Norwegian streamflow reference dataset for climate change studies

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Available data

All active streamflow time series stored in NVE's Hydra II database classified as active and unregulated constitute the basis for selection of the streamflow timeseries in the hydrological reference dataset (HRD). This 2025-version of the HRD has used the earlier 2012-version (Fleig, 2013) and 2017-version (unpublished) as a starting point. New time series have been added if they now fulfill the criteria for 20 years with data, others have been taken out due to recent termination and some series have been evaluated again due to new metadata or information about data quality. All time series have been selected using the criteria described below.

Criteria for selection of time series

The principles for selecting streamflow time series for the 2025-version of the HRD follow the same overall criteria as used in the original 2012-version (Fleig, 2013), but with some updates in methodology. The six criteria can be listed as (Whitfield et al., 2012; Fleig, 2013):

1. Degree of basin development: Pristine or stable land-use conditions (<10% of the area is affected).
2. Absence of significant regulations, diversions, or water use. Only natural catchments. When regulation is present in a basin some gauging stations may be appropriate for analyzing high flows and average flows, but not low flows.
3. Record length: Minimum 20 years and some stations with >50 years. This length ensures that underrepresented climatic or geographic areas, which are characterized by minimum data availability, are also included. However, record lengths should also be as long as possible to allow decadal variability to be distinguished from long-term trends; due to multi-decadal oscillations in streamflow.
4. Active data collection: Currently active and is expected to continue operation.
5. Data accuracy: Good quality data.
6. Adequate metadata: Adequate metadata should be available to support the previous five conditions.

<u>1. Degree of river basin development</u>

To avoid changes in land-use to cause changes in runoff, stations with more than 10% urban area have been excluded (Fleig, 2013). The same principle for selecting streamflow time series has been used for the 2025-version of the reference dataset.

<u>2. Absence of significant regulations, diversions, or water use</u>

The principles for selecting streamflow time series for the 2025-version of the HRD follow the methodology described in Fleig, (2013). Thus, stations included are all classified as "unregulated". As an extra source of information, findings from a comprehensive review of 56 historical time series conducted in 2017-2020 have been used for identifying historic regulations, diversions, and water use.

3. Record length
As in Fleig (2013), only time series with at least 20 years of data with good data quality have been included in the 2025-version of the HRD. Time series with long periods of missing or reconstructed data (> 1 year) have been excluded, or recommended start of data use has been set to begin after the period with bad data. Series with shorter periods of missing or reconstructed data have been kept in the dataset. Record start and recommended start of data use has been specified for daily data as well as for fine resolution data.

4. Active data collection
As in Fleig (2013), only time series with active data collection have been included in the 2025-version of the HRD.

5+6. Data accuracy and metadata
Data needs to be accurate and have adequate metadata to be included in the HRD. Besides the data sources mentioned in Fleig (2013), information on data accuracy for the 2025-versjon of the dataset has been collected from new reports, as well as new data analysis and new metadata. Reports include background information for the 2012 and 2017-versions of the HRD, a report testing homogeneity in Norwegian streamflow series (Wang & Reitan, 2015) and findings from a comprehensive review of 56 historical streamflow series conducted in 2017-2020. New data analysis has included an evaluation of the highest peak flood value in daily and fine resolution data for every year in every time series within the HRD. New metadata has included evaluation of physical/hydraulic conditions for measuring stage on low/medium/high flows, information on periods with bad water-communication, doubtful height reference for measuring stage as well as quantitative evaluation of rating curves. The latter source of information was not used in Fleig (2013), since in 2013 quantitative evaluation were available only for a limited part of rating curves in the Hydra II database. The quantitative evaluation of rating curves is a combination of number of discharge measurements and spreading of these on the low-, normal-, and high flow parts of the rating curve and gives the designations very bad, bad, medium, good, very good on each of the three parts of the curve. In the 2025 HRD it has been recommended not to use data for peak flood or low flow analysis if the rating curve was rated as "very bad" for high flows or low flows, respectively. Regarding other metadata, information on catchment characteristics is very good, however data describing changes in land cover is missing, as also mentioned in Fleig (2013).

Reference dataset

According to the criteria for selecting streamflow series described above, 140 active and unregulated streamflow stations in Norway have been included in the 2025-version of the HRD. The types of analyses are limited for some of the series as specified by the assigned usability categories. The complete dataset including usability categories and data quality comments are listed in Table 1. Users might want to use only a sub-set of the complete dataset for their studies based on specific criteria, such as record length and completeness or catchment characteristics. For instance, for many climate change related studies it might be sensible to analyze catchments with and without glaciers separately.

Explanations to Table 1

Regine area	**River basin number**
Main no	Main number
Version	Version of the parameter (eg. 1 = 1001.**1**)
Station name	Station name
Record start daily data	Year with first daily data in time series
HRD start daily data	Recommended first year for use of daily data in analysis
Record start fine resolution	Year with first fine resolution data in time series
HRD start fine resolution data	Recommended first year for use of fine resolution data in analysis
Not spring floods	Not recommended for use in spring flood analysis; either the whole time series (x) or specific years
Not floods, daily mean	Not recommended for use in daily data flood analysis; either the whole time series (x) or specific years
Not floods, fine resolution data	Not recommended for use in fine resolution data flood analysis; either the whole time series (x) or specific years
Start date summer	Evaluation start date for summer low flow
End date summer	Evaluation end date for summer low flow
Not winter low flow	Not recommended for use in winter low flow analysis; either the whole time series (x) or specific years
Not low flows summer	Not recommended for use in low flow analysis in summer; either the whole time series (x) or specific years
Not low flows winter	Not recommended for use in low flow analysis in winter; either the whole time series (x) or specific years
Not monthly flow	Not recommended for use in monthly flow analysis; either the whole time series (x) or specific years
Not annual flow	Not recommended for use in annual flow analysis; either the whole time series (x) or specific years
Comment / bad data periods	Additional information regarding data quality which can be relevant for selecting data for analysis. Periods > 6 months with missing or reconstructed data are also mentioned
Corrections for ice	Comments describing if data is affected by corrections due to backwater from ice/snow in winter
Robin classification	The classification number used in Robin dataset

References

Fleig A.K. (Ed.), 2013: Norwegian Hydrological Reference Dataset for Climate Change Studies. NVE Report no. 2/2013, Norwegian Water Resources and Energy Directorate.

Wang T.C. and Reitan T., 2015: Homogenitetstesting av måleserier til Flomkart for Norge. Internal document, Norwegian Water Resources and Energy Directorate, (in Norwegian).

Whitfield P.H., Burn D.H., Hannaford J., Higgins H., Hodgkins G.A., Marsh T. and Looser U., 2012:

Reference hydrologic networks I. The status and potential future directions of national reference hydrologic
networks for detecting trends. Hydrological Sciences Journal, 57 (8), 1562-1579, doi: 10.1080/02626667.2012.728706.

Regine area	Main no	Version	station name	Record start	HRD start daily data	Record start fine resoluti	HRD start fine resolutio	Not spring flood	Not floods, Daily means	Not floods, fine Resolution	Start date summer	End date summer	Not low flows summer	Not low flows winter	Not monthly flow	Not annual flow	Comment / bad data periods	Corrections for ice	Robin classification
2	11	0	Narsjø	1930	1931	1987	1987		1971, 1972, 1974, 1986, 1999, 2007	1993, 1999, 2007	June 03	Oct 13	2014	2014			Apr-Dec 1986: Reconstructed.	Considered as little or not ice-influenced	1
2	32	0	Atnasjø	1916	1917	1993	1993		1920, 1995, 2003	1995, 2003	June 06	Oct 05	x	x	x		Jun1934-May1935: Reconstructed. Jun-Dec1938: Reconstructed. Jun-Dec1986: Reconstructed. Peak flood value in 1995 most likely reconstructed, and thus most likely represents a daily mean value and not a momentanous value.	yes	2
2	142	1	Knappom	1916	1917	2000	2000		1928, 1982, 2013	2013	May 02	Nov 04	1993, 1994, 1998, 1999, 2000, 2001, 2003	x			Fine resolution peak flood data in January 2010 is false.	Some small ice corretions.	1
2	265	1	Unsetåa	1961	1994	1999	1999		1996, 2002, 2007, 2011, 2013, 2015	2002, 2007, 2011, 2013, 2015	May 25	Oct 14	1990, 1991, 1992, 1993, 1994, 1997, 2001, 2003, 2005, 2006, 2008,	x				Yes	2
2	279	1	Kråkfoss	1966	1983	1966	1983		1984, 2000	1984, 1997, 1998	May 02	Nov 06	x	x	x			yes	2
2	284	1	Sælatunga	1955	1984	1999	1999	x	x	x			1990, 2004,	x	x			yes	2
2	290	1	Brustuen	1966	1967	1986	1986				June 21	Oct 05		x	x		Not recommended for low flow analysis outside the season 01.05-31.10. The station is influenced by ice and there may be some inconsistencies in is reduction	yes	2
2	303	1	Dombås	1967	1968	1986	1986	x	x	x	June 19	Oct 05	1992, 1993, 1996, 2001, 2015	x	x		Mar-Sept1992: Reconstructed. Jun-Sept2001: Reconstructed.	yes	2
2	439	1	Kvarstadseter	1979	1999	1987	1999		2007	2007	May 22	Oct 17	1991, 1993, 1994, 1995, 1996, 1997, 1998, 2014, 2015	x			Sept2014-Mar2015: Reconstructed.	yes	2
2	633	0	Stortorp	1979	1996	1998	1998		1998, 2010	2010, 2012							New station with automatic recording in 1995. The observation from the old and new station do not match.	no ice	2
3	22	1	Høgfoss	1976	1977	1976	1977		1984, 1987, 1990, 1992, 1994, 2008, 2012, 2021	1987, 1990, 1992, 1994, 2008, 2012, 2021	April 19	Nov 14	x	x				yes	1
6	10	1	Gryta	1967	1998	1967	1998	1985-2005	1985-2005	1985-2005	May 01	Nov 12	1990, 1991, 1993, 1995, 1996, 1997, 2003, 2004, 2005,	x	x		Higher uncertainty in high flow values from 1985 - 2005 due to backwater from a downstream culvert. Jan-May 1991: Reconstructed. Jan-Aug 1993: Reconstructed. Aug1996-Nov1997: Bad data.	Yes, some.	2
11	4	0	Elgtjern	1975	1978	1977	1978	x	x	x	May 15	Oct 30	1994, 1995	x			Data from 2005-2016 (maybe also further back in time) might be affected by poor water-communication, Thus flood values should not be used. Mar-Oct1995: Missing data.	no ice	1
12	70	1	Etna	1919	1920	1983	1983	1920-1968	1920-1968	1920-1968	May 22	Oct 19	2003	x	1919-1968		Water levels were regulated somewhat until 1968 due to timber floating.	yes	2
12	171	1	Hølervatn	1968	1990	1968	1990				May 22	Oct 15		1996, 2001, 2002			Oct2001-Mar2002: Bad data. Feb-Jun2011: Reconstructed.	No ice	2
12	178	1	Eggedal	1971	1972	1971	1972		1973, 1978, 1981	1973, 1974, 1978, 1981, 2011	May 21	Oct 24	1995	1995			Higher uncertainty in lowflow values due to few and deviating water level - discharge measurements.	no ice	1
12	188	1	Langtjernbekk	1973	2001	1973	2001	x	x	x	May 15	Oct 30	1992, 1994, 2000, 2009, 2019,	x	x	x	Many reconstructed periods before 2001. High uncertainty on medium and high flows.	No ice	

12	192	1	Sundbyfoss	1976	1996	1986	1996	x	x	x	April 22	Nov 12	x		x		Some kind of regulation, probably to get rid of beavers. High flow values until 2009 are simulated. Since 2009 data are recorded every 30 min.	Yes, some.	2
12	193	1	Fiskum	1976	1977	1980	1980		1981	1981, 1983, 2001	April 23	Nov 12		x	x		Mar-Jun1993: Reconstructed.	Yes, some.	2
12	197	0	Grunke	1977	1978	1977	1978	2015	1979, 1997, 1999, 2001, 2002, 2003, 2005, 2015	1979, 1997, 1999, 2001, 2002, 2003, 2015, 2023, 2024	June 20	Oct 03	1997	x	x		High uncertainty in the data for 2015 in particular for extremvalues due to problems with the sensor.	yes	2
12	207	0	Vinde-elv	1981	2001	1981	2001		x	x	May 23	Oct 19		x			Periods with bad water communication 2002-2004, 2005-2009, 2014-2015. Bad conditions for water level registration on high flows.	yes	2
12	215	1	Storeskar	1987	1988	1987	1988				June 20	Oct 05		x	x			yes	2
15	21	1	Jondalselv	1993	1994	1993	1994	x	x	x	May 15	Oct 31		x			Possible influence by beavers, trees and branches creating backwater. Some changes in the measuring profil until 1993. Periods with bad water-communication, but difficult to identify beginning and end of these.	Yes, some.	2
15	49	1	Halledalsvatn	1962	1964	1962	1964		1970, 1992	1970, 1971, 1974, 1976, 1982, 1992	May 23	Oct 18	x	x			Difficult location for manual discharge measurements. But consistent data and considered as an ok station.	Considered as little or not ice-influenced	1
16	66	1	Grosettjern	1949	1975	1953	1985	Before 2007	Before 2007	Before 2007	May 23	Oct 20	2006	x			Changes in the measuring profil in 1973. Unstable profile some years before 1975. Problems with bad water-communication before 2007.	no ice	1
16	122	1	Grovåi	1972	1975	1972	1975		1976, 1996, 2001, 2005	1976, 1996, 2001, 2005	May 23	Oct 28	2013, 2016, 2017	x	x		Indications of some damage to V-profile in 1989 and 2001. Data from those years should be used with caution.	yes	2
16	127	1	Viertjern	1977	2000	1977	2000		2004, 2009, 2011	2004, 2011, 2018	June 06	Oct 10	1996, 1997, 1998	x			Peak floods on fine resolution should be used with caution. Can be affected by ice.	Yes, some. Other winters are reconstructed.	2
16	194	0	Kilen	1991	1991	1991	1991		1999, 2001, 2000, 2011	1999, 2000, 2001, 2011	May 01	Nov 09	1993, 2000, 2011	x	x		New station with data from 1991. Removal of sediments in 1996, which affected low flow values. Feb-Jun2001: Missing data.	yes	2
18	10	1	Gjerstad	1980	1982	1985	1985		1990, 2000	1990, 1993, 1994, 2000			x	x			Potential problems with vegetation in profile. Thus not recommended for low flow analysis. Jan-Jun1991: Reconstructed.	Yes	1
18	11	1	Tjellingtjernbekk	1981	1990	1981	1990				April 24	Nov 13	2004, 2015	1996, 1997, 2000, 2001, 2002, 2003, 2010, 2011, 2013,			Data before 1990 should not be used because of bad data 1987-1989.	Yes, some.	2
19	79	1	Gravå	1970	1986	1970	1986		2000, 2003, 2006	2000, 2003, 2006					x		Data before 1986 should not be used because of bad data 1981-1985.	yes	2
19	80	1	Stigvassåi	1972	1985	1972	1985	Before 2014	Before 2014	Before 2014	April 23	Nov 17	1990, 1996, 2005	x	x		Flood values before 2014 should not be used. Jun1990-Feb1991: Reconstructed.	yes	2
19	82	1	Rauåna	1972	1985	1972	1985		1991, 1992, 1994	1987, 1991, 1992, 1994, 1995, 2011	April 27	Nov 12	1991, 1992, 1993, 1994, 1995, 2020	x	x		Data before 1985 should not be used because of bad data 1981-1984.	yes	2
19	96	1	Storgama ovf.	1974	1975	1974	1975		1976, 1977, 1979, 1983	1976, 1977, 1979, 1983	May 14	Nov 07		x	x			yes	2
19	104	1	Songedalsåi	1981	1981	1981	1981		1992, 2019	1992, 2019	May 21	Oct 30	x	x	x			yes	2
20	2	1	Austenå	1924	1983	1985	1985		1989, 1990, 1992	1989, 1990, 1992	May 19	Nov 02	x	x	x		Data before 1983 should not be used due to unstable control at old station. Apr1992-Jan1993: Reconstructed.	yes	2
20	11	1	Tveitdalen	1972	1973	1972	1973		1976	1976				x	x		May-Sep1992: Bad data.	yes	2
22	16	0	Myglevatn ndf.	1951	1952	1986	1986		1987, 1990, 1991, 1998, 2007	1987, 1990, 1991, 1998, 2007	April 27	Nov 14	1990, 1991, 1994, 2002, 2010, 2011	x			Oct1990-May1991: Reconstructed. Aug-Dec1991: Reconstructed.	No ice but many winters containing reconstructed data.	1
22	22	1	Søgne	1973	1974	1973	1974		1981, 1988, 1992	1979, 1981, 1988, 1992	April 13	Nov 19	x	x			Data for Feb-Dec 1992 are missing.	Considered as little or not ice-influenced	1

24	8	0	Møska (Skolandsvatnet)	1978	1983	1978	1983		1992, 1993, 1994, 2010	1992, 1993, 1994	April 23	Nov 15	1992, 1994	1994			Jun-Oct1992: Reconstructed. Apr-Oct1994: Reconstructed.	Considered as little or not ice-influenced	1
24	9	0	Tingvatn (Lygne)	1922	1923	1994	1995		1932				x	x			Potential problems with vegetation in profile. Thus not recommended for low flow analysis.	no ice	1
26	29	1	Refsvatn	1978	1980	1978	1980		1987	1987	April 23	Nov 16	x	x	x		Uncertainty in low flow values due to a small local water extraction	no ice	2
27	15	1	Austrumdal (Austrumdalsvatnet)	1986	1986	1986	1986		1986, 1988, 1989, 1993, 1999, 2011	1986, 1988, 1989, 1992, 1993, 1994, 1995, 1999, 2011	May 15	Nov 08	1995, 2000, 2003	1996, 1999, 2000, 2015	x		No data before 1986. Nov2014-Mar2015: Reconstructed.	Yes, some.	2
35	9	1	Osali (Botnavatnet)	1982	2000	1982	2000	2010	2010, 2011	2010, 2011	May 23	Oct 31	1998, 2002	x	x			yes	2
35	16	1	Djupadalsvatn	1990	1991	1990	1991		1992, 2007	1992, 2007	May 15	Nov 07	1990, 1992	1990, 1992, 2000, 2007, 2011,			Data between 2000 – 2009 has an uncertainty at 1-2 cm in water level.	no ice	2
36	13	1	Grimsvatn	1973	1988	1973	1988		2005	2005	May 23	Oct 31	x	x			-	Considered as little or not ice-influenced	2
38	1	1	Holmen	1982	1983	1985	1986		1990, 1996, 1998, 2000, 2001, 2002,	1990, 1996, 1998, 2000, 2001, 2002,	April 29	Nov 13	1992, 2001, 2002, 2005, 2006	1990, 1993, 1997, 1998, 2000, 2001, 2002, 2005,			Mar2001-Sep2001: Reconstructed. Jan2002-Okt2002: Missing.	no ice	1
41	8	1	Hellaugvatn	1981	1982	1981	1982		1985, 1989, 1993, 2014	1985, 1989, 1993, 2014	May 23	Nov 01	1992, 1995, 2014	1993, 2010, 2014, 2015, 2018			Apr-Oct1989: Reconstructed. Jun-Dec2014: Reconstructed. Many winters have reconstructed data.	Considered as little or not ice-influenced	1
42	2	1	Djupevad	1963	1977	1963	2006		1978, 1980, 1981, 1993, 1997	Before 2006	April 29	Nov 13	1990, 1991, 1993, 1994, 1997, 2006	1993, 1994, 1998			High uncertainty in data before 1976. High uncertainty in fine resolution data before 2006.	Considered as little or not ice-influenced	1
48	1	1	Sandvenvatn	1908	1909	1997	1998		1978, 1979, 1986-1990, 1993, 2007	2007			x	x	x	x	Since 1968 water from 8,3 km2 are constantly transfered out of the catchment. In addition there are some water abstractions for local drinking water supply and water to the industry. The abstractions has changed through time and in volume. It is assumed that the amount of water abstractions would not affect the flood values. Periods with bad data: Feb-May1920, Oct1920-Mar1921, Jan-Jun1957, Mar1976, Jun-Jul1978, Aug-Nov1978, Feb-Sep1979, Mar1986-Feb1991, Jun-Jul1997, Mar-May2006, Okt2009	no ice	
48	5	1	Reinsnosvatn	1917	1966	1977	1977		1988, 1996, 1997	1978, 1984, 1988, 1996, 1997	June 08	Oct 23	1996	1994, 1995, 1996, 1997, 1999, 2001, 2003			Data before 1966 should be avoided due to old rating curve not possible to evaluate. The rating curve produces different discharge. Dec1974-May1975: Reconstructed. Dec1981-Apr1982: Reconstructed. Feb-Jun1988:Reconstructed. Oct1996-Jun1997: Reconstructed. Nov1998-Apr1999: Reconstructed.	Considered as little or not ice-influenced	1
50	1	1	Hølen	1923	1923	1961	1962	1923-2003	1923-2003	1962-2003	June 20	Oct 19	1990, 1995, 2002	x	x		Insignificant regulation. High flows values from 11.06.97 – 31.08.03 are up to 10 % underestimated due to unfortunate location of temporary gauging station. May-Nov1969: Reconstructed.	Flood peaks caused by ice jams are reduced. Most of low flow data is considered to be correct. Some years without any ice correction	2
55	4	1	Røykenes	1934	1993	1977	1993				April 27	Nov 12	1991, 1992, 2001	1990, 1992, 1993				no ice	2
62	18	1	Svartavatn	1987	2002		2002				May 23	Nov 02	Før 2002, 2005	Before 2003, 2004, 2011			-	Considered as little or not ice-influenced	2
62	5	1	Bulken (Vangsvatnet)	1892	1892	1989	1995		1943, 1983, 1989, 1990, 1993		May 23	Oct 31	x	x			Insignificant regulation since 1919. Apr1983-Jan 1984: Uncertain data. 1989-1990: Uncertain data. Jan-Jun1993: Reconstructed. Nov1993-May1994:Reconstructed. Low flow data has limited quality before 1905. Oct1988-Dec1990: Uncertain data.	no ice	1

62	10	0	Myrkdalsvatn	1964	1964	1970	1971	1964-1987	1964-1987, 2011	1971-1987, 2011	May 24	Oct 22	1990, 1991	x	1986-1991	1986-1991	Be careful with use of data between 18.08.1986-03.04.1987, due reduction of the water level at Myrkdalsvatn. Data from 1986-1991 should not be used for other than flood analysis. Inhomogeneity in flood values due to change in location of the gauging station (1971) and ratingcurves (1987).	Considered as little or not ice-influenced	
62	14	1	Slondalsvatn	1983	1984	1985	1985		1986, 1987, 1994, 1997, 1998	1986, 1987, 1994, 1997, 1998	June 20	Oct 21	1994, 1997, 2003	x			Feb-Aug1986: Reconstructed. Apr-Jun1997: Reconstructed. May-Sep1994: Reconstructed. Apr-Sep1997: Reconstructed. Apr-Aug2000: Reconstructed.	Yes, but relatively small changes/corrections at winter low flow. Flood peaks caused by ice jams are also reduced, but they are few.	2
62	15	1	Kinne	1983	1984	1983	1984		2001	2001	May 25	Oct 20	2001, 2002	x			-	Somewhat ice-influenced winter data, and short periods.	2
73	21	1	Frostdalen	1967	1994	1967	1994	x	x	x	June 20	Oct 07	1997, 2015	x			Avoid using summers 2015-2016 for low flow analysis due to small water extractions. Flood data should not be used.May-Sept1997: Reconstructed. Apr-Jul: 1998: Reconstructed.	yes	2
73	27	1	Sula	1967	1992	1967	1992		1993, 2007	1993, 1996, 2007, 2015, 2017	June 21	Oct 05		x			No data 1983-1991. May-Jul1993: Reconstructed. Extremely high peaks in fine resolution data in Nov1996, Dec2015, Jan2017 are caused by backwater.	Yes	2
76	5	0	Nigardsbrevatn	1962	1963	1985	1985		Before 1980	Before 1985	July 06	Oct 02	2014	1993			Dec1971-May1972: Reconstructed. Data before 1980 affected by potential water-communication problems at the station, and flood values are not to be used from that period.	no ice	1
77	3	1	Sogndalsvatn	1962	1963	1990	1991				May 25	Oct 22	1995	2020			The rating curve is not god for low flows, however the profile is stable and only has one period, so it can be used for trend analysis on low flow, but the absolute values are not certain.	no ice	1
79	3	1	Nessedalselv	1983	1984	1983	1984			1985, 1986, 1994, 1996, 2000, 2011	May 23	Oct 31	1990, 2002	x	x		Be aware of highly ice-affected peaks in 1985, 1986, 1994, 1996, 2000, 2011. Nov1989-Mar1990: Reconstructed.	Yes	2
81	1	1	Hersvikvatn (Hagevatnet)	1934	1934	1976	1977	(x)	x	x			1992, 1994	1993, 1995	1934-1958		Low flow values should not be used from 1934 -1958 due to leak in the profile. Jun-Nov1995: Reconstructed. Mar-Nov1994: Reconstructed.	no ice	2
82	4	0	Nautsundvatn	1908	1986	1986	1986			2018	April 29	Nov 12	1991, 2000	1991, 2005, 2011				Considered as little or not ice-influenced	2
83	2	1	Viksvatn (Hestadfjorden)	1902	1903	1985	1985		1970, 1983		May 23	Oct 29	1997				Insignificant transfer out of the catchment since 1960 (1km2). Jan-Nov1983: Reconstructed.	no ice	1
83	6	1	Byttevatn	1965	1978	1985	1985		1978, 1979		June 01	Oct 21	1993	x			Insufficient data quality prior to 1978. 1878/1979 reconstructed peak flood or big part of flood	no ice	1
83	7	1	Grønengstølsvatn	1965	1999	1965	1999		2003	2003	June 05	Oct 20	1997, 2003	1996, 2004, 2006, 2024			2003 most of the year reconstructed	Considered as little or not ice-influenced	2
83	12	0	Haukedalsvatn ndf.	1935	1984	1984	1984		1985, 1993, 1997, 1999		May 24	Oct 26	1993, 1994, 1997, 1999, 2000, 2003	1990, 1993, 1999, 2000			Winter 1988-1989: 4 months reconstructed winter 1997-1998: 8 months reconstructed 1999: 9 months reconstructed. 2024: 3 months missing data.	no ice	2
84	20	0	Holsenvatn	1963	1963	1983	1984	1963-1983	1963-1983, 2002	2002	May 22	Nov 05	x	x			Inhomogenity in flood values, due to change of gauging station. 1987: 4 months reconstructed 1989-1990: reconstructed winter data 2002: 7 months of reconstructed summer data	no ice	1
85	4	1	Straumstad (Solheimsvatnet)	1974	1985	1982	1985		1995, 1997	1995, 1997	May 21	Nov 07	1995, 1997, 2007	1993, 1994, 1995, 1997, 2001, 2002, 2004, 2007, 2013,	1974-1976		Solheimsvatnet has to outlets. All measurments at the gauging station are a sum of both outlets. Unrealistic lowflow data from 1974-1976. 1995: mostly reconstructed 1997: mostly reconstructed 2007: 4 months reconstructed	no ice	2
86	10	1	Åvatn (Ommedalsvatnet)	1974	2004	2005	2005		2018	2018	-	-		(not checked)	(not checked)		2002-2004 Mostly reconstructed	no ice	2

86	12	1	Skjerdalselv	1982	1991	1982	1991		1996, 1997, 2008	1996, 1997, 2008	June 02	Oct 22	1990, 1991, 1996, 1997, 1999, 2003, 2004, 2005, 2006	x			1996: mostly reconstructed 1997: mostly reconstructed	Flood peaks caused by ice jams are reduced. Winter low flow data is considered to be correct	2
87	10	0	Gloppenelv v/Bergheim	1970	1970	1986	1986	1970-1985	1970-1985		June 02	Oct 20		x			Floodvalues seem unreasonable high from 1970-1985 compared to later period. Other stations nearby do not show the similar pattern. Some vegitation in the profile.	Flood peaks caused by ice jams are reduced. Less corrections last years. Winter low flow data is considered to be correct.	1
88	4	1	Lovatn	1900	1900	1988	1988		1937, 1938, 1939, 1940		June 19	Oct 18					Low flow data from the first rating curve period (1900-1936) is excluded due to a comment when the quality of the rating curve is discribed " wrong low flow values" . 1989: 5 months reconstructed 1938-1942: intervalls between datapoints is more then one day.	no ice	1
88	11	0	Strynsvatn	1967	1967	1985	1985		1970, 1987, 1990, 1994, 1996, 1998, 2000, 2001-2006	1987, 1990, 1994, 1996, 1998, 2000, 2001-2006	June 01	Oct 22	1993, 2014	1991, 1994, 1997, 1998, 2000, 2014			1996: 2 months reconstructed 2000: 6 months reconstructed	no ice	1
88	30	0	Nordre Oldevatn	1902	1987	1987	1987				June 05	Oct 19	x	x			Insignificant transfer out of the catchment since 1938. New station in 1988. Low flow data bevore and after 1988 do noe match properly.	no ice	2
97	1	1	Fetvatn (Fitjavatnet)	1946	1946	1973	1973	x	x	x	May 20	Nov 03	1994,1995, 2003	1991, 1994, 2000, 2003			Floods are affected by storm surge when there is a combination of low pressure and strong winds. High uncertanty in floodvalues. Some trouble with winter data in the 1960s 1994: 4 months reconstructed 1995: 9 months reconstructed	Considered as little or not ice-influenced	1
98	4	0	Øye ndf.	1917	1991	1985	1991	1991	1999, 2002, 2013-2017	1991,1992, 1999, 2002, 2004, 2013-2017	June 01	Oct 19	2002	2002			There exist data from 1917. Data from 1967-82 should not be used in any analysis due to not reliable data (the gauging station was not running from 01.01.79 to 02.08.82). The gauging station was moved in 1991. Only good quality on floodata from then. The flood at 2th October 1956 is a peak value and not an daily value. 2013-2017: suspected bad communication between station and river	Considered as little or not ice-influenced	2
101	1	0	Engsetvatn	1923	1990	1989	1990				April 26	Nov 15		1990			Problems with changes in the control profile caused by human activity several times in the 1970s and 1980s.The reason for the homogentity break 1957 is not known. Other gauging station nearby do not show similar trend in data before 1957, but are following similar pattern in the years after 1957. 1989: a lot of reconstruction 1949-1977: intervall between datapoints is less then one day	no ice	2
103	1	2	Ulvåa v/Storhølen	1971	1971	1986	1986		1971, 2003	1991, 2003	June 20	Oct 08	x	x	x		1 m3/s are transfered out of the catchment. 1972: 7 months of reconstuction	Yes	2
104	23	1	Vistdal	1975	1984	1976	1984	1984, 1985, 1986, 1987, 1989	1984, 1985, 1986, 1989		May 22	Oct 30		1994, 1996, 2002	x		Homogeneity break and likely profil changes in 1983. Smaller profil changes that might affect low flows also during other times.	Partly ice influenced winter data. Flood peaks caused by ice jams are reduced.	2
105	1	2	Osenelv v/Øren	1923	1923	1986	1987		1926, 1927, 1997, 2003	1997, 2003	May 17	Nov 14	1996, 2004, 2005	1990, 1997, 2004, 2006, 2018			1996-1997: 9 months of reconstruction 2003-2004: 11 months of reconstruction	no ice	1

109	9	1	Driva v/Risefoss	1935	1935	1979	1979		1936, 1939, 1985	1985	June 20	Oct 01	2000, 2003, 2006,	x	x		It is established a rating curve (at high flows) with a hydraulic model. The water level might be too low on floods before 2018 due to hydraulic influens on the station. There where reported 15 cm lower waterlevel inside the station compared to the outside waterlevel for a flood.	Yes	2
109	21	1	Driva v/Svoni	1970	1997	1981	1997		1997, 2000, 2003	1997, 1998, 1999, 2000, 2003, 2017, 2021	June 19	Oct 03	1995, 1996, 1997, 2003	x	x		Minor hydropower reservoir high up in the catchment. Considered as neglactable. Low data quality prior to 1997. There is a bifurcation affecting the contribution from 35 km2 of the catchment. During average flows about 80% of the water from that part drain to another catchment. The catchment area for Driva v/Svoni is therefore reduced by 28 km2.	Yes	2
112	8	1	Rinna	1969	1969	1985	1985		1982, 1993, 2000, 2003	1993, 2000, 2003, 2024	May 25	Oct 22	x	x	x		High uncertainty in the rating curve due to few streamflow measurements at high flows. Poor condition for streamflow measurements at high flows. Data period 2021-2023 generally uncertain due to lack of periodic and annual controls by station operator.	Yes	2
121	20	1	Åmot	1988	1995	1988	1995	x	x	x	May 18	Nov 02	1990, 1992, 1993, 1996, 1997, 2000, 2001, 2002, 2003, 2006, 2013,	x			Profile change in the riverbed that affects low flows. Not recommended for high flow analysis due to problems with bad water-communication. 1997: 11 months reconstructed	Some small ice corrections, both at winter low flows and at flood peaks caused by ice jams. The volume of the corrections are not very large.	2
122	11	1	Eggafoss	1941	1941	1986	1986	1941	1941, 1952, 1965, 2013, 2023	1965, 1975-1985, 2013,2021, 2023	May 26	Oct 21	2019, 2023	x	x		Challenging hydraulic conditions where the gauging station is located at high flows. Be careful with use of flood value in April 1941, not clear yet if this is a peak or a daily value. Reported some instability in low flow relations, however it is considered to be minor. Flood values august/september of 2023 has a lot of uncertainty due to sensors getting displaced and subsequent data reconstruction. Would not recommend using.	Yes	2
122	14	1	Lillebudal bru	1963	1997	1986	1997			2002, 2003, 2011, 2013, 2016, 2018,			x	x	x		Profile change in the riverbed that affects low flows. A lot of reconstructed data up to 1994 probably due to problems with the measuring device.	Yes	2
122	17	1	Hugdal bru	1972	1972	1972	1972		1986-1990, 1993-1996, 2001-2006, 2010, 2016	1986-1990, 1993-1996, 2001-2006, 2008, 2010, 2013, 2016			x	x	x		Profile change in the riverbed that affects low flows. A lot of corrections on the time series.	Yes	2
124	2	1	Høggås bru	1912	1912	1965	1965	1912-1965	(Before 1965) 1926, 1928, 1941, 1966, 1969	(Before 1965)1926,1928, 1939, 1941, 1966, 1969, 1974, 1977, 1979, 1991, 2009, 2014	May 20	Nov 01	2020	x	1912-1965		Most floods are affected by timber floating from 1912-1965	Yes	2
127	11	1	Veravatn	1966	1968	1981	1981		1986	1986, 1988	May 20	Oct 30					An old dam was taken down during a flood in 1967.	Considered as little or not ice-influenced	2
128	9	1	Leksdalsvatn	1972	1972	1989	1989		1972, 1977, 1981, 1983		May 15	Nov 09	x	x			Drinking water source for Verdal municipality. Information from the technical department in the municipality of Verdal indicates an average water supply of 70 l / s. New pumps installed in 2008, 3 pieces each with 48 l / s capacity. There are constraints in the piping system that provide maximum capacity of 122 l / s.	no ice	1
133	7	1	Krinsvatn (Kringsvatmet)	1912*	1969	1969	1969				May 18	Nov 10					The station was influensed by timberfloating untill 1967 and was moved in 1969.	no ice	1

138	1	1	Øyungen	1916	1997	1977	1997		2007	2007	May 18	Nov 06	før 1999	før 1999			Somewhat influenced by timber floating dam before 1976. Larger periods of reconstruction before 1997.	no ice	2
139	35	0	Trangen	1934	2002	1989	2002		1998	1998, 2018, 2021	May 24	Oct 24	x	x				Almost all years have korrections for ice for about 5 months	2
140	2	0	Salsvatn	1916	1990	1989	1990		2024		May 17	Nov 10					New bridge build in the outlet of the lake, downstream the station, in 1946, 1989 and 2006. Possible profile change after 1989. Teh new bridge from 2006 seems to affect flood values.	no ice	2
148	2	1	Mevatnet	1973	1973	1973	1973		1973, 1983, 1994, 1995, 1996, 1997, 1998	1973, 1983, 1994, 1995, 1996, 1997, 1998	May 15	Nov 08	x	x			Data appears to be reconstructed in the period 1993-1998. 1984-1985: 5 months reconstructed data	no ice	1
150	1	1	Sørra	1953	1989	1952	1989	x	x	x	April 25	Nov 14	1998	1991, 1994, 1995, 1996, 1998, 1999, 2000, 2001, 2006, 2007, 2008, 2010, 2013, 2014, 2015, 2016, 2018, 2019			Coastal catchment. The years 1979 - 1981 are uncertain due to gradual change of concrete threshold. The extremely large flood in 1981 and the extremely low flow in 1980 are doubtful.	Yes	2
151	13	1	Øvre Glugvatn	1968	1988	1968	1988	x	x	x	May 26	Oct 25	2007	1995, 2002, 2007, 2008, 2011, 2014				no ice	2
151	15	1	Nervoll	1968	1968	1968	1968		1971, 1976, 1978	1971, 1976, 1978, 2018	June 04	Oct 13	1990	x	x		Ice corrections almost all winters befor 1995	Yes, some.	2
152	4	1	Fustvatn	1908	1908	1975	1975		1977, 1991	1977, 1981-1988, 1991	May 19	Oct 29	x	x			1990-1991: 6 months reconstructed data	no ice	1
153	1	1	Storvatn	1916	1916	1971	1973		1930, 1954, 1956, 1972, 1981	1981, 1997, 1998, 2001,	May 20	Oct 29	1999	2000			Some regulation, however the storage capacity is only 5000 m^3 so it is considered negligible	no ice	1
156	24	1	Bogvatn	1970	1970	1970	1970		1970, 1972, 1977, 1978, 1979, 1983, 1985, 1994, 1995, 2010	1970, 1972, 1973, 1974, 1977, 1978, 1979, 1983, 1985, 1994, 1995, 2010, 2020	June 18	Oct 03	1991, 1993, 1994, 1995, 2010	x	x		20% glacier in the catchment area. Very uncertain rating curve on low flow due to very few messurments on low flow. Low flow generally occur during the winter months 1971-1972: 8 months reconstructed. 1974-1975: 6 months reconstructed. 1978: 7 months reconstructed data 1979: 5 months reconstructed data 1985: 5 months reconstructed data 1987: 5 months reconstructed data 1990: 5 months reconstructed data 2010: 5 months reconstructed data	Yes	2
156	15	1	Forsbakk	1963	1989	1968	1989	x	x	x	May 25	Oct 26	2006, 2008, 2021	x	x		Coastal catchment with floods all year round. Many of the highest floods are observed in the winter period and they are often corrected due to ice influnce. 2006-2007: 9 months reconstructed data	Yes, ice corrections both on winter low flows and on winter floods.	2
168	3	1	Lakså bru	1953	1954	1991	1991		x	x	May 16	Nov 06	1990, 2015	1990, 1991, 2013, 2014, 2017, 2018, 2021, 2022			Not possible to check the quality of winterdata before 1992. Annual peak floods tend to happen in January/February, indicating ice-influenced water level and uncertain peak flood levels in the entire time series.	Yes, annual corrections of false and/or unrealisticly high peaks in winter	1
172	8	1	Rauvatn	1977	1978	1977	1978	x	x	x	June 04	Oct 11	1991,1992,1999,2000	x	x		The rating curve on flood is very uncertain due to very few discharge measurements. The highest discharge measurement is about a third of mean flood. Apr-Sept1991: Reconstructed. Apr-sept1992: Reconstructed. Feb-juni2001: Reconstructed.	Yes, moderate	2

177	4	1	Sneisvatn	1916	1917	1976	1977		1920, 1960, 1977, 1978, 1979, 1981, 1984, 1985, 1986, 1987, 1988, 2003, 2017, 2021	1977, 1978, 1979, 1981, 1984, 1985, 1986, 1987, 1988, 2003, 2017, 2021	May 19	Oct 31	2003	1997,2019			Jan-Oct1976: Reconstructed.	Some ice corrections wintertime, especially on winter floods early in the season (in recent times), probably much less affected on low waterlevels	1
178	1	1	Langvatn	1953	1954	1977	1978		1978, 2023	1978, 1980, 2021, 2023	May 17	Nov 01	x	x	x			Yes	2
185	1	1	Gåslandsvatn	1934	1935	1977	1978		1977, 1985, 1994, 2008, 2009, 2013	1985, 1994, 2008, 2009, 2013	May 03	Nov 17	1991, 1995	1991, 1995, 1996, 2007, 2010			Jan-May1976: Reconstructed. Dec1987-Apr1988: Reconstructed. Apr-Sept1991: Reconstructed.	Considered as little or not ice-influenced	1
186	2	0	Ånesvatn	1978	1998		1998		2014	2014, 2015 ,2019	May 15	Nov 11	x	x			The station was moved in 1997 (old no. 186.1) and data from the two locations do not match.	Considered as little or not ice-influenced	2
189	3	1	Tennevikvatn	1978	1979	1989	1989		1994, 2004, 2011, 2014	1994, 2004, 2006, 2011, 2014, 2022	May 21	Oct 30	1990, 1994,	x			Jan-Nov1994: Bad data due to problems with water-communication, highly reconstructed. Jan-Jul1998: Highly reconstructed, but flood data in May are correct. Nov2011-Feb2012: Reconstructed.	Ice corrections and bad winter data.	1
191	2	0	Øvrevatn	1913	1914	1967	1968		1969, 1975, 1982, 1984-1988, 2001, 2002	1969, 1975, 1982, 1984-1988, 2001, 2002	June 03	Oct 10		x			Data from 1984-1988 are of limited quality and should be used with caution.	Some small ice corretions.	1
196	7	1	Ytre Fiskeløsvatn	1960	1961	1977	1978		1981, 1984, 1986, 2004, 2018	1981, 1984, 1986, 1992, 1998, 2004, 2018	May 25	Oct 20	x	x				no ice	1
196	11	1	Lille Rostavatn	1959	1960	1988	1989		1996, 2003	1996, 2003	June 12	Oct 06	x	x			At the end of the catchment lies the lake Rostujavre cachment area 282 km2) which has runoff both to Norway and Sweden. Based on measurements in 1959 and 1960 it is estimated that 60% of the drainage goes to Norway and 40% to Sweden (this is the runoff to Rostajaure, not the entire field). Nov1998-Apr1999: Reconstructed. Apr2003-Mar2004: Reconstructed.	no ice	1
200	4	0	Skogsfjordvatn	1957	1958	1989	1989		1990, 1992, 1997, 2001, 2007, 2012, 2016, 2019	2016, 2019	May 21	Nov 01	x	x			Oct1963-Mar1964: Reconstructed.		1
203	2	0	Jægervatn	1955	1990	1988	1990		2011	2011	May 27	Oct 24	x	x	1990-2000	1990-2000	Uncertainty about the elevation-system for waterlevel measurements in the 90's, especially for extreme low water levels, little influence on flooding.	no ice	
205	6	1	Didnojokka	1979	1980	1979	1980	x	x	x	June 25	Sep 22	2002, 2004	x	x		The station does not work on flood. The water surface is "boiling" when flooding and there is probably little correlation between ws. and discharge. Difficult measurement conditions. Jul2004-May2005: Reconstructed.	Yes (but this is generally limited to the beginning of the winter season and just before the spring floos)	2
206	3	2	Manndalen bru	1971	1972	1971	1972		1986, 1994, 2001, 2002, 2010	1978, 1981, 1986, 1993, 1994, 1995, 1996, 2002, 2004, 2010			x	x	x		Not recommended for low flow analysis due to unstable control.	Yes	2
208	2	1	Oksfjordvatn	1955	1956	1985	1985		1964, 1984, 1986, 2001, 2011	1986, 2001, 2011	June 09	Oct 10	x	x			Oct1985-Jun1986: Reconstructed. Aug1986-May1987: Reconstructed.	no ice	1
208	3	1	Svartfossberget	1981	1982	1985	1985		1985, 1997		June 11	Oct 07	x	x	x		Transmission of water out since 1967 of 45,8 km2. Sep1996-May1997: Reconstructed.	Yes	2
209	4	1	Lillefossen	1961	1971	1970	1971	x	x	2023			2007, 2010	x	x		Transmission of water out since 1969 of 16.4 km2. Bad conditions for registration of water levels at high discharge. Jun-Oct2007: Reconstructed.	Yes	2

212	10	1	Masi	1966	2002	1985	2002	x	x	x	-	-	x	x	x		Poor communication for a long time between the river and the station. Peak flows and lowflows are therfore at times under- or overestimated. Jun2001-Nov2002: Reconstructed.	Yes	2
212	48	0	Sagafoss	1971	1972	1984	1985				June 03	Oct 09	2003, 2022	x			The station has 3 different versions 212.48 (1990-dd), 212.12 (1980-1990), and 212.4 Tverrelv (1971-1980). Annual minimum values does not look ok in the period 70-80, possibly different ice correction methods? Do not use for low flow analysis due to problems with vegetation and negative discharge values.	Ice corrected until 1999, very few and small corrections after 1999. It is still likely thow that the waterlevel/discharge is a little influenced by ice during the winter.	1
212	49	0	Halsnes	1920	1972	1992	1992		2002	2002	June 09	Oct 09		1990, 1991, 1992, 1993, 2002, 2003, 2005, 2009, 2010, 2012			Missing values 1944-46, 1965-66, 1968-71. The station has been moved two times: 1955 and 1966. Higher values before 1966.	Considered as little or not ice-influenced	1
213	2	1	Leirbotnvatn	1961	1962	1981	1981			1993, 1997, 2005, 2010	June 04	Oct 10	1996	1990, 1991, 1992, 1993, 1996, 1997, 1998, 1999, 2003,	x			Considered as little or not ice-influenced	2
213	4	1	Kvalsund	1978	1980	1979	1980		1984, 1992, 2017	1984, 1992, 2017, 2022	June 03	Oct 16	x	x	x		Nov2016-Aug2017: Reconstructed. The profile consists of rocks that may move with ice runs, although there are no clare indications of profile changes as of now.	Yes	2
223	2	0	Lombola	1920	1988	1987	1988		2002, 2003	2002, 2003	June 04	Oct 09	x	x			Missing data from late 1944 to mid 1946. Long period of reconstruction 2002/2003.	There has been lot of ice correction before the 1960s, but very little after moving the station in 1960.	2
234	13	0	Veahkkava, Iesjokka	1973	1990	1985	1990						2007	x	okt-apr	okt-apr	Data for the period 01.01.1987-12.10.1989 are reconstructed.	The timeseries is very much ice corrected all winter months (end of October to beginning of May). There has been used different ways to ice-correct data during diferent time periods.	
234	18	0	Polmak nye	1911	1947	1985	1985		1966, 2002, 2004	1985, 1987, 1993, 1994, 1999, 2002, 2004, 2006			2003	x	okt-apr	okt-apr	Sept1944-Jan1946: Missing data.	The timeseries is very much ice corrected all winter months (end of October to beginning of May).	
237	1	1	Båtsfjord	1980	1993	1980	1993		x	x	June 05	Oct 15	1990	x	x		Flood values are of bad quality. There is high uncertainty in lowflow values. However, flow values at that level occure only during the winter months.	Yes	2
244	2	0	Neiden	1911	1979	1985	1985		1982, 2000, 2011, 2019	1986, 1987, 1989, 2000, 2009, 2011, 2019			x	x	okt-apr	okt-apr	Missing data in the period 1974-78. Transmission of water out of the cachment from 1952 (64.2 km2). Considered as largely unregulated.	The timeseries is very much ice corrected all winter months (end of October to beginning of May).	
246	9	0	Sametielv	1962	1963	1985	1985	1981-1989	1966, 1981-1989, 2005	1985-1989, 2005			x	x	okt-apr	okt-apr	Some biofouling in summer but it is not known if it contributes to any seasonal variation.	The timeseries is very much ice corrected all winter months (end of October to beginning of May).	
247	3	0	Karpelva	1927	1947	1985	1986		1985, 1987, 1990, 1994	1987, 1990, 1994			1996, 2003, 2007,	x			Data missing from Oct 1944 to Jul 1946.	Mostly flood events at the beginning of the winter are corrected but a lot of low winter discharge, later in the winter season, is not corrected	1
307	5	1	Murusjø	1925	1926	1989	1989		1947, 2010	2010	May 20	Oct 24						no ice	1

307	7	1	Landbru	1943	1988	1965	1988	x	x	x	May 27	Oct 20	1993, 1999, 2003	1990,1991, 1992, 1993, 1994, 1999, 2000, 2003,			Discharge from karstland. The discharge station is located below the outlet "Landbru", which is a cave (tunnel) of about 150m. Very good probability of hysteresis effect here, especially when flood. The rating curve is very unceartain for water levels > 1.7 (about QM, 18-19m3/s). Water surface observations becomes difficult when hight water levels, especially when the tunnel/cave is filled up it becomes very turbulent and messy hydraulics. 1985-1987: Reconstructed.	no ice	2
308	1	1	Lenglingen	1925	1926	1989	1989			2008	May 26	Oct 25						no ice	1
311	4	1	Femundsenden (Femunden)	1896	1896	1987	1987		1945, 1997, 1998, 2003	1997, 1998, 2003	May 22	Oct 20	2002, 2003	2002, 2003, 2008	x		Transfer of water out from the northern end of lake Femunden. The transfer is probably of little importance on most waterlevels. 1896-1916, measurements were made of the transfer. It was estimated that the transfer was 27 million m3 a year on average, which corresponds to an annual average water transfer of 0.86m3 / s. It is doubtful whether the transfer has been so great in recent times. The channel has been remodeled several times, last time in 1996. Timber floting until approx. 1970. Mar1926-Jan1927: Reconstructed. Jun-Dec1986: Reconstructed.	no ice	2
311	6	0	Nybergsund	1908	1912	1986	1989		1914, 1929, 1973, 1986, 1987, 1988, 1992, 1995	1992, 1995	May 22	Oct 19	x	x	x		Located in the same river as gauging station Femundsenden (Trysilelva), but much further down the river. Transfer of water out from the northern end of lake Femunden. The transfer is probably of little importance on most waterlevels. 1896-1916, measurements were made of the transfer. It was estimated that the transfer was 27 million m3 a year on average, which corresponds to an annual average water transfer of 0.86m3 / s. It is doubtful whether the transfer has been so great in recent times. The channel has been remodeled several times, last time in 1996. Timber floting until approx. 1970. 1908-1911: Data is of limited quality. 1973: Data is of limited quality. 1986-1988: Data is of limited quality.	Yes	2
313	10	0	Magnor	1911	1981	1980	1981	(x)	x	x	April 25	Nov 09	1997	2014, 2016			Influenced by "Glomma's bifurcation at Kongsvinger" (Pettersson, 2001) at Q > average flood. Homogenity break in 1978/80, probably due to change of lokation of the discharge station.	no ice	1