.

Entity\_Type\_Definition\_Source: Author defined

Attribute:

Attribute\_Label: Kingdom  
Attribute\_Definition: Taxonomic hierarchical level; Kingdom  
Attribute\_Definition\_Source:

ITIS Integrated Taxonomic Information System or World Register of Marine Species (WoRMS)

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Taxonomic hierarchical level; Kingdom

Attribute:

Attribute\_Label: Phylum  
Attribute\_Definition: Taxonomic hierarchical level; Phylum  
Attribute\_Definition\_Source:

ITIS Integrated Taxonomic Information System or World Register of Marine Species (WoRMS)

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Taxonomic hierarchical level; Phylum

Attribute:

Attribute\_Label: Class  
Attribute\_Definition: Taxonomic hierarchical level; Class  
Attribute\_Definition\_Source:

ITIS Integrated Taxonomic Information System or World Register of Marine Species (WoRMS)

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Taxonomic hierarchical level; Class

Attribute:

Attribute\_Label: Order  
Attribute\_Definition: Taxonomic hierarchical level; Order  
Attribute\_Definition\_Source:

ITIS Integrated Taxonomic Information System or World Register of Marine Species (WoRMS).

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Taxonomic hierarchical level; Order

Attribute:

Attribute\_Label: Family  
Attribute\_Definition: Taxonomic hierarchical level; Family  
Attribute\_Definition\_Source:

ITIS Integrated Taxonomic Information System or World Register of Marine Species (WoRMS)

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Taxonomic hierarchical level; Family

Attribute:

Attribute\_Label: Genus  
Attribute\_Definition: Taxonomic hierarchical level; Genus  
Attribute\_Definition\_Source:

ITIS Integrated Taxonomic Information System or World Register of Marine Species (WoRMS)

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Taxonomic hierarchical level; Genus

Attribute:

Attribute\_Label: Species  
Attribute\_Definition:

Taxonomic hierarchical level; Species. This refers to the 'Species' attribute throughout all tables included with this data release. The term "spp." indicated that the animal could not be identified to species, only genus.

Attribute\_Definition\_Source:

ITIS Integrated Taxonomic Information System or World Register of Marine Species (WoRMS)

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Taxonomic hierarchical level; Species

Attribute:

Attribute\_Label: Sampling\_ScientificName  
Attribute\_Definition:

The species scientific name at the time of sampling, if different from the current species name identified in the 'Species' attribute. A null value "." indicates that the species name has not changed over time.

Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Unrepresentable\_Domain:

The species scientific name at the time of sampling, if different from the current species name identified in the 'Species' attribute.

Attribute:

Attribute\_Label: Type  
Attribute\_Definition: Classification of invertebrate or algae.  
Attribute\_Definition\_Source:

ITIS Integrated Taxonomic Information System, AlgaeBase, or World Register of Marine Species

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Classification of invertebrate or algae.

Attribute:

Attribute\_Label: Taxon\_Authority  
Attribute\_Definition:

Taxonomic classification authority used in the classification of the species.

Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: ITIS  
Enumerated\_Domain\_Value\_Definition:

Integrated Taxonomic Information System; authoritative taxonomic information on plants, animals, fungi, and microbes of North America and the world.

Enumerated\_Domain\_Value\_Definition\_Source: Integrated Taxonomic Information System (April 18, 2022)

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: WoRMS  
Enumerated\_Domain\_Value\_Definition:

World register of Marine Species; authoritative taxonomic information on marine species.

Enumerated\_Domain\_Value\_Definition\_Source: World register of Marine Species (May 16, 2022)

Attribute:

Attribute\_Label: Taxon\_AuthorityID  
Attribute\_Definition:

A unique identification number for each species from the particular Taxonomic Authority. For ITIS: 'Taxonomic Serial Number (TSN)'; WoRMS: 'Life Science Identifier (LSID)'

Attribute\_Definition\_Source:

ITIS Integrated Taxonomic Information System or World Register of Marine Species

Attribute\_Domain\_Values:

Unrepresentable\_Domain:

The unique identification number for each species from the particular Taxonomic Authority.

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label: KATMKEFJWPWS\_2006-2023\_Nucella\_Katharina\_Lirabuccinum\_Count.csv  
Entity\_Type\_Definition:

Table with counts of snails and chitons (Nucella spp., Katharina tunicata, Lirabuccinum dirum, and Lottia spp.) in quadrats placed at rocky intertidal sampling sites. The quadrats had an area of 2 square meters, although quadrats smaller than 2 sq m were also used. Each record presents the count of one species in a quadrat and the area of the quadrat at a single rocky intertidal sampling site. Presented in a Comma Separated Value (CSV) formatted table exported from a relational database.

Entity\_Type\_Definition\_Source: Author defined

Attribute:

Attribute\_Label: SiteID  
Attribute\_Definition:

Identification code of sampling site, as defined in Coletti et al. 2017, <https://doi.org/10.5066/F78S4N3R>, and Dean et al. 2014. The 'SiteID' is comprised of 4 parts, 1) the region (AKP, KEP, PWS), 2) the block number (5, 7, 8, 9, or 10), 3) the sampling type (described below), and 4) the sample type number (01-05).

Attribute\_Definition\_Source: Coletti et al. 2017 and Dean et al. 2014  
Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: RI  
Enumerated\_Domain\_Value\_Definition:

Sampling type = Rocky Intertidal Intensive Block. Intensive sites are chosen by a random process.

Enumerated\_Domain\_Value\_Definition\_Source: Author defined

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: RE  
Enumerated\_Domain\_Value\_Definition: Sampling Type = Rocky Intertidal Extensive Block  
Enumerated\_Domain\_Value\_Definition\_Source: Author defined

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: RS  
Enumerated\_Domain\_Value\_Definition:

Sampling Type = Selected Sites. Selected sites are chosen for a specific reason (e.g., existence of historic data)

Enumerated\_Domain\_Value\_Definition\_Source: Author defined

Attribute:

Attribute\_Label: SiteName  
Attribute\_Definition:

Name of sampling site, as defined in Coletti et al. 2017, <https://doi.org/10.5066/F78S4N3R>, and Dean et al. 2014.

Attribute\_Definition\_Source: Coletti et al. 2017 and Dean et al. 2014  
Attribute\_Domain\_Values:

Unrepresentable\_Domain: A unique site name given to each unique 'SiteID'.

Attribute:

Attribute\_Label: SampleDate  
Attribute\_Definition: Date the sampling sites were sampled.  
Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 2006-06-22  
Range\_Domain\_Maximum: 2023-07-08  
Attribute\_Units\_of\_Measure: Date (YYYY-MM-DD)

Attribute:

Attribute\_Label: Year  
Attribute\_Definition: Year the sampling sites were sampled.  
Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 2006  
Range\_Domain\_Maximum: 2023  
Attribute\_Units\_of\_Measure: Year

Attribute:

Attribute\_Label: Quadrat\_Num  
Attribute\_Definition:

Sequential numbering of quadrats sampled (1 to 12). Twelve quadrats were sampled at each tidal elevation for the data in this dataset. Typically, quadrat 1 was closest to the start of the transect while quadrat 12 was closest to the end.

Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 1  
Range\_Domain\_Maximum: 12  
Attribute\_Units\_of\_Measure: Integer

Attribute:

Attribute\_Label: Elevation\_Position  
Attribute\_Definition:

The tidal elevation (i.e., vertical height in meters) relative to 0 MLLW where the transect and quadrats were sampled.

Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: Mid (0.5 m MLLW)  
Enumerated\_Domain\_Value\_Definition: 0.5 m MLLW  
Enumerated\_Domain\_Value\_Definition\_Source: Dean and Bodkin 2011

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: Upper (1.5 m MLLW)  
Enumerated\_Domain\_Value\_Definition: 1.5 m MLLW  
Enumerated\_Domain\_Value\_Definition\_Source: Dean and Bodkin 2011

Attribute:

Attribute\_Label: SpeciesName  
Attribute\_Definition:

Scientific name of sampled species. See table "KATMKEFJWPWS\_2006-2023\_Nucella\_Katharina\_Lirabuccinum\_Taxonomy.csv" included with this data release for a taxonomic details.

Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Unrepresentable\_Domain: Scientific name of sampled species.

Attribute:

Attribute\_Label: Count  
Attribute\_Definition: Total number of individuals by species.  
Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 0  
Range\_Domain\_Maximum: 701  
Attribute\_Units\_of\_Measure: Count

Attribute:

Attribute\_Label: Quadrat\_Size\_sq\_m  
Attribute\_Definition: Size of the sampled quadrat in square meters.  
Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 0.25  
Range\_Domain\_Maximum: 2.0  
Attribute\_Units\_of\_Measure: Square meters

Attribute:

Attribute\_Label: Density\_individual2SqM  
Attribute\_Definition:

The calculated density defined as individuals per 2 square meters

Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 0  
Range\_Domain\_Maximum: 844  
Attribute\_Units\_of\_Measure: Individuals per 2 square meters

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label:

KATMKEFJWPWS\_2006-2023\_Nucella\_Katharina\_Lirabuccinum\_Contributors.csv

Entity\_Type\_Definition:

Table with a list of principal investigators and contributors to the rocky intertidal sampling component of Gulf Watch Alaska. Presented in a Comma Separated Value (CSV) formatted table.

Entity\_Type\_Definition\_Source: Author defined

Attribute:

Attribute\_Label: Last\_Name  
Attribute\_Definition: The last name of a Gulf Watch Alaska contributor.  
Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Unrepresentable\_Domain: The last name of a Gulf Watch Alaska contributor.

Attribute:

Attribute\_Label: First\_Name  
Attribute\_Definition: The first name of a Gulf Watch Alaska contributor.  
Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Unrepresentable\_Domain: The first name of a Gulf Watch Alaska contributor.

Attribute:

Attribute\_Label: ORCID  
Attribute\_Definition:

The ORCID (Open Researcher and Contributor ID) for each collaborator. The null values "." indicate that the contributor does not have an ORCID or the ID is unknown.

Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Unrepresentable\_Domain:

The ORCID (Open Researcher and Contributor ID) for each collaborator.

Attribute:

Attribute\_Label: Position  
Attribute\_Definition: The position title of the Gulf Watch Alaska contributor.  
Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Unrepresentable\_Domain: The position title of the Gulf Watch Alaska contributor.

Attribute:

Attribute\_Label: Agency  
Attribute\_Definition:

The agency who the Gulf Watch Alaska contributor is associated with.

Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Unrepresentable\_Domain:

The agency who the Gulf Watch Alaska contributor is associated with.

Attribute:

Attribute\_Label: Program  
Attribute\_Definition:

The program within the agency who the Gulf Watch Alaska contributor is associated with. The null values "." indicate that the program of the collaborator is unknown.

Attribute\_Definition\_Source: Author defined  
Attribute\_Domain\_Values:

Unrepresentable\_Domain:

The program within the agency who the Gulf Watch Alaska contributor is associated with.

Distribution\_Information:

Distributor:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: U.S. Geological Survey, Alaska Science Center

Contact\_Address:

Address\_Type: Mailing and Physical  
Address: 4210 University Drive  
City: Anchorage  
State\_or\_Province: Alaska  
Postal\_Code: 99508  
Country: USA

Contact\_Voice\_Telephone: 907-786-7000  
Contact\_Electronic\_Mail\_Address: ascweb@usgs.gov

Resource\_Description:

The U.S. Geological Survey, Alaska Science Center is the authoritative source and distributor of these data.

Distribution\_Liability:

Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey, no warranty expressed or implied is made regarding the display or utility of the data for other purposes or on all computer systems, nor shall the act of distribution constitute any such warranty. Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Standard\_Order\_Process:

Digital\_Form:

Digital\_Transfer\_Information:

Format\_Name: CSV  
Format\_Information\_Content:

Data are distributed in a Zip package containing data in CSV format and FGDC metadata in XML and HTML formats.

File\_Decompression\_Technique:

Compression applied by the 7-Zip utility using the default compression level [5]. The Zip package can be decompressed and unpacked by open source or commercially available unzip tools.

Digital\_Transfer\_Option:

Online\_Option:

Computer\_Contact\_Information:

Network\_Address:

Network\_Resource\_Name: <https://doi.org/10.5066/F7513WCB>

Fees: None

Metadata\_Reference\_Information:

Metadata\_Date: 20231030  
Metadata\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: U.S. Geological Survey, Alaska Science Center

Contact\_Address:

Address\_Type: Mailing and Physical  
Address: 4210 University Drive  
City: Anchorage  
State\_or\_Province: Alaska  
Postal\_Code: 99508  
Country: USA

Contact\_Voice\_Telephone: 907-786-7000  
Contact\_Electronic\_Mail\_Address: ascweb@usgs.gov

Metadata\_Standard\_Name:

FGDC Biological Data Profile of the Content Standard for Digital Geospatial Metadata (CSDGM)

Metadata\_Standard\_Version: FGDC-STD-001.1-1999

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