# List of Changes in TWD version 1.3

2023-05-04

Major and minor changes are listed below.

Note that there have been no changes to any of the calculations. While there are some changes in language that could affect output, results produced with TWD version 1.3 should otherwise remain consistent with previous versions.

## Major changes

These include new features or changes that affect how to use TWD. **Note that some of them may break backwards-compatibility with previous versions** – those that do are highlighted in yellow.

* The program folder has been reorganized
  + All supplementary scripts except for “TWDPathTool” have been moved to a separate “Supplementary\_Scripts” folder
  + The BWD and SWD module folders have been renamed such that they are preceded by an underscore (to keep them together and make them easier to find in file explorers), and redundant version information has been removed.
  + All documentation has been moved to a “Documentation” folder under the root TWD folder. Documentation for previous versions has been moved to a “Legacy\_Documentation” subfolder within this one.
* The term “Beaked” has been replaced by “Target” for all elements that are applicable to both BWD and SWD
  + This includes the “MinNumBeaked” and “MinPercentBeaked” criteria within *EventDetParams.xlsx* spreadsheets. All detection protocols that are included with TWD have already been modified to reflect this change, but any user-defined protocols will need to be edited as well.
  + A new supplementary script has been added to facilitate this change for *EventDetParams.xlsx* files, should it be required. The script name is “updateEventDetParams\_Beaked2Target”.
* When validating events, the click currently being viewed is now highlighted slightly on the concatenated spectrogram plot
* Added two options to make it possible to jump to arbitrary clicks during the validation process:
  + Option 1: use command “j” to jump to a click by typing out its relative click number
  + Option 2: use command “jc” to jump to a click by selecting one from the concatenated spectrogram plot. While this option is active, a red bar will follow the mouse cursor as it hovers over the concatenated spectrogram plot, indicating the click that will be selected if the mouse button is pressed. Note that it may take a few moments for the bar to appear on the plot.
* Added the ability to sort clicks by chronological order when validating events
  + The “o” option will now cycle between “peak-to-peak”, “peak frequency”, and “chronological”
  + Furthermore, to accompany this change, reordering clicks will no longer reset the click number and step direction automatically (a manual reset is still possible with the “r” option)
* BWD: code “Me” has been changed to “MmMe”
  + Note that this affects the output of the “createPresenceTable” script
* BWD: added protocol “GeneralWithDiscriminators”
* SWD: now supports more than one detection protocol
* SWD: added support for Fs = 256000 Hz
* SWD: ensured that code does not continue running if audio files have unsupported sampling rate (this was not the case before)
* Overhauled the system for setting bandpass filter cutoff frequencies in both BWD and SWD.
  + Filter cutoffs used to be hardcoded in the BWD/SWD routine for specific sampling rates, which means that only a pre-determined set of sampling rates was supported, and the only way to add support for new rates was to edit the code
  + This has been changed so that bandpass filter parameters are now contained within MAT files called *BandpassFilterParams.mat* instead of the code itself
  + Filter parameters still need to be specified for every possible sampling rate, but there is now a dedicated script for doing this: *editFilterParams.m*
  + The script runs a GUI tool that one can use to edit filter parameters, add new sampling rates, and view the performance of the filters that will be created using these parameters. Any changes made and saved using the script will update the MAT files automatically (do not edit the MAT files directly)

## Minor changes

These include cosmetic or back-end modifications that do not significantly affect how end-users normally interact with TWD.

* Changed the order in which some parameters must be specified in Master scripts
* Edited supplementary scripts to standardize their format and make them a bit more similar to the Master scripts. The areas where users need to specify parameters should now be even more clearly separated from the functional code.
* Patched the MAT file splitting code to ensure that the program does not crash when the number of Triton or CABLE click detections is exactly equal to the max number of clicks permitted in a MAT file
* The utility source code functions “getFileNames” and “getSubDirs” have been replaced with a single new, more versatile and more efficient function called “listFiles”. All code in TWD that is affected by this change has been updated.
  + For those who used “getFileNames” directly, note that “listFiles” returns the same two output parameters as “getFileNames”, but their order are reversed
* Small changes to language used in Command Window or GUI window messages
* Partial source code cleanup (deleted old files, removed or renamed certain variables, edited comments, etc.)