

Ocean Data Analysis with R Programming for Early Career Ocean Professionals (ECOPs) (Asia)

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Module 1 – Lesson 2: Working with data in R

1. The "obis_red_list_filtered_1000.csv" (obis) dataset has 1000 rows.
2. Output of the **head()** function on the obis dataset:

```
> head(obis)
# A tibble: 6 x 10
  scientificName      date_year family      minimumDepthInMeters shoredistance  sst  sss individualcount country      status
  <chr>              <dbl> <chr>              <dbl>      <dbl> <dbl> <dbl> <dbl> <dbl> <chr>      <chr>
1 Balaenoptera physalus 2003 Balaenopteridae      0      182964 -1.47  34.0      2 Antarctica VU
2 Balaenoptera physalus 2003 Balaenopteridae      0      135623 -1.58  34.0      2 Antarctica VU
3 Balaenoptera physalus 2003 Balaenopteridae      0      138638 -1.58  34.0      9 Antarctica VU
4 Balaenoptera physalus 2003 Balaenopteridae      0      77966 -1.57  34.1      4 Antarctica VU
5 Balaenoptera physalus 2003 Balaenopteridae      0      141441 -1.59  34.0      3 Antarctica VU
6 Balaenoptera physalus 2002 Balaenopteridae      0      -14124 -1.43  33.7      3 Antarctica VU
```

3. Using the str() function, it shows the dataset has 10 columns.

```
> str(obis)
spc_tbl_ [1,000 x 10] (S3: spec_tbl_df/tbl_df/tbl/data.frame)
 $ scientificName      : chr [1:1000] "Balaenoptera physalus" "Balaenoptera physalus" "Balaenoptera physalus" ...
 $ date_year          : num [1:1000] 2003 2003 2003 2003 2003 ...
 $ family             : chr [1:1000] "Balaenopteridae" "Balaenopteridae" "Balaenopteridae" ...
 $ minimumDepthInMeters: num [1:1000] 0 0 0 0 0 0 0 0 0 ...
 $ shoredistance      : num [1:1000] 182964 135623 138638 77966 141441 ...
 $ sst                : num [1:1000] -1.47 -1.58 -1.58 -1.57 -1.59 -1.43 -0.51 -1.48 -1.55 0.35 ...
 $ sss                : num [1:1000] 34 34 34 34.1 34 ...
 $ individualcount    : num [1:1000] 2 2 9 4 3 3 3 6 6 8 ...
 $ country            : chr [1:1000] "Antarctica" "Antarctica" "Antarctica" "Antarctica" ...
 $ status              : chr [1:1000] "VU" "VU" "VU" "VU" ...
- attr(*, "spec")=
.. cols(
..   scientificName = col_character(),
..   date_year = col_double(),
..   family = col_character(),
..   minimumDepthInMeters = col_double(),
..   shoredistance = col_double(),
..   sst = col_double(),
..   sss = col_double(),
..   individualcount = col_double(),
..   country = col_character(),
..   status = col_character()
.. )
- attr(*, "problems")=externalptr
```

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4. Extract the **shoredistance** column to a vector and print the result.

```
> obis_select_sd <- obis %>%
+   select(shoredistance)
> obis_select_sd
# A tibble: 1,000 × 1
  shoredistance
      <dbl>
1      182964
2      135623
3      138638
4       77966
5      141441
6      -14124
7      727065
8      184171
9      144748
10     478287
# i 990 more rows
# i Use `print(n = ...)` to see more rows
>
```

	shoredistance
1	182964
2	135623
3	138638
4	77966
5	141441
6	-14124
7	727065
8	184171
9	144748
10	478287
11	737186
12	732333
13	725476
14	728704
15	315054
16	85820
17	757091
18	144928
19	698152
20	278718
21	765905
22	77373

5. Sort the **sst** data using the **arrange()** function from the **dplyr** package. What is the output of the **head()** function when you apply it to the sorted dataset?

```
> head(obis_arrange_sst2)
# A tibble: 6 × 10
  scientificName date_year family minimumDepthInMeters shoredistance sst sss individualCount country status
  <chr>          <dbl> <chr>          <dbl>          <dbl> <dbl> <dbl>          <dbl> <chr> <chr>
1 Balaenoptera physalus 2003 Balaenopteridae 0 85820 -1.63 34.1 7 Antarctica VU
2 Balaenoptera physalus 2003 Balaenopteridae 0 141441 -1.59 34.0 3 Antarctica VU
3 Balaenoptera physalus 2003 Balaenopteridae 0 144928 -1.59 34.0 2 Antarctica VU
4 Balaenoptera physalus 2003 Balaenopteridae 0 135623 -1.58 34.0 2 Antarctica VU
5 Balaenoptera physalus 2003 Balaenopteridae 0 138638 -1.58 34.0 9 Antarctica VU
6 Balaenoptera physalus 2003 Balaenopteridae 0 77966 -1.57 34.1 4 Antarctica VU
```