Project data handling – F-POD data

The scheme below aims to avoid problems, errors, and data losses that have occurred in real projects.

Data Manager

A named Data Manager is required to:

1. Provide a basic check on all FP1 files submitted (into New FP1 files) to verify:
   - The files is large enough to hold useful data.
   - The times are plausible.
   - File is correctly named. Rename if necessary.
   - View the whole file to show angles, temperature and frequency distribution is plausible.
2. Then crop the FP1 file and place the cropped FP1 in the UsefulFiles directory.
3. Process the cropped FP1 files.
4. Copy the cropped FP1 files and FP3 files to any archival repository in use.
5. Check F-POD settings by exporting these from all FP3 files to a spreadsheet
6. Check file error risks by exporting these from all FP3 files to a spreadsheet
7. Maintain a list of sites – position, owner, history, and sitecodes – short names for sites that are embedded in the file and are useful for data export in place of the long file names.
8. Maintain a record of the default filter settings used by KERNO-F and in exporting data. The F-POD app can create a short text file of these filters.

Directories

New FP1 files

Temporary subdirectory for SD card contents if submitted. These should be deleted once the issues have been cleared.

UsefulFiles

Holds only cropped FP1 and FP3 files (and associated .fm1 and .fm3 files). Place all such files in the project in this one directory.

Docs

For everything else including reports, screengrabs, spreadsheets, comment files etc. Can have any subdirectories.

File naming.

Names should have the largest location identifier first, then successively smaller identifiers, e.g.

'*U KinburnA 2020 09 12 FPOD_6278 series1 file0*.FP1'

U = Ukraine

Kinburn = the main location

A designates one of potentially several sites at Kinburn. If a site is moved, within the named location, by more than 200m it should be given a new letter.

The rest of the name is given by the FPOD app and should not be modified.

With these names a file list can be sorted alphabetically and will appear sorted by location and then by date.

File cropping.

Files will often have data at each end that is not useful data – the POD may have been out of the water or the noise of the vessel that serviced it may be present in the record.

So files should be cropped to just the 'good' data. This is done in the FPOD app by setting a time selection and then clicking   the file name will then be:

'*U KinburnA 2020 09 12 FPOD_6278 series1 file0 PART 70d 22h 16m.FP1*'

This file is the source of all data that will be used in subsequent analysis. However, picking the cropping point is somewhat subjective so this should only be done once and the file produced will then be the definitive data file.

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File processing.

This will use the standard settings, unless a decision has been made to switch to some non-standard settings. In any event a record of the decision is required.

Read SD	Files	Filters +files	Display	Trains	Settings	Navigation	About	Export	Results	Analysis

CLICK TRAIN DETECTION   ... see instructional PowerPoints on www.chelonia.co.uk/downloads

FP3 files are created here from FP1 files and contain only those clicks that are in trains.

☐ skip if FP3 file exists   ☐ search directories

☐ No dolphins   ☐ No NBHF   ☐ No sonars

Detect click trains in FP1 files - runs KERNO-F classifier

CP1 files must be processed to CP3 files using CPOD.exe version 2.044 or later

<<< if you do have a cetacean clicking at <25kHz you can change that setting. Mostly best to keep the defaults!

NBHF definition settings:	defaults
NBHF clicks, "target' kHz	120
NBHF lower range	18
NBHF upper range	15
NBHF clicks, peak at cycle number:	4
NBHF clicks, "target' N of cycles	8

A classification warning can be seen in the FP3 file if the target is not set to120kHz

Advanced KERNO-F settings

			Limit clicks/m to	0	
Duration N of cycles >	0		Force mins OFF	0	
Amplitude >	10		Sensitivity level	0	
No cetaceans at	<	25	kHz		
Exclude frequencies	0	to 18	kHz	Click rate good >	0
Include only frequencies	22	to 221	kHz	NBHF boost	1
WUTS amplitude max	180	WUTS cluster max 3			

Save current train classifier settings to a .fpt file

Load saved train classifier settings from a .fpt file

Data analysis.

There are many filters that can be applied to the data in the FP3 files, so this requires similar documentation in a 'Data analysis settings' document. Here's the relevant screengrab:

Also an '.fpf' file that lists the settings should be saved.

The data could be used to determine trends in population, seasonal and diel patterns of habitat use and more detailed studies of behaviour, social communication etc.

Documentation

Work needed on the naming, storage and sharing of key documentation of project.

Analysis for trends

Analysis for seasonality

References

Reporting

Incidental findings

Engagement

Site assessment

Site exclusion criteria

Noise assessment

Noise in analysis

Feedback on this document

Please send comments, questions, advice, requests etc to nick.tregenza@chelonia.co.uk / Joe.Dennett@chelonia.co.uk

Errors

In large projects errors can arise from:

Inconsistent site naming. …. this can later produce :

Renaming of files resulting in duplication. For original FP1 files sorting these by size and looking for files with the same size is very useful (and easy if they are in one folder).

File time errors – if some instrument clocks are on UTC (the default) and some have been set to local time. Local time, ideally without summertime adjustment, is what is needed in analysing data.

No designated definitive data set …. so resolving discrepancies can become a circular process!

Differing classifier settings or versions. The classifier warnings list for each file includes the classifier settings and can be exported from the whole definitive list (if in one folder). The filter settings when results are exported are not stored within the file.

Feedback

Please send comments, questions, advice, requests etc to nick.tregenza@chelonia.co.uk