# 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.

--0000000000-0-0000000000--

# File processing.

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

Read SD Files	Filter	rs +files I	Display	Trains	Set	ttings	Navigation	Ab	out	Export	Results	Analysis
<b>CLICK TRAIN DETECTION</b> 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.												
Image: skip if FP3 file exists       Image: search directories         Image: No dolphins       Image: No NBHF         Image: No dolphins       Image: No NBHF					proc files	files must be essed to CP3 using CPOD.e. ion 2.044 or lat		NBHF definition settings: NBHF clicks, "target' kHz NBHF lower range			defaults 120 18	
Detect click trains in FP1 files - runs KERNO-F classifier									NBHF upper range15NBHF clicks, peak at cycle number:4NBHF clicks, "target' N of cycles8			
Advanced KERNO-F settings     Limit clicks/m to 0       Duration N of cycles > 0     Force mins OFF     0					cetac <25kł	<<< if you do have a cetacean clicking at <25kHz you can change			A classification warning can be seen in the FP3 file if the target is not set to120kHz			
Amplitude > No cetaceans at <	10 25	Sensitivity level 0 kHz					etting. Mostly b p the defaults!	est				
Exclude frequencies Include only frequencies	0	to18kHzClick rate good > 0to221kHzNBHF boost1WUTS cluster max3				Save current train classifier settings to a .fpt file						
WUTS amplitude max	180					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:

fit whole time range on screen         Parameters:         f6         Train Q class         r5         Train Species class         r3         Train Q class         r4         Clicks/sec         F8         rain Q class         rain Species class         r1         Frequency         F9	MinMaxmedian kHz0255N clicks in train59999Mean amplitude19999Mean N of cycles*0255Clicks/s from 1to 2500exclude from 2500to 2500	av Bandwidth* av Peak Position* exclude kHz: WUTS risk* Click rate confide	255 to 255 0 7	kHz exc clic am NH <i>IPI</i>	Min         Max           z:         0         255           clude kHz         255         to 255           ck cycles:         0         255           plitude         1         999           BF index*         0         32           re expon         27         36           filter C/FP1 for FISH tags         51	Minute filters F-POD         exclude minutes with:         boat sonar:         WUTS risk         continuous noise         threshold 10       to 255         No Hi or Mod trains         angle < 0         marked minutes         annotation n <> 0		<<< clear all blue filters <<< save .fpf	
Set all to match first save current as A restore A	* F-POD only		^^	Clear all click filters	Do not fi	ilter File 1	load .fpf		
save current as B restore B waveform + spectrum ignore all filters (F4)	Files: View metadata and class	s <b>ifier warnings</b> : from	File exports/proc		File changes:	Delete file set Append Files	Change start time Add m to start 1		
Train filters:	Classification Warnings		List file times	etc.	<b>refresh maps</b>	Rename file set	Add yr to start 1		
marked trains included more	Operational settings Waveform capture settings	◯ open C files	Mark selected to	rains	' in front of date	Rename 1 file	U skip		
high sp confidence only	Instrument properties	other F files	Clear marks 1file	batch	🗌 raw data + name	Crop sync	Verify File 1 16000		
Quality 'Q'	<ul> <li>◯ File notes</li> <li>◯ Acoustic Release settings</li> </ul>		Create 'edit' co	pies	Validation Find 100 sampling	Auto crop 30 Show SP points 🔽 put sampling times			
Mod ?/echo	Put list on the Clipboa	ard	errors: 🗌 report 🚦	hide 🖌	Set validation sampling points				
Species:       NBHF       Sonar       unclassed	Show classification warnings for File:	01 02 (	3 04 05 (	6					
Species: Encounter classifier refresh						•			
unclassed	4				Þ				

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 <u>nick.tregenza@chelonia.co.uk</u> / <u>Joe.Dennett@chelonia.co.uk</u>

#### 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