

Dataset of Lake Fish Telemetry Publications, 1970-2024

The LakeFishTelemetry dataset consists of selected extracted information from lake fish telemetry publications, using acoustic and radio telemetry technologies. Publications were searched using Web of Science in 2020 for period 1970-2019 and in 2024 for newer publications (2020-August 1, 2024). The data were extracted by a team of researchers with sound experience in fish telemetry. The original purpose of the extraction was to define time trends in various parameters of lake fish telemetry studies.

This dataset includes information such as publication metadata (e.g., title, journal, year), study aims, research site (e.g., lake size and depth), study species (e.g., number of species studied, scientific name, size), fish handling (e.g., field methods such as capture method and anaesthetics used), tracking system (e.g., number of receivers, tag dimensions), study duration (e.g., total number of tracking days), and data processing (e.g., analyses used). See the full list of extracted information below.

Each publication has publication-specific ID. Some publications have multiple rows of data as some of them were performed in multiple waterbodies and/or on multiple species. Thus, waterbody- and species-specific studies are separated. In total, the original dataset covering publications from the period of 1970-2024 contains 529 publications, 781 studies and 50,152 entries. NA stands for not available information. Empty field means information cannot be specified (e.g., mean fish length given across all waterbodies, i.e. per publication and not per study, in such case, information was recorded just once).

The dataset consists of following files:

- 1) LakeFishTelemetry_ReadMe.pdf – dataset information
- 2) LakeFishTelemetry_Dataset.csv – main dataset with extracted information
- 3) LakeFishTelemetry_ExtractionTemplate.csv – extraction template that can be used in further extraction efforts
- 4) LakeFishTelemetry_ExtractionValues.csv – values of optional entries used in extraction template
- 5) LakeFishTelemetry_ExtractionExamples.csv – examples of extracted publications
- 6) LakeFishTelemetry_GuidelinesExtraction.pdf – instructions to extractions

This dataset should be cited as: Prchalová, M., Jarić, I., Říha, M., Tsering, L., Piczak, M. L., Robichaud, J. A., Haley, A. L., Aarestrup, K., Baktoft, H., Bertram, M. G., Birnie-Gauvin, K., Brand, J. A., Brignone, S., Brodin, T., Brooks, J. L., Campos-Candela, A., Dhellemmes, F., Duda, A., Elings, J., ... Souza, A. T. (2025). Dataset of Lake Fish Telemetry Publications, 1970-2024 (No. 10.5281/zenodo.17397187; Version 1.0) [Dataset]. Zenodo. <https://doi.org/10.5281/zenodo.17397187>

Categories and queries extracted in LakeFishTelemetry dataset

Here is the list of nine categories totalling 70 queries of extracted information.

Categories extracted:

1. Basic bibliometrics (12 queries)
2. Research questions (2 queries)
3. Research site (10 queries)
4. Studied species (14 queries)
5. Fish handling (4 queries)
6. Tracking system (10 queries)
7. Study duration (3 queries)
8. Data obtained (5 queries)
9. Data processing (6 queries)

1. Basic bibliometrics data

1.1. Year of publication

1.2. Author

1.3. Title

1.4. Journal Name

1.5. Type of article (one selection option)

- a) peer-reviewed article
- b) conference proceeding
- c) not sure
- d) other (specify)
- e) NA

1.6. Number of authors (number)

1.7. The first affiliation of the first author (without department); if multiple affiliations are provided, use the first affiliation.

1.8. International authorship (one selection option)

yes/no

1.9. Country of the first affiliation of the first author (one selection option, select from the drop-down menu)

1.10. Country of the first affiliation of the corresponding author (one selection option, select from the drop-down menu)

1.11. Country of the first affiliation of the last author (one selection option, select from the drop-down menu)

1.12. Country of affiliations of all authors not mentioned in previous fields (multiple choice question, multiple responses allowed, select from the drop-down menu)

2. Research questions

2.1. Study aims (multiple choice question, multiple responses allowed)

- a) home range
- b) habitat preference
- c) reproduction behaviour
- d) parasitism / diseases
- e) predation / cannibalism / foraging
- f) intraspecific competition
- g) interspecific competition
- h) individual variability / personality
- i) seasonal changes
- j) reaction to abiotic environmental cues
- k) reaction to stressors
- l) other (specify)
- m) not sure
- n) NA

2.2. If 'reaction to stressors' was selected in the previous field, list stressors studied (multiple choice question, multiple responses allowed)

- a) chemical pollution
- b) fishery management
- c) artificial light stress
- d) alien species
- e) water flow management
- f) temperature stress
- g) climate change
- h) translocation to a new environment
- i) other (specify)
- j) not sure
- k) NA

3. Research site

(multiple choice selection & one selection options)

3.1. Type of the research of the main studied lentic environment (if more lakes, use a new row for a new lake and copy relevant fields from the original row) (one selection option)

- a) natural (lake, wetland, lagoon, etc.)

b) man-made (lake, reservoir, pit, pond, etc.)

3.2. Research site also included one or more other waterbodies
yes/no

3.3. Type of other studied waterbodies (if positively responded to previous question) (multiple responses allowed)

a) natural lentic (lake, wetland, lagoon, etc.)

b) man made lentic (lake, reservoir, pit, pond, etc.)

c) lotic

d) marine

e) brackish

f) not sure

g) NA

3.4. Name of the waterbody (separate multiple names by semicolon without space/-s)

3.5. Size of the waterbody (surface area, ha; number)

3.6. Maximum depth of the waterbody (m; number)

3.7. Latitude of the main waterbody (main waterbody area midpoint if not provided) (in coordinate decimal degree format and in WGS84 coordinate system)

3.8. Longitude of the main waterbody (main waterbody area midpoint if not provided) (in coordinate decimal degree format and in WGS84 coordinate system)

3.9. Country (countries for transboundary waterbodies) (multiple responses allowed, select from the drop-down menu)

3.10. Continent (select from the drop-down menu)

4. Studied species

4.1. Number of species tracked in the study (integer); just the number of species really tracked and used for result analyses, not originally considered/caught/tagged in the beginning of the study

4.2. Species scientific name (check the validity of the name at [FishBase](#); if more species, use a new row for a new species and copy relevant entries from the original row)

4.3. Number of individuals tagged (number; the total number of fish that were tagged per study)

4.4. Mean / median body weight (g, number)

4.5. Minimal body weight (g, number)

4.6. Maximal body weight (g, number)

4.7. Type of the length measurement (one selection option)

- a) total length (TL)
- b) fork length (FL)
- c) standard length (SL)
- d) eye-to-fork length (EFL)
- e) not sure
- f) NA

4.8. Mean / median length (mm, number)

4.9. Minimum length (mm, number)

4.10. Maximum length (mm, number)

4.11. Age identified in the study (one selection option)

yes/no/NA

4.12. Sex identified in the study (one selection option)

yes/no/NA

4.13. Life stage of tracked fish (multiple choice question, multiple responses allowed)

- a) juveniles
- b) adults
- c) both
- d) not sure
- e) NA

4.14. Tracked fish originated from the studied waterbody (one selection option)

yes / no / not sure / NA

5. Fish handling upon capture and tagging

5.1. Fish capture methods (multiple choice question, multiple responses allowed)

- a) nets

- b) hooks
- c) electrofishing
- d) traps
- e) hatchery
- f) other (specify)
- g) not sure
- h) NA

5.2. Anesthetic used (chemical name; text string)

5.3. Surgical procedure type (multiple responses allowed) If the tag is **external**, please, state it using other(specify) option

- a) sewing
- b) gluing
- c) external attachment
- d) gastric insertion
- e) staples
- f) injection
- g) other (specify)
- h) not sure
- i) NA

5.4. Tagging season (multiple responses allowed)

- a) summer
- b) spring
- c) autumn
- d) winter

6. Tracking system

6.1. Tracking system type, method (multiple choice question, multiple responses allowed)

- a) active (manual positioning/defining detections)
- b) passive (automatic) - detections (presence)
- c) passive (automatic) - positional system
- d) other (specify)
- e) not sure
- f) NA

6.2. Tracking system type, technology (multiple choice question, multiple responses allowed)

- a) radio
- b) acoustic

- c) both
- d) combined
- e) other (specify)
- f) not sure
- g) NA

6.3. System frequency (kHz; integer or range of integers)

6.4. Producer of the system (multiple responses allowed)

- a) Lotek (Biotrack)
- b) Innovasea (Vemco, HTI)
- c) Sonotronics
- d) Thelma Biotel
- e) Vemco
- f) SMRU Instrumentation
- g) Holohil Systems Ltd.
- h) ATS
- i) Biemark
- j) HTI
- k) CEFAS technology
- l) Star-Oddi
- m) Wildlife Computers
- n) Trovan
- o) Oregon RFID
- p) Technosmart
- q) Microwave Telemetry
- r) other (specify)
- s) not sure
- t) NA

6.5. Tag length (mm, number; multiple responses allowed, separate by semicolon without space/-s)

6.6. Tag diameter (mm, number; multiple responses allowed, separate by semicolon without space/-s)

6.7. Tag weight medium (one selection option)

- a) air
- b) water
- c) other (specify)
- d) not sure
- e) NA

6.8 Tag weight (g, number)

6.9. Total number of receivers used (integer)

6.10. Additional tag sensors (multiple choice question, multiple responses allowed)

- a) depth
- b) temperature
- c) acceleration
- d) mortality
- e) muscle electrical activity
- f) brain electrical activity
- g) no
- h) other (specify)
- i) not sure
- j) NA

7. Study duration

(only period relevant for result analyses; if it is not possible, use the duration available and if nothing is available, use NA)

7.1. Start of telemetry tracking (YYYY)

7.2. End of telemetry tracking (YYYY)

7.3. Total duration of the tracking (days; integer)

8. Data obtained

(only period relevant for result analyses)

8.1. Studied spatial dimensions (one selection option)

- a) vertical (1D)
- b) horizontal (2D)
- c) 3D
- d) other (specify)
- e) not sure
- f) NA

8.2. Total number of obtained detections (number) per species if applicable

8.3. Total number of obtained positions (number) per species if applicable

8.4. Proportion (%) of individuals surviving until the end of tracking [per species if applicable](#)

8.5. Telemetry data available after publication [\(one selection option\)](#)

- a) no
- b) yes, as supplementary material
- c) yes, in online repository
- d) other (specify)
- e) not sure
- f) NA

9. Data processing

9.1. Software used for detection handling [\(multiple choice question, multiple responses allowed\)](#)

- a) software provided by manufacturer of the telemetry equipment
- b) paid services
- c) publicly available tool
- d) proprietary algorithms
- e) manual detection
- f) R
- g) other (specify)
- h) not sure
- i) NA

9.2. Software used for position calculation [\(multiple choice question, multiple responses allowed\)](#)

- a) software provided by manufacturer of the telemetry equipment
- b) paid services
- c) publicly available tool
- d) proprietary algorithms
- e) manual positioning
- f) R
- g) other (specify)
- h) not sure
- i) NA

9.3. Analysed telemetry parameters [\(multiple choice question, multiple responses allowed; divide multiple values by semicolon without space/-s\)](#)

- a) home range
- b) swimming speed
- c) swum distance
- d) trajectory characteristics
- e) accelerometer activity characteristics
- f) discrimination of behavioural modes

- g) depth use
- h) temperature use
- i) predation events
- j) specific habitat use (open water, structures, etc.)
- k) heart rate
- l) muscular activity
- m) other (specify)
- n) not sure
- o) NA

9.4. Software used for statistical analyses of telemetry parameters (multiple choice question, multiple responses allowed)

- a) Python
- b) R
- c) SAS
- d) SPSS
- e) Statistica
- f) Julia
- g) MatLab
- h) other (specify)
- i) not sure
- j) NA

9.5. Data analysis tools used (e.g., R packages, Python libraries; list all that are mentioned) (divide multiple values by semicolon without space/-s)

9.6. Statistical methods applied - list all that are used (multiple choice question, multiple responses allowed)

- a) linear model (LM)
- b) hidden Markov model (HMM)
- c) generalized additive model (GAM)
- d) general linear model (GLM)
- e) generalized additive and/or general linear mixed models (GAMM, GLMM)
- f) machine learning (e.g., neural networks, random forest, boosted regression trees)
- g) other(specify)