FACTSHEET: Diadromous fish data collection (SAL-FGRZ)

Version: [v1, 06/04/2023]

Sampling protocol: SAL-FGRZ

Sampling objective(s): data collection for diadromous fish by fykes (DIADROOM, FGRZ, FDIA)

Start of sampling: 1994 (FGRZ), 2001 (DIADROOM), 2012 (FDIA)

Sampling ongoing: yes

Data use

Primary data use:

All programmes provide information for evaluation of the EU Water framework directive and EU Bird and habitat directives. FDIA data is also provided to WGEEL.

- DIADROOM: trend analysis on data from diadromous fish such as river lamprey, twaite shad, allis shad, and houting at the marine side of the Afsluitdijk;
- FGRZ: data from salmonids and other diadromous fish such as twaite shad, allis shad, and houting, is used in evaluations of the trends in salmonids in Dutch rivers;
- FDIA: data from eel and other diadromous fish such as twaite shad, allis shad, and houting, is used in evaluations of the trends in eel migrating out of Dutch water bodies.

Sampling design and method

DIADROOM: The monitoring takes place annually in spring (6 weeks) and in autumn (6 weeks). Six fykes are set in the Wadden Sea near the Kornwerderzand sluiceway (entry to Lake IJssel). Commercial fishers are hired to empty the fykes 2-3 times a week.

FGRZ: The monitoring takes place annually in spring (6 weeks) and in autumn (6 weeks). In the even years, sampling takes place in rivers Maas and Waal, in the odd years in rivers IJssel and Waal. Traditional salmon fykes are placed in shallow water with the opening towards the flow direction. Commercial fishers are hired to empty the fykes daily (Maas) or 2-3 times a week (IJssel, Waal).

FDIA: The monitoring takes place annually in spring (6 weeks) and in autumn (6 weeks). Fykes are set on seven important silver eel migration locations for the Netherlands. Annual monitoring takes place on the locations Den Oever, Maas (Belfeld), Nieuwe waterweg, Noordzeekanaal, Rijn (Lobith), Haringvliet, and Kornwerderzand. Biannially, additional alternating sampling takes place at Haringvliet and Kornwerderzand in December, aiming for river lamprey. Triennially (2024, 2027, etc.) sampling takes place at Waal (Hurwenen/Varik), Lek (Hagestein), IJssel (ter Wolde), and Maas (Lith). On each location a pre-defined number and type of fyke is set. Commercial fishers are hired to empty the fykes at least once a week.

Sampling design is described in more detail in the national survey protocol.

Sampling protocol and data capture

In the field

DIADROOM:

After emptying the net, the fishers register the species, the catch category (sized/undersized), and the number caught of all species, as well as the date and time of emptying and duration since the last time they emptied the fyke. For twaite shad lengths of a representative part of the catch are measured. After registration, the catch is released.

FGRZ, FDIA:

After emptying the net, the fishers register the species, the length per individual of the targeted diadromous species, and the numbers caught of the non-target species, as well as the date and time of emptying and duration since the last time they emptied the fyke. After registration, the catch is released. The registration is done per fyke, or per 'unit' (e.g. a number of fykes put in a row), depending on the fyke type.

Length measurements 'to the 1 cm below' are done using an analogue measuring board, of which the set-off is checked before the start of the sampling. Eel measurements are done using an eel measurement device in which the fish cannot twist. Data is entered on paper, using standardised lists provided by Wageningen Marine Research (WMR).

Data is entered in the database at WMR. Software used for data entry is in-house developed: Billie. A data entry protocol for this sampling is available.

DIADROOM, FDIA: for salmonid species DNA is collected by means of an adipose fin clip. The sample is stored in ethanol.

In the lab
The DNA samples of salmonids are processed by Rijkswaterstaat, the executive agency of the Dutch Ministry of infrastructure and water management.

Post-processing data
Billie files are not post-processed, only quality checked (see Data quality)

Data quality

Quality assurance procedure
A quality check is conducted upon data processing at the institute, and before entry into the national database FRISBE. Essentially, the trawl haul data are checked for outliers on numerical values (either by plotting or by providing minimum, mean, and maximum values) and consistency in text variables (e.g. station coding, crew members). An additional second data check is conducted using a SAS script. Standardised SAS scripts are used for the data quality checks (available upon request).

Quality checked parameters
FGRZ, FDIA:

- Haul information: survey code, vessel name, gear type, number of gears, gear subtype, mesh size, sampling date, time, sampling positions (map), crew members, station code, area code, sample number, haul duration, catch category, bottom track, stratum, habitat, comments;
- Species information: species list (expert judgement), maturity coding, sex coding, subsampling type coding, minimum and maximum length, increments, subsampling factor, number measured, weight by species, measurement unit by species.

Additional checks

- No programme-specific additional checks are in place

Data storage

National database: Billie files are submitted to the national database FRISBE. The relevant aspects of this database are described in Proc_databases.

International database: no international database.

Data availability

Institutional availability: accessibility of the national database FRISBE is described in Proc_databases, data is made available as soon as possible after the survey, mostly within two months after the sampling has finished.

Public availability: aggregated data is published at the WMR data portal for freshwater fish data https://wmropendata.wur.nl/prod/zoetwatervis/. Data is updated annually in March or April and in May or June.

Reference to full documentation:

National manual:

Internal document: CVO_h_008: Keeken, O.A. van, K. Kwakman-Schilder, P. de Bruijn, J. de Leeuw, T. Leijzer, A.B. Griffioen, M. van Hoppe, E. van Os-Koomen, J.C. van Rijssel, M. Scholl, N. Tien 2022. Handboek zoetwater vismonitoringen versie 2022. CVO rapport 22.024

Public available document (in Dutch): van Keeken, O.A., de Bruijn, P.J. ., Griffioen, A.B., van Os-Koomen, E., & Wiegerinck, J.A.M. 2022. Vismonitoring Rijkswateren t/m 2021: Deel II, Toegepaste methoden. Wageningen Marine Research rapport; No. C077/22. https://doi.org/10.18174/581490

International manuals: no international manual available; national sampling.

Review frequency full documentation: national manual is annually reviewed.

Factsheet author(s): de Boois, I.J. de, Keeken, O.A. van, Hammen, T. van der

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