**Purpose:** This is used to make all the plots that we use for our survey summary, it calls on an array of functions, flat files, and produces a lot of both as well.. It is massive and has tentacles than would make a giant squid jealous

**Version Control:** This is the version for Survey Summary, it gets updated annually.

Required packages: PBSmapping, RColorBrewer, chron, splancs ,fields, RPMG, spatstat, gstat,survey

**Locally Derived Functions**

**area**: Choose area corresponding to list in function or 'custom' where xlim & ylim are user specified

I have divided the ScallopMap function into discrete “Sections” it might be over the top but something like this will really help with clarity of function/troubleshooting/edited/ revisions…

**Section 1**

Within this section the offshore and onshore areas are deliminated for the plot.

***Argument(s)***

* **Area**: Area is used to define the region we are interested in plotting, it defines ylim and xlim for the plot. The units appear to be latitude and longitude using decimal degree notation.
  1. Custom: define the plot area of interest. When custom you have to specify ylim and xlim in the call to the function.
  2. Predefined co-ordinates used to bound the plot area, do not use ylim or xlim in your function call if using these pre-defined regions. Various areas are also included here, at time of writing these included:

*Offshore*

* + SS, ESS, WSS, BBn, BBs, BB, GB, GBb, Ger, Sab, SPB

*Inshore*

* + sfa29, gm, inshore, bof, upper, mid, spa3, spa4, spa1,spa6

*Note that these options differ in different versions of Scallop.Map!*

* **Shore:** This is used to define the shore line boundaries for the plot. There are 4 possibilities currently

**Section 2**

Here the plot call is made and some basic plotting is performed. PBS mapping functions plotMap and addPolys are first used here.

***Argument(s)***

* **xlab, ylab**: If specified user defined x and y axis labels are added to the plot. If not specified plotMap default labels are used.

**Section 3**

Here we are bringing in the bathymetry for the plots, there are 4 options to choose from here, see **bathy.source** for details.

***Functions (Excludes several basic r functions)***

* **Get.bathy:** Function created in house used to import bathymetric data from a DFO SQL database.
* **makeTopography:** Converts a data frame with 3 fields to a list object with vectors x and y and an outer product matrix z, ready for use by the functions contour or contourLines.
* **contourLines:** Calculates contour lines for a given set of data, need x,y,z data, lists work well.
* **convCP:** Convert output from contourLines into a PolySet (i.e. polygons for use in addLines function among others).
* **AddLines:** Adds polylines to already created map. Must be a PolySet (see PBSmapping).

**Section 4**

Here we are adding NAFO region, banks, inshore/offshore regions, gridlines, the points.lst and lines1st as specified in the function call.

***Argument(s)***

* **nafo**: Data from (…/Maps/data/nafo.csv). Plots 'all' or specified NAFO areas “Null” is default which plots nothing. There are currently 42 possible NAFO areas to choose from (any combination of the 42 is acceptable):
  + 4VN 4VS 4VSB 4VSC 4VSE 4VSV 4W 4WD 4WE 4WF 4WG 4WH 4WJ 4WK 4WL 4WM 4W 4X 4XL 4XM 4XN 4XO 4XP 4XQ 4XR 4XS 4XX 5Y 5YB 5YC 5YD 5YE 5YF 5ZC 5ZE 5ZEG 5ZEH 5ZEJ 5ZEM 5ZEN 5ZEO 5ZWQ

**Function Index**

!is.null:

addLabels

addLines

addPoints

addPolys

addStipples

attr

browser

calcCentroid

ceiling

contourLines

convCP

duplicated

for

function

If

Image

joinPolys

length

lines

makeGrid

makeTopography

merge

missing

names

na.omit

paste

plotMap

polygon

read.csv

read.table

rep

require

seq

stop

subset

unique