risa: Basic functions

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The *risa* package

The *risa* package, which stands for RISk Assessment, was designed to automate the applycation of the Habitat Risk Assessment (HRA) model, which is part of the InVEST (Integrated Valuation of Ecosystem Services and Tradeoffs) toolkit developed by the Natural Capital Project (Arkema et al., 2014; Sharp et al., 2020).

There are a entire suite of functions that were projected to automate the steps to apply the ByRA (Bycatch Risk Assessment) toolkit (Wilhelm et al., 2022). ByRA uses HRA methodology to quantify the spatial overlap between fisheries and marine megafauna and has been applied to assess bycatch risk for marine mammals.

Specifically, *risa* automates the generation of Kernel Density Maps of species occurrences and stressor intensities from either data frames or shapefiles, the creation of overlap hotspot maps, and the execution of the full HRA model for one or multiple species and stressors. Users can select among multiplicative and Euclidean formulations of risk, apply optional decay functions to account for stressor influence buffers, and generate detailed summary statistics. In addition, risa provides flexibility to customize model settings, including the number of risk classes, buffer sizes for kernel density estimates and stressor zones, and the choice of coordinate system (metric or decimal).

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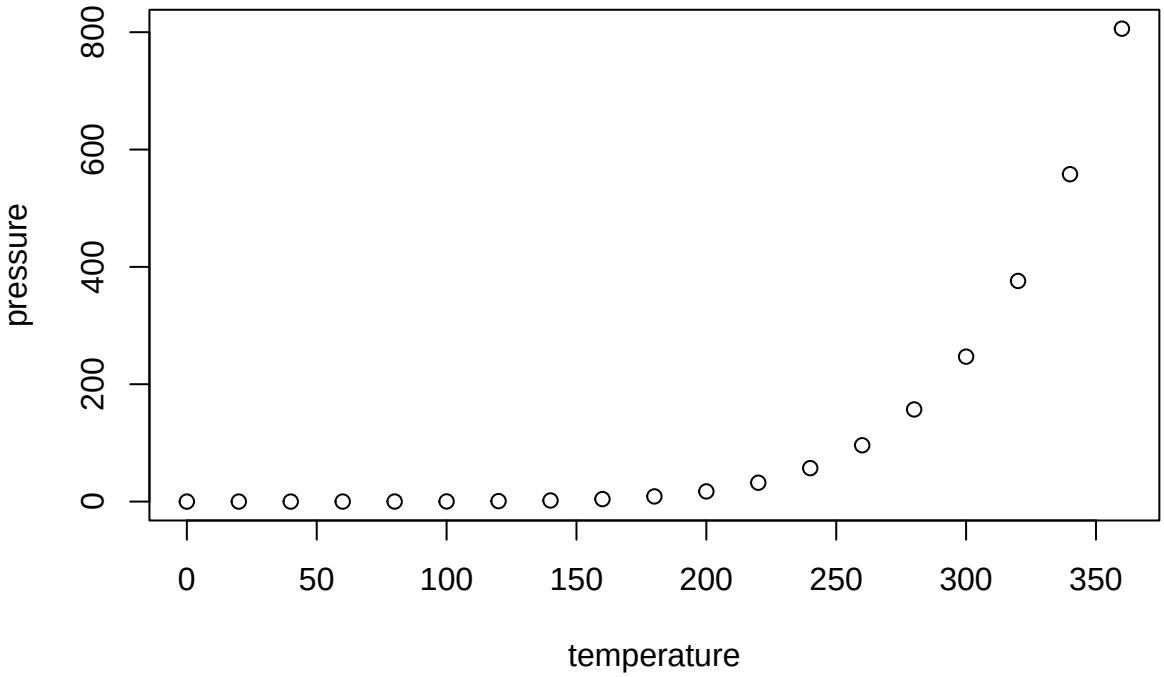
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed           dist
##  Min.   : 4.0   Min.   :  2.00
##  1st Qu.:12.0   1st Qu.: 26.00
##  Median :15.0   Median : 36.00
##  Mean   :15.4   Mean   : 42.98
##  3rd Qu.:19.0   3rd Qu.: 56.00
##  Max.   :25.0   Max.   :120.00
```

Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.