

Aphanizomenon flosaqua f. gracile

Luuk van der Heijden, modified by Markus Lindh

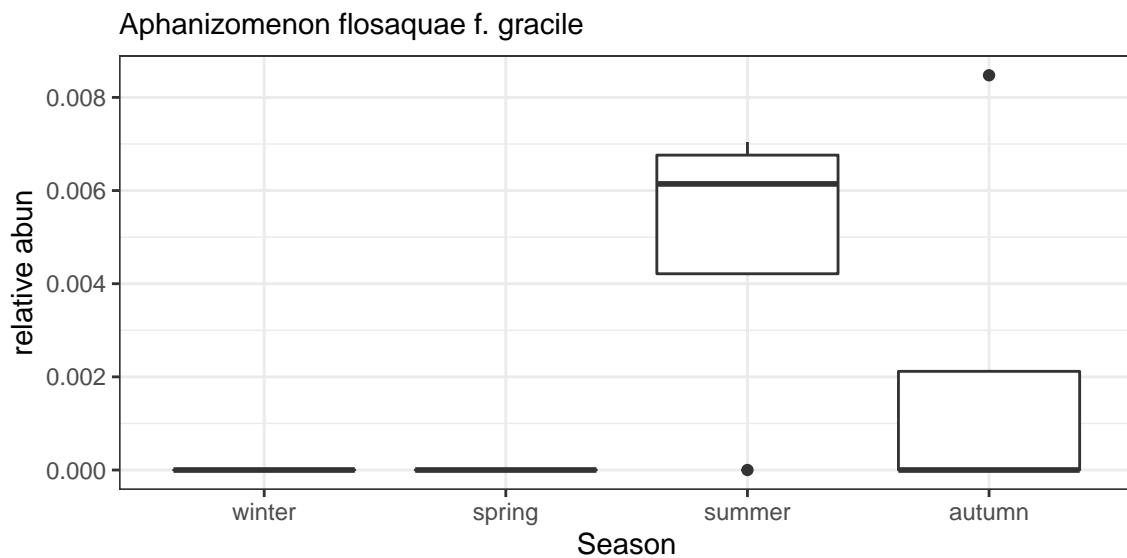
15 june 2020, modified 2020-09-30

Setup

Create data analysis functions

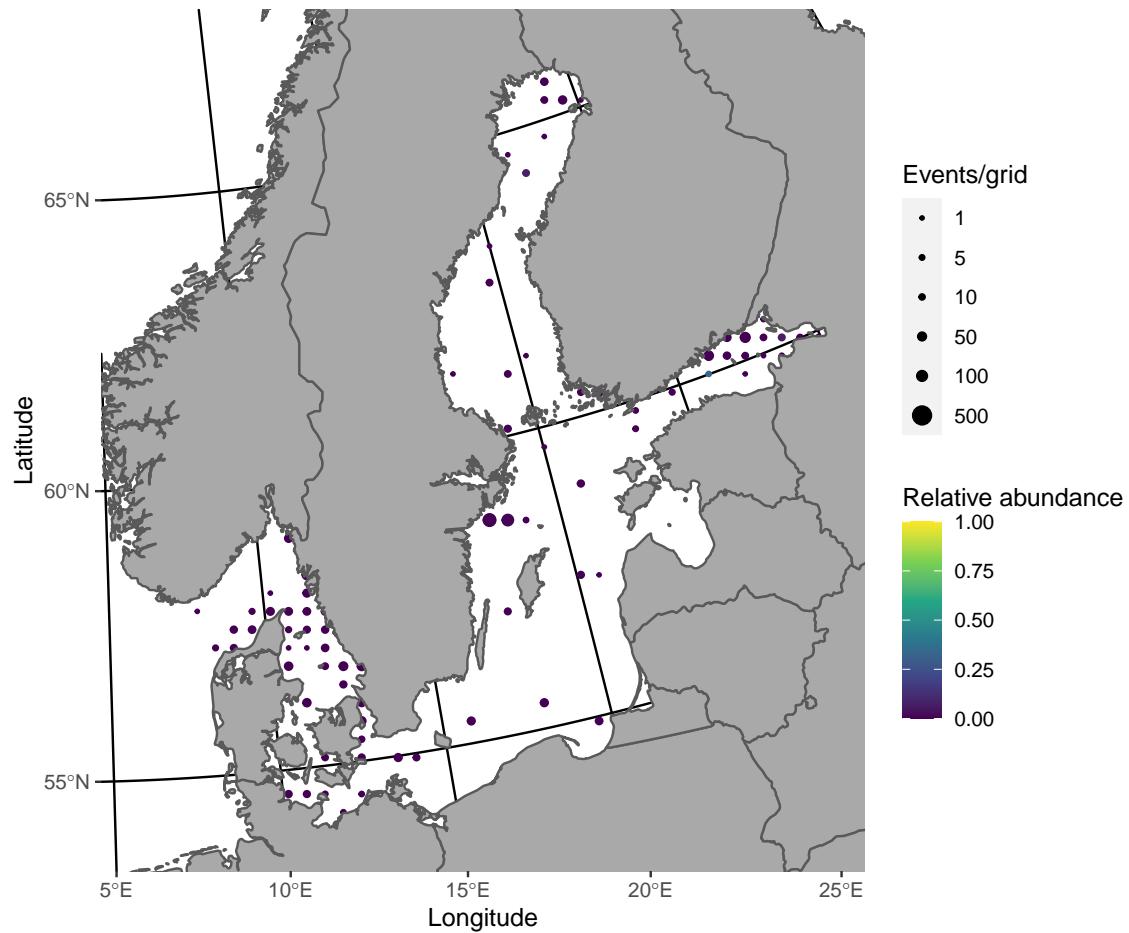
Make calculations

Average distribution per season

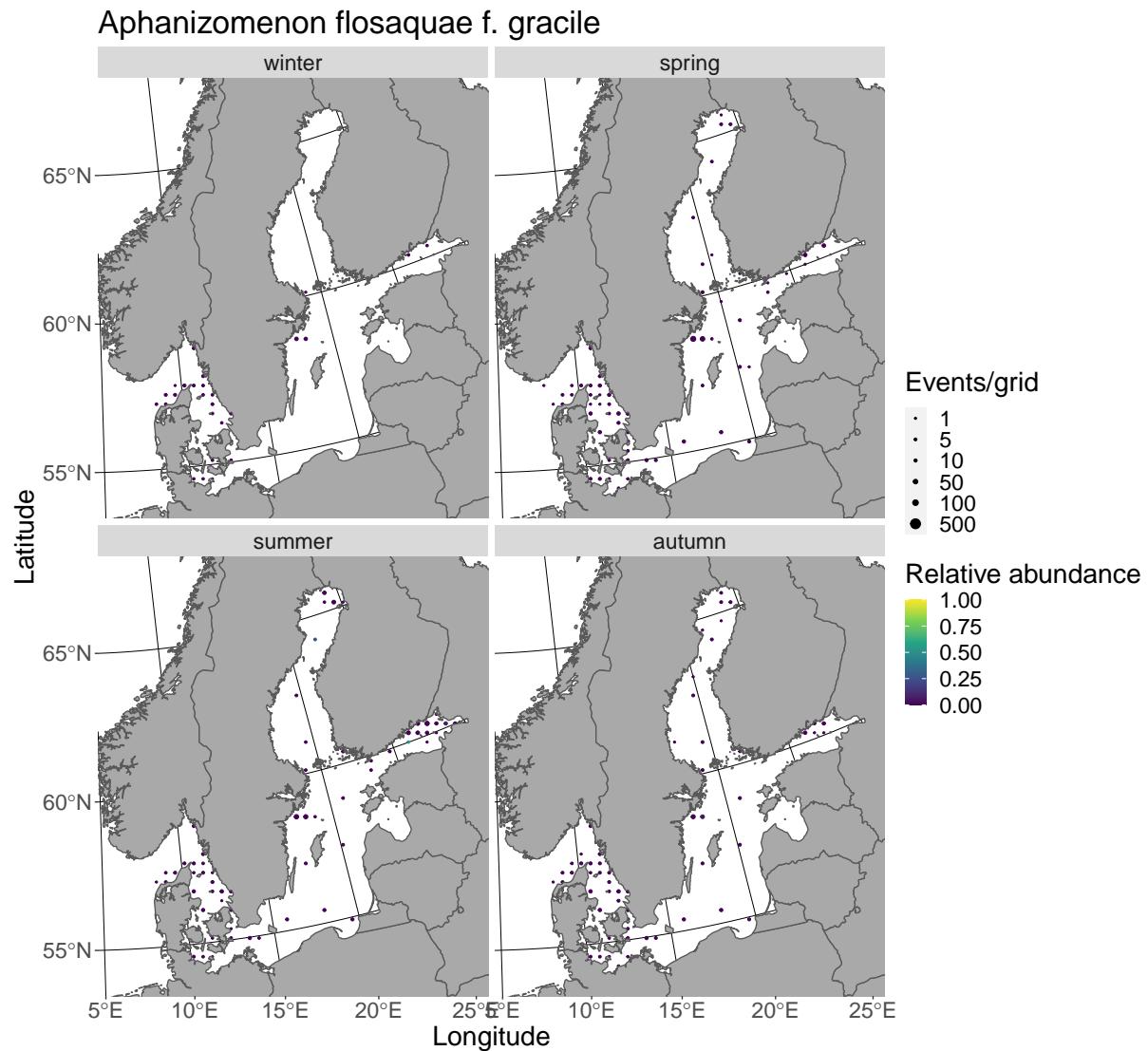


Distribution map: presence/absence points with relative abundance of species (as color)

Aphanizomenon flos-aquae f. gracile



Distribution map: presence/absence points with relative abundance of species (as color) per season



Reproducibility

```
# Date time
Sys.time()

## [1] "2020-09-30 08:31:18 CEST"

# Here we store the session info for this script
sessioninfo::session_info()

## - Session info -----
##   setting   value
##   version   R version 4.0.2 (2020-06-22)
##   os        Windows 10 x64
##   system    x86_64, mingw32
##   ui        RTerm
##   language  (EN)
##   collate   Swedish_Sweden.1252
##   ctype     Swedish_Sweden.1252
##   tz        Europe/Berlin
##   date     2020-09-30
##
## - Packages -----
##   package * version date      lib source
##   assertthat 0.2.1  2019-03-21 [1] CRAN (R 4.0.2)
##   backports  1.1.10 2020-09-15 [1] CRAN (R 4.0.2)
```

```
## blob          1.2.1  2020-01-20 [1] CRAN (R 4.0.2)
## broom         0.7.0  2020-07-09 [1] CRAN (R 4.0.2)
## cellranger    1.1.0  2016-07-27 [1] CRAN (R 4.0.2)
## class          7.3-17 2020-04-26 [1] CRAN (R 4.0.2)
## classInt      0.4-3   2020-04-07 [1] CRAN (R 4.0.2)
## cli            2.0.2   2020-02-28 [1] CRAN (R 4.0.2)
## colorspace    1.4-1   2019-03-18 [1] CRAN (R 4.0.2)
## crayon         1.3.4   2017-09-16 [1] CRAN (R 4.0.2)
## DBI            1.1.0   2019-12-15 [1] CRAN (R 4.0.2)
## dbplyr         1.4.4   2020-05-27 [1] CRAN (R 4.0.2)
## digest          0.6.25  2020-02-23 [1] CRAN (R 4.0.2)
## dplyr          * 1.0.2   2020-08-18 [1] CRAN (R 4.0.2)
## e1071          1.7-3   2019-11-26 [1] CRAN (R 4.0.2)
## ellipsis        0.3.1   2020-05-15 [1] CRAN (R 4.0.2)
## evaluate       0.14    2019-05-28 [1] CRAN (R 4.0.2)
## fansi           0.4.1   2020-01-08 [1] CRAN (R 4.0.2)
## farver          2.0.3   2020-01-16 [1] CRAN (R 4.0.2)
##forcats         * 0.5.0   2020-03-01 [1] CRAN (R 4.0.2)
## fs              1.5.0   2020-07-31 [1] CRAN (R 4.0.2)
## generics        0.0.2   2018-11-29 [1] CRAN (R 4.0.2)
## ggplot2         * 3.3.2   2020-06-19 [1] CRAN (R 4.0.2)
## glue             1.4.2   2020-08-27 [1] CRAN (R 4.0.2)
## gtable           0.3.0   2019-03-25 [1] CRAN (R 4.0.2)
## haven            2.3.1   2020-06-01 [1] CRAN (R 4.0.2)
## hms              0.5.3   2020-01-08 [1] CRAN (R 4.0.2)
## htmltools        0.5.0   2020-06-16 [1] CRAN (R 4.0.2)
## httr              1.4.2   2020-07-20 [1] CRAN (R 4.0.2)
## jsonlite         1.7.1   2020-09-07 [1] CRAN (R 4.0.2)
## KernSmooth      2.23-17  2020-04-26 [1] CRAN (R 4.0.2)
## knitr             1.30    2020-09-22 [1] CRAN (R 4.0.2)
## labeling          0.3     2014-08-23 [1] CRAN (R 4.0.0)
## lattice           0.20-41  2020-04-02 [1] CRAN (R 4.0.2)
## lifecycle        0.2.0   2020-03-06 [1] CRAN (R 4.0.2)
## lubridate         1.7.9   2020-06-08 [1] CRAN (R 4.0.2)
## magrittr          1.5     2014-11-22 [1] CRAN (R 4.0.2)
## modelr            0.1.8   2020-05-19 [1] CRAN (R 4.0.2)
## munsell           0.5.0   2018-06-12 [1] CRAN (R 4.0.2)
## pillar             1.4.6   2020-07-10 [1] CRAN (R 4.0.2)
## pkgconfig         2.0.3   2019-09-22 [1] CRAN (R 4.0.2)
## purrr             * 0.3.4   2020-04-17 [1] CRAN (R 4.0.2)
## R6                 2.4.1   2019-11-12 [1] CRAN (R 4.0.2)
## Rcpp               1.0.5   2020-07-06 [1] CRAN (R 4.0.2)
## readr              * 1.3.1   2018-12-21 [1] CRAN (R 4.0.2)
## readxl             1.3.1   2019-03-13 [1] CRAN (R 4.0.2)
## reprex             0.3.0   2019-05-16 [1] CRAN (R 4.0.2)
## rgeos              * 0.5-5   2020-09-07 [1] CRAN (R 4.0.2)
## rlang              0.4.7   2020-07-09 [1] CRAN (R 4.0.2)
## rmarkdown           2.3     2020-06-18 [1] CRAN (R 4.0.2)
## rstudioapi         0.11    2020-02-07 [1] CRAN (R 4.0.2)
## rvest              0.3.6   2020-07-25 [1] CRAN (R 4.0.2)
## rworldxtra        * 1.01    2012-10-03 [1] CRAN (R 4.0.2)
## scales             1.1.1   2020-05-11 [1] CRAN (R 4.0.2)
## sessioninfo        1.1.1   2018-11-05 [1] CRAN (R 4.0.2)
## sf                  0.9-6   2020-09-13 [1] CRAN (R 4.0.2)
## sp                  * 1.4-2   2020-05-20 [1] CRAN (R 4.0.2)
## stringi            1.5.3   2020-09-09 [1] CRAN (R 4.0.2)
## stringr             * 1.4.0   2019-02-10 [1] CRAN (R 4.0.2)
## tibble              * 3.0.3   2020-07-10 [1] CRAN (R 4.0.2)
## tidyverse            * 1.1.2   2020-08-27 [1] CRAN (R 4.0.2)
## tidyselect           1.1.0   2020-05-11 [1] CRAN (R 4.0.2)
## tidyverse            * 1.3.0   2019-11-21 [1] CRAN (R 4.0.2)
## units                0.6-7   2020-06-13 [1] CRAN (R 4.0.2)
## vctrs                0.3.4   2020-08-29 [1] CRAN (R 4.0.2)
## viridisLite         0.3.0   2018-02-01 [1] CRAN (R 4.0.2)
## withr                2.3.0   2020-09-22 [1] CRAN (R 4.0.2)
## xfun                  0.17   2020-09-09 [1] CRAN (R 4.0.2)
```

```
## xml2           1.3.2   2020-04-23 [1] CRAN (R 4.0.2)
## yaml          2.2.1    2020-02-01 [1] CRAN (R 4.0.2)
##
## [1] C:/__R/R-4.0.2/library
```