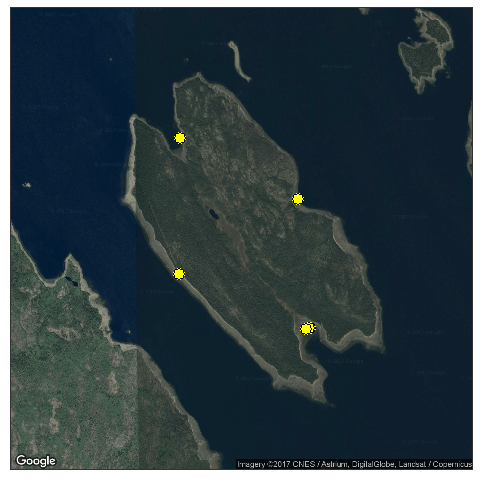
Характеристика популяции *Semibalanus balanoides* на литорали острова Ряжкова летом 2019 г.

В. М. Хайтов, В. Одинокова, М. Теплинская

**Хайтов В. М., Одинокова В., Теплинская М. Характеристика *Semibalanus balanoides* на литорали острова Ряжкова летом 2019 г.** // Толмачева Е. Л. (ред.) Летопись природы Кадалакшского заповедника за 2016 год (ежегодный отчет). Кандалакша. Т.1 (Летопись природы Кандалакшского заповедника, кн. ++) Рассматриваются данные по учету обилия сеголеток и взрослых балянусов на валунах в июне 2019 г. Дается оценка тенденций многолетних изменений.

**Khaitov V.M., Odinokova V., Tepliskaya M. Population characteristics of \* Semibalanus balanoides\* on the intertidal zone of Ryazhkov Island in the summer of 2019** // Tolmacheva E. L. (ed.) The Chronicle of Nature by the Kandalaksha Reserve for 2016 (Annual report). Kandalaksha. V.1. (The Chronicle of Nature by the Kandalaksha Reserve, Book N ++) The data on abundance of yearlings and adult barnacls on boulders in June 2019 are reviewed. Trends of long-term changes are estimated.

На литорали острова Ряжкова было выделено 4 сайта (Южная губа, Восточный берег, Северная губа и Западный берег), в каждом из них ежегодно выбирается по несколько валунов. Координаты точек расположения валунов засекаются с помощью спутникового навигатора. Если несколько валунов расположены в непосредственной близости друг от друга, то засекаются координаты только одного из них. Расположение точек сбора материала, обследованных в 2019 году приведено на Рисунок 1.

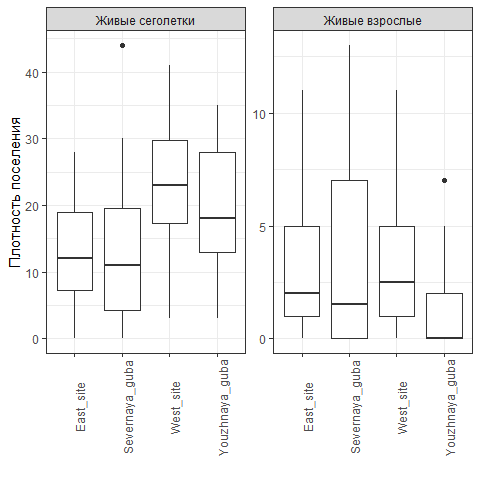


**Рисунок 1.** Расположение камней, на которых проводился учет балянусов, на побережье о. Ряжкова (2019 г.). Position of stones where barnacles were counted on the shore of Ryazhkov island (2019)

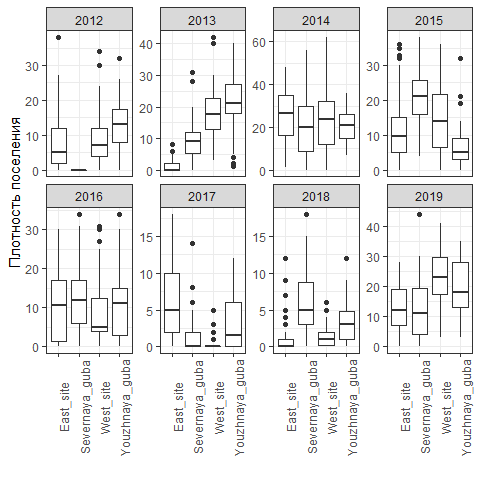
Валуны, использованные в анализе, располагались не выше пояса фукоидов и имели в диаметре не менее 1 метра. Обилие балянусов подсчитывалось на двух сторонах валуна (обращенной к морю (“Sea”) и обращенной к суше (“Land”). На каждой стороне было заложено по три площадки 10х10 см, располагавшихся на высоте 30 см от поверхности грунта. Рамка, ограничивающая площадку, была разбита на 25 квадратов со стороной 2 см. В трех случайно выбранных квадратах было подсчитано обилие балянусов следующих классов:

1. Живые сеголетки
2. Мертвые сеголетки
3. Живые особи возрастом 1+ и более (далее взрослые)
4. Мертвые взрослые особи.

Данные, собранные в 2019 году приведены в таблице +.1. Рисунок 2 демонстрирует обилие разных стадий на разных точках. Самое мощное пополнение в этом году происходило на Западном берегу и в Южной губе. Однако многолетние наблюдения показывают, в разные годы максимальное обилие молоди может наблюдаться на разных участках (Рисунок 3).

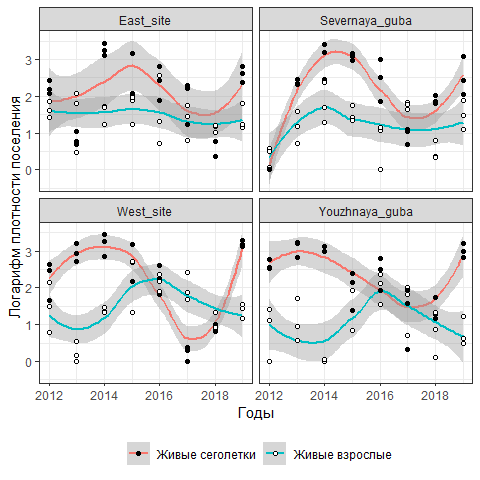


**Рисунок 2.** Обилие сеголеток и взрослых балянусов (экз. на 4 кв.см.) в 2019 году. Abundanc of juveniles and adult barnacles (ind per 4 sq. cm) in 2019.



**Рисунок 3.** Обилие сеголеток в разные годы на разных сайтах. Abundance of juveniles in different years for each site.

Анализ многолетних тенденций (Рисунок 4) показал, что в 2019 г. на всех участках начался новый всплеск обилия молоди. Предыдущий пик обилия молоди был отмечен в 2013-2014 гг. Важно отметить, что на некоторых участках (Западный берег, Южная губа) всплеск обилия молоди явно сопряжен с падением обилия взрослых особей.



**Рисунок 4.** Динамика обилия сеголеток и взрослых в разные годы на разных участках. The dynamics of the abundance of yearlings and adults (logarithmic scale) in different sites

**Таблица +.+** Обилие сеголеток и взрослых балянусов на побережье о. Ряжкова в 2019 г. (экз. на 4 кв.см.).

Abundance of barnacles juveniles adults on the shore of Ryazhkov island in 2019 (ind. per 4 sq. cm)

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Год | Сайт | Камень | Направление | N | E | Рамка | Квадрат | Сеголетки живые | Сеголетки мертвые | Взрослые живые | Взрослые мертвые |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 1 | 2 | 10 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 1 | 5 | 12 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 1 | 20 | 16 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 2 | 3 | 22 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 2 | 9 | 25 | 0 | 2 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 2 | 18 | 32 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 3 | 1 | 10 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 3 | 17 | 34 | 0 | 1 | 2 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 3 | 25 | 9 | 0 | 3 | 1 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 1 | 4 | 30 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 1 | 13 | 33 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 1 | 22 | 28 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 2 | 5 | 13 | 1 | 2 | 1 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 2 | 11 | 24 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 2 | 19 | 32 | 0 | 2 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 3 | 2 | 28 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 3 | 6 | 35 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 3 | 24 | 34 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 1 | 6 | 13 | 1 | 4 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 1 | 25 | 14 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 1 | 13 | 28 | 0 | 2 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 2 | 7 | 9 | 0 | 7 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 2 | 23 | 13 | 0 | 5 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 2 | 14 | 13 | 0 | 3 | 1 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 3 | 16 | 15 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 3 | 3 | 14 | 0 | 2 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 3 | 22 | 20 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 1 | 4 | 18 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 1 | 12 | 24 | 1 | 3 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 1 | 23 | 4 | 0 | 4 | 2 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 2 | 1 | 12 | 0 | 5 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 2 | 7 | 21 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 2 | 11 | 8 | 0 | 4 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 3 | 5 | 20 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 3 | 10 | 24 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 3 | 16 | 12 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 1 | 9 | 31 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 1 | 15 | 30 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 1 | 25 | 31 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 2 | 13 | 32 | 0 | 3 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 2 | 2 | 18 | 0 | 3 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 2 | 20 | 32 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 3 | 4 | 13 | 0 | 3 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 3 | 17 | 18 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 3 | 23 | 14 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 1 | 9 | 16 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 1 | 13 | 21 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 1 | 20 | 3 | 0 | 5 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 2 | 6 | 11 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 2 | 11 | 10 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 2 | 22 | 10 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 3 | 7 | 19 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 3 | 10 | 17 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 3 | 23 | 15 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 1 | 2 | 10 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 1 | 5 | 12 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 1 | 20 | 16 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 2 | 3 | 22 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 2 | 9 | 25 | 0 | 2 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 2 | 18 | 32 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 3 | 1 | 10 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 3 | 17 | 34 | 0 | 1 | 2 |
| 2019 | Youzhnaya\_guba | 1 | Land | 67.00845 | 32.57267 | 3 | 25 | 9 | 0 | 3 | 1 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 1 | 4 | 30 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 1 | 13 | 33 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 1 | 22 | 28 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 2 | 5 | 13 | 1 | 2 | 1 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 2 | 11 | 24 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 2 | 19 | 32 | 0 | 2 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 3 | 2 | 28 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 3 | 6 | 35 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 1 | Sea | 67.00845 | 32.57267 | 3 | 24 | 34 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 1 | 6 | 13 | 1 | 4 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 1 | 25 | 14 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 1 | 13 | 28 | 0 | 2 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 2 | 7 | 9 | 0 | 7 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 2 | 23 | 13 | 0 | 5 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 2 | 14 | 13 | 0 | 3 | 1 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 3 | 16 | 15 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 3 | 3 | 14 | 0 | 2 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Land | 67.00845 | 32.57240 | 3 | 22 | 20 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 1 | 4 | 18 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 1 | 12 | 24 | 1 | 3 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 1 | 23 | 4 | 0 | 4 | 2 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 2 | 1 | 12 | 0 | 5 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 2 | 7 | 21 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 2 | 11 | 8 | 0 | 4 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 3 | 5 | 20 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 3 | 10 | 24 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 2 | Sea | 67.00845 | 32.57240 | 3 | 16 | 12 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 1 | 9 | 31 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 1 | 15 | 30 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 1 | 25 | 31 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 2 | 13 | 32 | 0 | 3 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 2 | 2 | 18 | 0 | 3 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 2 | 20 | 32 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 3 | 4 | 13 | 0 | 3 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 3 | 17 | 18 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Land | 67.00840 | 32.57173 | 3 | 23 | 14 | 1 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 1 | 9 | 16 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 1 | 13 | 21 | 0 | 1 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 1 | 20 | 3 | 0 | 5 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 2 | 6 | 11 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 2 | 11 | 10 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 2 | 22 | 10 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 3 | 7 | 19 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 3 | 10 | 17 | 0 | 0 | 0 |
| 2019 | Youzhnaya\_guba | 3 | Sea | 67.00840 | 32.57173 | 3 | 23 | 15 | 0 | 0 | 0 |
| 2019 | East\_site | 1 | Land | 67.02050 | 32.56972 | 1 | 3 | 7 | 1 | 4 | 2 |
| 2019 | East\_site | 1 | Land | 67.02050 | 32.56972 | 1 | 12 | 10 | 0 | 1 | 1 |
| 2019 | East\_site | 1 | Land | 67.02050 | 32.56972 | 1 | 17 | 15 | 0 | 0 | 0 |
| 2019 | East\_site | 1 | Land | 67.02050 | 32.56972 | 2 | 7 | 11 | 0 | 0 | 0 |
| 2019 | East\_site | 1 | Land | 67.02050 | 32.56972 | 2 | 13 | 23 | 0 | 2 | 0 |
| 2019 | East\_site | 1 | Land | 67.02050 | 32.56972 | 2 | 23 | 24 | 1 | 0 | 0 |
| 2019 | East\_site | 1 | Land | 67.02050 | 32.56972 | 3 | 8 | 19 | 0 | 2 | 0 |
| 2019 | East\_site | 1 | Land | 67.02050 | 32.56972 | 3 | 16 | 19 | 0 | 0 | 0 |
| 2019 | East\_site | 1 | Land | 67.02050 | 32.56972 | 3 | 22 | 20 | 0 | 0 | 0 |
| 2019 | East\_site | 1 | Sea | 67.02050 | 32.56972 | 1 | 7 | 8 | 0 | 2 | 0 |
| 2019 | East\_site | 1 | Sea | 67.02050 | 32.56972 | 1 | 11 | 10 | 1 | 1 | 0 |
| 2019 | East\_site | 1 | Sea | 67.02050 | 32.56972 | 1 | 19 | 12 | 0 | 3 | 0 |
| 2019 | East\_site | 1 | Sea | 67.02050 | 32.56972 | 2 | 4 | 10 | 0 | 0 | 0 |
| 2019 | East\_site | 1 | Sea | 67.02050 | 32.56972 | 2 | 15 | 11 | 0 | 4 | 2 |
| 2019 | East\_site | 1 | Sea | 67.02050 | 32.56972 | 2 | 21 | 5 | 1 | 2 | 1 |
| 2019 | East\_site | 1 | Sea | 67.02050 | 32.56972 | 3 | 24 | 15 | 0 | 3 | 0 |
| 2019 | East\_site | 1 | Sea | 67.02050 | 32.56972 | 3 | 8 | 0 | 0 | 9 | 3 |
| 2019 | East\_site | 1 | Sea | 67.02050 | 32.56972 | 3 | 13 | 11 | 1 | 6 | 0 |
| 2019 | East\_site | 2 | Land | 67.02050 | 32.56972 | 1 | 2 | 1 | 0 | 6 | 0 |
| 2019 | East\_site | 2 | Land | 67.02050 | 32.56972 | 1 | 12 | 6 | 0 | 8 | 0 |
| 2019 | East\_site | 2 | Land | 67.02050 | 32.56972 | 1 | 20 | 4 | 0 | 1 | 0 |
| 2019 | East\_site | 2 | Land | 67.02050 | 32.56972 | 2 | 19 | 2 | 0 | 7 | 0 |
| 2019 | East\_site | 2 | Land | 67.02050 | 32.56972 | 2 | 6 | 14 | 0 | 2 | 0 |
| 2019 | East\_site | 2 | Land | 67.02050 | 32.56972 | 2 | 23 | 2 | 0 | 11 | 0 |
| 2019 | East\_site | 2 | Land | 67.02050 | 32.56972 | 3 | 13 | 7 | 2 | 2 | 0 |
| 2019 | East\_site | 2 | Land | 67.02050 | 32.56972 | 3 | 15 | 12 | 1 | 0 | 0 |
| 2019 | East\_site | 2 | Land | 67.02050 | 32.56972 | 3 | 21 | 17 | 0 | 1 | 0 |
| 2019 | East\_site | 2 | Sea | 67.02050 | 32.56972 | 1 | 10 | 0 | 0 | 11 | 2 |
| 2019 | East\_site | 2 | Sea | 67.02050 | 32.56972 | 1 | 13 | 7 | 0 | 10 | 1 |
| 2019 | East\_site | 2 | Sea | 67.02050 | 32.56972 | 1 | 18 | 5 | 0 | 7 | 1 |
| 2019 | East\_site | 2 | Sea | 67.02050 | 32.56972 | 2 | 11 | 20 | 2 | 2 | 0 |
| 2019 | East\_site | 2 | Sea | 67.02050 | 32.56972 | 2 | 3 | 21 | 0 | 5 | 1 |
| 2019 | East\_site | 2 | Sea | 67.02050 | 32.56972 | 2 | 20 | 28 | 0 | 2 | 0 |
| 2019 | East\_site | 2 | Sea | 67.02050 | 32.56972 | 3 | 1 | 12 | 0 | 8 | 0 |
| 2019 | East\_site | 2 | Sea | 67.02050 | 32.56972 | 3 | 14 | 10 | 1 | 7 | 0 |
| 2019 | East\_site | 2 | Sea | 67.02050 | 32.56972 | 3 | 25 | 9 | 1 | 1 | 0 |
| 2019 | East\_site | 3 | Land | 67.02050 | 32.56972 | 1 | 5 | 12 | 0 | 0 | 0 |
| 2019 | East\_site | 3 | Land | 67.02050 | 32.56972 | 1 | 18 | 4 | 0 | 5 | 2 |
| 2019 | East\_site | 3 | Land | 67.02050 | 32.56972 | 1 | 22 | 19 | 0 | 2 | 0 |
| 2019 | East\_site | 3 | Land | 67.02050 | 32.56972 | 2 | 19 | 13 | 0 | 2 | 0 |
| 2019 | East\_site | 3 | Land | 67.02050 | 32.56972 | 2 | 23 | 20 | 1 | 1 | 0 |
| 2019 | East\_site | 3 | Land | 67.02050 | 32.56972 | 2 | 1 | 10 | 0 | 3 | 1 |
| 2019 | East\_site | 3 | Land | 67.02050 | 32.56972 | 3 | 16 | 12 | 0 | 5 | 1 |
| 2019 | East\_site | 3 | Land | 67.02050 | 32.56972 | 3 | 15 | 13 | 0 | 0 | 0 |
| 2019 | East\_site | 3 | Land | 67.02050 | 32.56972 | 3 | 7 | 11 | 0 | 3 | 0 |
| 2019 | East\_site | 3 | Sea | 67.02050 | 32.56972 | 1 | 2 | 27 | 5 | 0 | 0 |
| 2019 | East\_site | 3 | Sea | 67.02050 | 32.56972 | 1 | 12 | 23 | 0 | 3 | 1 |
| 2019 | East\_site | 3 | Sea | 67.02050 | 32.56972 | 1 | 21 | 10 | 0 | 6 | 2 |
| 2019 | East\_site | 3 | Sea | 67.02050 | 32.56972 | 2 | 4 | 18 | 2 | 4 | 0 |
| 2019 | East\_site | 3 | Sea | 67.02050 | 32.56972 | 2 | 9 | 0 | 0 | 8 | 2 |
| 2019 | East\_site | 3 | Sea | 67.02050 | 32.56972 | 2 | 24 | 25 | 2 | 0 | 0 |
| 2019 | East\_site | 3 | Sea | 67.02050 | 32.56972 | 3 | 1 | 16 | 1 | 0 | 0 |
| 2019 | East\_site | 3 | Sea | 67.02050 | 32.56972 | 3 | 2 | 25 | 2 | 0 | 0 |
| 2019 | East\_site | 3 | Sea | 67.02050 | 32.56972 | 3 | 3 | 27 | 2 | 1 | 0 |
| 2019 | Severnaya\_guba | 1 | Land | 67.02608 | 32.54178 | 1 | 3 | 0 | 0 | 10 | 0 |
| 2019 | Severnaya\_guba | 1 | Land | 67.02608 | 32.54178 | 1 | 18 | 2 | 0 | 10 | 0 |
| 2019 | Severnaya\_guba | 1 | Land | 67.02608 | 32.54178 | 1 | 22 | 0 | 0 | 10 | 0 |
| 2019 | Severnaya\_guba | 1 | Land | 67.02608 | 32.54178 | 2 | 4 | 1 | 0 | 3 | 0 |
| 2019 | Severnaya\_guba | 1 | Land | 67.02608 | 32.54178 | 2 | 9 | 0 | 0 | 7 | 0 |
| 2019 | Severnaya\_guba | 1 | Land | 67.02608 | 32.54178 | 2 | 13 | 3 | 0 | 9 | 0 |
| 2019 | Severnaya\_guba | 1 | Land | 67.02608 | 32.54178 | 3 | 25 | 4 | 0 | 11 | 0 |
| 2019 | Severnaya\_guba | 1 | Land | 67.02608 | 32.54178 | 3 | 1 | 4 | 1 | 0 | 0 |
| 2019 | Severnaya\_guba | 1 | Land | 67.02608 | 32.54178 | 3 | 14 | 2 | 0 | 10 | 0 |
| 2019 | Severnaya\_guba | 1 | Sea | 67.02608 | 32.54178 | 1 | 2 | 13 | 2 | 0 | 0 |
| 2019 | Severnaya\_guba | 1 | Sea | 67.02608 | 32.54178 | 1 | 10 | 14 | 0 | 1 | 0 |
| 2019 | Severnaya\_guba | 1 | Sea | 67.02608 | 32.54178 | 1 | 21 | 6 | 3 | 3 | 0 |
| 2019 | Severnaya\_guba | 1 | Sea | 67.02608 | 32.54178 | 2 | 12 | 15 | 2 | 10 | 0 |
| 2019 | Severnaya\_guba | 1 | Sea | 67.02608 | 32.54178 | 2 | 5 | 16 | 0 | 0 | 0 |
| 2019 | Severnaya\_guba | 1 | Sea | 67.02608 | 32.54178 | 2 | 24 | 18 | 0 | 6 | 0 |
| 2019 | Severnaya\_guba | 1 | Sea | 67.02608 | 32.54178 | 3 | 3 | 9 | 1 | 1 | 0 |
| 2019 | Severnaya\_guba | 1 | Sea | 67.02608 | 32.54178 | 3 | 13 | 6 | 3 | 4 | 0 |
| 2019 | Severnaya\_guba | 1 | Sea | 67.02608 | 32.54178 | 3 | 23 | 7 | 3 | 4 | 0 |
| 2019 | Severnaya\_guba | 2 | Land | 67.02608 | 32.54178 | 1 | 4 | 13 | 1 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Land | 67.02608 | 32.54178 | 1 | 16 | 14 | 2 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Land | 67.02608 | 32.54178 | 1 | 20 | 25 | 0 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Land | 67.02608 | 32.54178 | 2 | 7 | 4 | 0 | 13 | 0 |
| 2019 | Severnaya\_guba | 2 | Land | 67.02608 | 32.54178 | 2 | 17 | 23 | 1 | 4 | 0 |
| 2019 | Severnaya\_guba | 2 | Land | 67.02608 | 32.54178 | 2 | 21 | 18 | 1 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Land | 67.02608 | 32.54178 | 3 | 2 | 9 | 1 | 0 | 1 |
| 2019 | Severnaya\_guba | 2 | Land | 67.02608 | 32.54178 | 3 | 19 | 11 | 1 | 7 | 0 |
| 2019 | Severnaya\_guba | 2 | Land | 67.02608 | 32.54178 | 3 | 23 | 15 | 0 | 12 | 0 |
| 2019 | Severnaya\_guba | 2 | Sea | 67.02608 | 32.54178 | 1 | 8 | 6 | 1 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Sea | 67.02608 | 32.54178 | 1 | 9 | 6 | 3 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Sea | 67.02608 | 32.54178 | 1 | 14 | 11 | 1 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Sea | 67.02608 | 32.54178 | 2 | 1 | 2 | 0 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Sea | 67.02608 | 32.54178 | 2 | 12 | 8 | 0 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Sea | 67.02608 | 32.54178 | 2 | 25 | 8 | 1 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Sea | 67.02608 | 32.54178 | 3 | 13 | 7 | 0 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Sea | 67.02608 | 32.54178 | 3 | 19 | 5 | 1 | 0 | 0 |
| 2019 | Severnaya\_guba | 2 | Sea | 67.02608 | 32.54178 | 3 | 24 | 2 | 1 | 0 | 0 |
| 2019 | Severnaya\_guba | 3 | Land | 67.02608 | 32.54178 | 1 | 5 | 20 | 0 | 2 | 2 |
| 2019 | Severnaya\_guba | 3 | Land | 67.02608 | 32.54178 | 1 | 13 | 18 | 0 | 7 | 0 |
| 2019 | Severnaya\_guba | 3 | Land | 67.02608 | 32.54178 | 1 | 22 | 14 | 0 | 7 | 0 |
| 2019 | Severnaya\_guba | 3 | Land | 67.02608 | 32.54178 | 2 | 1 | 10 | 1 | 5 | 0 |
| 2019 | Severnaya\_guba | 3 | Land | 67.02608 | 32.54178 | 2 | 10 | 28 | 0 | 0 | 0 |
| 2019 | Severnaya\_guba | 3 | Land | 67.02608 | 32.54178 | 2 | 19 | 20 | 1 | 0 | 0 |
| 2019 | Severnaya\_guba | 3 | Land | 67.02608 | 32.54178 | 3 | 18 | 14 | 1 | 7 | 0 |
| 2019 | Severnaya\_guba | 3 | Land | 67.02608 | 32.54178 | 3 | 3 | 4 | 0 | 11 | 0 |
| 2019 | Severnaya\_guba | 3 | Land | 67.02608 | 32.54178 | 3 | 6 | 20 | 5 | 0 | 0 |
| 2019 | Severnaya\_guba | 3 | Sea | 67.02608 | 32.54178 | 1 | 9 | 27 | 0 | 6 | 0 |
| 2019 | Severnaya\_guba | 3 | Sea | 67.02608 | 32.54178 | 1 | 2 | 30 | 0 | 0 | 0 |
| 2019 | Severnaya\_guba | 3 | Sea | 67.02608 | 32.54178 | 1 | 21 | 24 | 0 | 7 | 0 |
| 2019 | Severnaya\_guba | 3 | Sea | 67.02608 | 32.54178 | 2 | 3 | 29 | 3 | 0 | 0 |
| 2019 | Severnaya\_guba | 3 | Sea | 67.02608 | 32.54178 | 2 | 20 | 44 | 0 | 0 | 0 |
| 2019 | Severnaya\_guba | 3 | Sea | 67.02608 | 32.54178 | 2 | 23 | 23 | 1 | 0 | 0 |
| 2019 | Severnaya\_guba | 3 | Sea | 67.02608 | 32.54178 | 3 | 11 | 26 | 4 | 1 | 0 |
| 2019 | Severnaya\_guba | 3 | Sea | 67.02608 | 32.54178 | 3 | 5 | 4 | 0 | 6 | 0 |
| 2019 | Severnaya\_guba | 3 | Sea | 67.02608 | 32.54178 | 3 | 17 | 23 | 5 | 2 | 0 |
| 2019 | West\_site | 1 | Land | 67.01350 | 32.54135 | 1 | 8 | 16 | 2 | 4 | 0 |
| 2019 | West\_site | 1 | Land | 67.01350 | 32.54135 | 1 | 16 | 20 | 0 | 4 | 1 |
| 2019 | West\_site | 1 | Land | 67.01350 | 32.54135 | 1 | 24 | 7 | 0 | 6 | 0 |
| 2019 | West\_site | 1 | Land | 67.01350 | 32.54135 | 2 | 1 | 11 | 0 | 6 | 0 |
| 2019 | West\_site | 1 | Land | 67.01350 | 32.54135 | 2 | 15 | 11 | 0 | 4 | 0 |
| 2019 | West\_site | 1 | Land | 67.01350 | 32.54135 | 2 | 10 | 22 | 0 | 1 | 0 |
| 2019 | West\_site | 1 | Land | 67.01350 | 32.54135 | 3 | 5 | 28 | 0 | 0 | 0 |
| 2019 | West\_site | 1 | Land | 67.01350 | 32.54135 | 3 | 2 | 24 | 0 | 1 | 0 |
| 2019 | West\_site | 1 | Land | 67.01350 | 32.54135 | 3 | 6 | 32 | 21 | 1 | 0 |
| 2019 | West\_site | 1 | Sea | 67.01350 | 32.54135 | 1 | 9 | 21 | 0 | 2 | 0 |
| 2019 | West\_site | 1 | Sea | 67.01350 | 32.54135 | 1 | 18 | 19 | 0 | 7 | 0 |
| 2019 | West\_site | 1 | Sea | 67.01350 | 32.54135 | 1 | 25 | 14 | 0 | 6 | 0 |
| 2019 | West\_site | 1 | Sea | 67.01350 | 32.54135 | 2 | 11 | 37 | 2 | 0 | 0 |
| 2019 | West\_site | 1 | Sea | 67.01350 | 32.54135 | 2 | 21 | 41 | 0 | 2 | 0 |
| 2019 | West\_site | 1 | Sea | 67.01350 | 32.54135 | 2 | 1 | 20 | 1 | 2 | 0 |
| 2019 | West\_site | 1 | Sea | 67.01350 | 32.54135 | 3 | 3 | 28 | 0 | 3 | 0 |
| 2019 | West\_site | 1 | Sea | 67.01350 | 32.54135 | 3 | 12 | 20 | 0 | 3 | 0 |
| 2019 | West\_site | 1 | Sea | 67.01350 | 32.54135 | 3 | 17 | 22 | 0 | 5 | 0 |
| 2019 | West\_site | 2 | Land | 67.01350 | 32.54135 | 1 | 19 | 19 | 0 | 2 | 0 |
| 2019 | West\_site | 2 | Land | 67.01350 | 32.54135 | 1 | 22 | 19 | 1 | 5 | 0 |
| 2019 | West\_site | 2 | Land | 67.01350 | 32.54135 | 1 | 23 | 16 | 1 | 11 | 0 |
| 2019 | West\_site | 2 | Land | 67.01350 | 32.54135 | 2 | 17 | 25 | 2 | 0 | 0 |
| 2019 | West\_site | 2 | Land | 67.01350 | 32.54135 | 2 | 14 | 35 | 2 | 0 | 0 |
| 2019 | West\_site | 2 | Land | 67.01350 | 32.54135 | 2 | 13 | 29 | 2 | 2 | 0 |
| 2019 | West\_site | 2 | Land | 67.01350 | 32.54135 | 3 | 8 | 29 | 1 | 2 | 0 |
| 2019 | West\_site | 2 | Land | 67.01350 | 32.54135 | 3 | 5 | 22 | 0 | 0 | 0 |
| 2019 | West\_site | 2 | Land | 67.01350 | 32.54135 | 3 | 3 | 33 | 1 | 0 | 0 |
| 2019 | West\_site | 2 | Sea | 67.01350 | 32.54135 | 1 | 7 | 3 | 0 | 11 | 0 |
| 2019 | West\_site | 2 | Sea | 67.01350 | 32.54135 | 1 | 6 | 17 | 0 | 7 | 2 |
| 2019 | West\_site | 2 | Sea | 67.01350 | 32.54135 | 1 | 20 | 17 | 0 | 6 | 0 |
| 2019 | West\_site | 2 | Sea | 67.01350 | 32.54135 | 2 | 15 | 20 | 0 | 5 | 0 |
| 2019 | West\_site | 2 | Sea | 67.01350 | 32.54135 | 2 | 17 | 30 | 0 | 3 | 0 |
| 2019 | West\_site | 2 | Sea | 67.01350 | 32.54135 | 2 | 25 | 41 | 0 | 0 | 0 |
| 2019 | West\_site | 2 | Sea | 67.01350 | 32.54135 | 3 | 16 | 35 | 1 | 0 | 0 |
| 2019 | West\_site | 2 | Sea | 67.01350 | 32.54135 | 3 | 12 | 15 | 1 | 6 | 0 |
| 2019 | West\_site | 2 | Sea | 67.01350 | 32.54135 | 3 | 8 | 5 | 0 | 7 | 0 |
| 2019 | West\_site | 3 | Land | 67.01350 | 32.54135 | 1 | 1 | 37 | 0 | 1 | 0 |
| 2019 | West\_site | 3 | Land | 67.01350 | 32.54135 | 1 | 4 | 14 | 0 | 3 | 0 |
| 2019 | West\_site | 3 | Land | 67.01350 | 32.54135 | 1 | 7 | 23 | 0 | 4 | 0 |
| 2019 | West\_site | 3 | Land | 67.01350 | 32.54135 | 2 | 10 | 18 | 1 | 6 | 0 |
| 2019 | West\_site | 3 | Land | 67.01350 | 32.54135 | 2 | 3 | 27 | 2 | 4 | 0 |
| 2019 | West\_site | 3 | Land | 67.01350 | 32.54135 | 2 | 18 | 25 | 1 | 0 | 0 |
| 2019 | West\_site | 3 | Land | 67.01350 | 32.54135 | 3 | 5 | 26 | 1 | 0 | 0 |
| 2019 | West\_site | 3 | Land | 67.01350 | 32.54135 | 3 | 24 | 29 | 0 | 3 | 0 |
| 2019 | West\_site | 3 | Land | 67.01350 | 32.54135 | 3 | 12 | 25 | 1 | 0 | 0 |
| 2019 | West\_site | 3 | Sea | 67.01350 | 32.54135 | 1 | 1 | 29 | 1 | 0 | 0 |
| 2019 | West\_site | 3 | Sea | 67.01350 | 32.54135 | 1 | 9 | 33 | 0 | 2 | 0 |
| 2019 | West\_site | 3 | Sea | 67.01350 | 32.54135 | 1 | 18 | 35 | 1 | 2 | 1 |
| 2019 | West\_site | 3 | Sea | 67.01350 | 32.54135 | 2 | 24 | 12 | 0 | 5 | 0 |
| 2019 | West\_site | 3 | Sea | 67.01350 | 32.54135 | 2 | 25 | 34 | 0 | 1 | 0 |
| 2019 | West\_site | 3 | Sea | 67.01350 | 32.54135 | 2 | 3 | 13 | 0 | 5 | 0 |
| 2019 | West\_site | 3 | Sea | 67.01350 | 32.54135 | 3 | 15 | 33 | 1 | 1 | 0 |
| 2019 | West\_site | 3 | Sea | 67.01350 | 32.54135 | 3 | 9 | 33 | 0 | 0 | 0 |
| 2019 | West\_site | 3 | Sea | 67.01350 | 32.54135 | 3 | 19 | 23 | 1 | 3 | 0 |