Supplementary materials

TABLE S1 The literatures extracted from Scopus and WOS database for systematic review.

ID	River	Dam	Location and Time of Changes	Climate *	Channel morphology	Upstream (U)/Downstream (D) of dam	Data collection method	Morphological changes	Reference
1	Ahar Chai	Sattarkhan	Iran; mountain plain (U: 33.6 Km; D:43.9 Km); 1990 to 2009	BSk	Single thread	U & D	Hydrometric stations data, field works	U: narrowing (8%); incision (18.4%) D: narrowing (27%); incision (42.4%)	Ashouri et al. (2015)
2	Karkheh	Karkheh	Iran; alluvial plain (218 km); 2002 to 2014	BSh & BWh	Single thread	D	Satellite images, survey topography	Narrowing (21%); incision on (0.85% in most reaches)	Adib et al. (2016)
3	Dunajec (single) Smolnik (multi)	Rożnów	Poland; alluvial plain (218 km); 1982 to 2012	Cfb	Single thread and multi-thread	U	Aerial photographs and orthophotos	Narrowing (55.86 %); increasing sinuosity; stabilization of channel planform in single-thread; decreasing braided index	Liro (2017)
4	Lower Yellow River	Xiaolangdi	China, alluvial plain (792.18 km); 1986 to	BSk	Single thread and multi-thread	D	Hydrological dataset, topographic maps, hydrological survey transects	Narrowing (53.3%); incision (217%); Incision (more than 2 m).	Wang et al. (2022)

			2015						
5	Hwang	Hapchon	Korea, alluvial plain (45km); 1970 to 2001	Cwa	Multi-thread	D	Aerial photographs, discharge data, field survey	Incision (maximum 3.5 m and mean depth of bed degradation 1.83 m)	Choi et al. (2005)
6	Yeşilırmak	Suat Uğurlu	Turkey, alluvial plain (20 km), 1980 to 2019	Csa	Single thread	D	Satellite images, Cross-section data, hydrological data, Sediment sampling	Incision (up to 5.9 m); coastal erosion in the delta; decrease in the meandering tendency	Kale and Ataol (2021)
7	Tone	Clatworthy	Somerse, southwest England	Cfb	Single thread	D	Cross-section data	Reduction of channel capacity	Gregory and Park (1974)
8	Yegua Creek	Somerville	Texas, alluvial plain (19 km), 1967 to 2000	Cfa	Single thread	D	Measured cross sections	Channel capacity decreased; channel depth decreasing (an average of 61%); channel width remained stable with an average decrease (9 %)	Chin et al. (2002)

9	Saint-Maurice	La Gabelle	Quebec, Canada Alluvial plain (20 km), 1948 to 2008	Dfb	Single thread	D	Aerial photographs	No significant change in the mean of bankfull width; increase in the surface area of islets; sediment accumulation	Vadnais et al. (2012)
10	Yamuna	Wazirabad	India, alluvial plain (25.5 km), 1912 to 2017	BSh	Multi-thread	D	Topographic and antique maps, satellite image	Bar areas were reduced; braided index declined; reduction in channel belt area, bar area and its width.	Kumar et al. (2019)
11	Guadalete	Arcos	Spain, alluvial plain (65 km), 1956 to 2004	Csa	Single thread	D	Field work and aerial photographs surveys	Narrowing (75%); reduction in total corridor area (30%); aggradation and vegetation encroachment	del Tanago et al. (2015)
12	Yangtze	Three Gorges Dam (2006 2012) Gezhouba Dam (198)	China, mountain and alluvial plain (~30 km), 2002 to 2016	Cfa	Single thread	D	Cross-sectional profiles survey	Incision; narrowing	Zhou et al. (2021)

13	Barakar	Maithon Dam Tilaiya Dam	India; mountain and alluvial plain (up to 10 km), 2011	Aw	Single thread and multi-thread	U & D	Satellite images, digital elevation models data, Topographical maps	U: Increase of width–depth ratio in upstream; increase braid channel ratio D: decrease of width–depth ratio decrese braid–channel ratio; increase (>18%) in the channel sinuosity at the downstream comparison to the upstream U: decrease of width–depth ratio; D: Increase of width–depth ratio and suddenly reduced downstream	Biswas and Pani (2021)
14	Yizhi reach (YZR) in the Middle Yangtze	Three Gorges Dam (TGD) and Gezhouba dam	China, alluvial plain (59.3km), 2002 to 2015	Cwa	Single thread	D	Grain-size distributions of bed material, Topographic data	Increasing cross-sectional area and depth; decreasing bed roughness	Zhou et al. (2018)

15	Lower Yellow River	Sanmenxia, Liujiaxia, Longyangxia and Xiaolangdi Dams	China, alluvial plain (128 km) 1951 to 2006	Cwa	Single thread and multi-thread	D	At-a-station hydraulic geometry data	Incision; narrowing; the channel has been subject to substantial deposition due to the flushing of sediment from Sanmenxia Dam, resulting in a marked reduction in bankfull cross-sectional area; changes in channel form are not entirely synchronous	Ma et al. (2012)
16	Lower Trinity	Livingston Dam	Texas, alluvial plain and coastal plain (175 km) 1995–2003	Cfa	Single thread	D	Resurveys of channel cross-sections	60 km from dam; incision; widening; bank erosion; lateral channel migration; coarsening of channel sediment and a decrease in channel slope. Between about 60 km and the Trinity delta no morphological response to the dam is observed	Phillips et al. (2005)

17	Brazos Sabine Rivers	Brazos (several dams, Lake Whitney, Belton Lake, Lake Limestone) Sabine Rivers (Toledo Bend Reservoir)	USA, coastal plain (~625 km)(~225 km), 1925–2007	Cfa	Single thread	D	Historical cross-sections, photographs, flood-frequency analysis	Incision	Heitmuller (2014)
18	Serpis	Beniarrés	Spain, alluvial plain (6.4 km), 1945 to 2017	Csa	Single thread	D	Aerial images,	Channel width decreased by 80%, and the active channel area decreased by 89.3% change from wandering to single thread pattern, and total loss of mobility	Sanchis-Ibor et al. (2019)
19	Dunajec	Czorsztyn	Poland, alluvial plain (4.6 km), 1977 to 2009	Dfb	Single thread	U	Aerial photographs and orthophotos	Widening; a slight variation sinousity	Liro (2015)
20	middle Yangtze	Three Gorges Dam (TGD)	China, alluvial plain 2003 to 2015	Cfa	Single thread and multi-thread	D	Hydrologic measurements, measurements of suspended sediment, topographic data, bathymetric maps	Incision; decreasing bar area of mid-channel	Li et al. (2019)

21	Lower Yellow River	Xiaolangdi	China, , alluvial plain (786 km), 1965 to 2015,	BSk	Single thread and multi-thread	D	Cross-sections measurement	Narrowing; aggradation; decreasing width–depth ratio; large migration of the river channel; shrinkage of the channel	Liu et al. (2021)
22	Zambezi	Kariba and Cahora Bassa	Mozambique, alluvial plain and coastal plain (593 km) 1972, 2004	BSh	Multi-thread	D	Historical aerial photography, remote sensing, methods	Sediments into the river delta decreased; downcutting of the main branch channel	Mikhailov et al. (2015)
23	Satsunai	Satsunai River Dam	Japan, Alluvial plain (786 km), 1976 to 2006,	Dfb	multi-thread	D	Flood discharge, dam cross-sections, aerial photographs	Decreased area of active channel	Takahashi and Nakamura (2011)
24	Maule	Colbún–Machicura	Chile, alluvial plain (36 km),	Csb	Multi-thread	D	Satellite images, flow data	12% decrease in active areas of the river; narrowing of the active area	Pacheco et al. (2022)

			1985 to 2018						
25	Vistula	Wloclawek Reservoir	Poland, alluvial plain (19 km) 1971–2015	Cfa	Single thread	D	Hydrological data, aerial photograph, longitudinal and cross channel profiles, IHA-RVa model	Narrowing; incision; evolved towards the anabranching type system.	Gierszewski et al. (2020)
26	Hanjiang	Danjiangkou	China; alluvial and mountain plain (160 km), 1959 to 1979	Cfa	Single thread	D	Measurement of cross-section	Incision; after the exposure of the gravel layer the channel slope becomes steeper; due to the influence of the exposed gravel layer, a tendency towards widening occurs where the bank material erosional resistance is low, leading the channel to a wider and shallower cross section.	Jiongxin (1996)

27	Huanghe River (Yellow River)	Xiaolangdi Reservoir,	China, alluvial plain (86 km), 1976 to 2012	BSk	Single thread	D	Discharge and sediment load data, cross-sectional data	Decrease and shrinkage of the channel transect	Wang et al. (2020)
28	Lower Yellow River	Xiaolangdi	China, alluvial plain, (248.6) 1983–2019	BSk	Single thread	D	Discharge and suspended sediment concentrations (SSC) data, cross-sectional profiles, IHA-RVA approach	Erosion of the riverbed and lowered the water level, causing the main channel to be narrower and deeper	Lu et al. (2022)
29	Lower Sabine River	Toledo Bend	UAS, alluvial plain (230 km); 1967 to 2000	Cfa	Single thread	D	Field mapping, dendrogeomorphology and vegetation evidence, sediment sampling, aerial photographs, digital orthophotoquads, stream gauge records	Incision, bank erosion, widening; the channel is scoured; channels shifting, sandbars are migrating,	Phillips et al. (2005)
30	Yichang –Datong reach of the Yangtze	Three Gorges Dam	China, alluvial plain, (1183 km), 1955–2016	Cfa	Single thread	D	Hydrological stations data	Incision; widening	Yang et al. (2021)
31	Trinity River, downstream tributaries	Livingston	USA, alluvial plain and coastal, (60 km)	BSh	Single thread	D	Channel cross sections surveyed from bridge crossings, at-a-station hydraulic geometry, aerial photos	Incision; widening; channel migration	Musselman (2011)

			1954 to 2008						
32	Lower Volga	Volgograd	Russia; alluvial plain (357 km); 1914 to 2001	Dfa	Single thread and multi-thread	D	Navigation maps and satellite imagery, field surveys	Incision (2 m); bar erosion; channel bank accretion; cut-off of meanders	Middelkoop et al. (2015)
33	Shashi reach of the Yangtze	Three Gorges Project Gezhou dam	China, alluvial plain (52 km), 1975 to 2018	Cwa	Single thread	D	Topographic surveys data, runoff and sediment transportation data, topographic	Incision (93.1%, in low-water channel); narrowing; sandbar area decreased, river morphological coefficients decreased	Yang et al. (2021)
34	Tigris	Mosul dam	Mosul, alluvial plain (8.3 km), 1990-1991	BSh	Single thread	D	Cross-sections survey, sediment sampling	Bed erosion	Al-Ansari and Rimawi (1997)
35	Jingjiang reach of the Yangtze	Three Gorges Dam	China, alluvial plain (347 km) 1960 to	Cfa	Single thread and multi-thread	D	Cross sections measured, hydrological data	Incision; intensive channel scouring; decrease width-depth ratio	Li et al. (2018)

			2015						
36	Kurobe	Unazuki	Japan, alluvial plain (13.2 km) 1947-2008	Cfa	Multi-thread	D	Sampling sediment bar and vegetation coverage, aerial photographs	Aggradation; vegetative encroachment	Asaeda and Rashid (2012)
37	Yangtze	Three Gorges Dam	China, alluvial plain (km) 1982 to 2010	Cwa	Single thread	D	Sediment concentration, tidal flat model	Deposition	van Maren et al. (2013)
38	Quevedo	Baba	Ecuador, alluvial plain (125 km), 1986–2019	Aw	Single thread	D	Satellite images	Decrease in sinuosity, decrease total reach length mainly caused by cutoffs	Clavijo-Rivera et al. (2023)

39	Lower Peixe	Quatiara	Brazil, alluvial plain (70-km) 1962–2008	Cfa	Single thread	D	Aerial photographs and satellite imagery, historical map	Decrease in sinuosity (from ~2.6 to ~1.7), average wavelength of bends has increased from~200 to ~500 m, the planform has become much simpler	Morais et al. (2016)
40	Yangtze	Three Gorges Dam	China, alluvial plain (1183 km) 1998-2016	Cfa	Single thread	D	Hydrological data (discharge, suspended sediment concentration (SSC), and water levels), cross sections data	Incision, bedload coarsening, and changes in the water surface slope, river scouring	Gao et al. (2021)
41	Green	Flaming Gorge Dam	USA, alluvial plain and mountain plain (162 km) 1952 to 1987	BSk	Single thread	D	Historical aerial photographs. published sediment and discharge records, and sediment data	Narrowing; decreasing channel surface area	Lyons et al. (1992)

42	YiHao reach (YHR) in the Middle Yangtze River	Three Gorges Dam	China; alluvial plain (203 km) 1982 to 2018	Cfa	Single-thread and multi-thread	D	Field observations and numerical modelling, hydrological and sediment dataset, topographic and flow velocity data, bed material samples	Incision; gravel–sand transition migration	He et al. (2022)
43	Lhasa	Zhikong	China, intermontane plain (105.5 km); 2001–2016	BSk	Single-thread and multi-thread	D	Satellite images, discharges and field observations	Increase number and area of central bars in the braided reach; main channel incision	Wu et al. (2018)
44	Lower Yellow River	Xiaolangdi	China, alluvial plain 1999-2009	Cwa	Single thread	D	Hydrometric stations data	Incision (66.38%); narrowing	Jian-guo et al., 2012
45	Teesta	TLD3 and TLD4 dams	India, mountain plain (21 km) 2010 to 2019	Cwa	Single thread	U	Bathymetry map of the reservoirs, digital elevation models, satellite images	Sediment deposition	Fields et al. (2021)

46	River Teesta	Teesta Stage Dam III and IV	India, alluvial plain, (~45 km),	Cwa	multi-thread	D	Field and satellite-based observations, suspended sediment concentration (SSC), discharge, boat surveys, morphodynamic model,	Lower relative relief, decreasing channel cross-sectional areas	Sanyal (2017)
47	River Rede	Catcleugh Reservoir	UK England, alluvial plain (33.60 km)	Cfb	Single thread	D	Cross-sectional survey	Narrowing (53%); conveyance have been reduced (75%); downstream siltation	Petts et al. (1993)
48	Upper Yangtze Estuary	Three Gorges Dam	China, alluvial plain (80 km) 1995 to 2019	Cfa	Single thread	D	Bathymetry data. discharge, sediment concentration, suspended sediment grain size data	Reduction of the sediment load; channel changed from a depositional system to an erosion system; the channel was dominated by extensive erosion, severe local deposition, or severe local erosion	Zhang et al. (2023)
49	Lower Yellow River	Xiaolangdi	China, alluvial plain, (~860 km) 1987 to 2017	Cwa	Single thread	D	Remotely sensed images, hydrological data	Degradation; intense channel migration; increasing sinuosity, decreasing braided index	Kong et al. (2020)

50	Ningxia-Inner Mongolia Reach of the Upper Yellow River Huanghe River (Yellow River)	Qingtongxia Dam Liujiaxia and Longyangxia Reservoirs	China, alluvial plain, (1217 km) 1976 to 2015	Dwb	Single thread	U & D	Stations cross-section data	A slight increase in the discharging capacity of the channel	Su et al. (2019)
51	Lower Yellow River	Xiaolangdi Reservoir	China, alluvial plain, (200 km), 1986 to 2020	Cwa	multi-thread	D	Sattelite images, runoff and sediment load data	Narrowing (60%); incision (122%); the lateral erosion rate and lateral accretion rate have decreased; the flood transport capacity has increased by nearly 79 %	Wu et al. (2023)
52	Lower Rio Grande	Falcon	Mexico, coastal plain (200 km) 1912 to 2011	BSh	Single thread	D	Lidar DEM data. bathymetric-topographic profiles, history channel centerline positions, aerial images	Incision; lateral migration of the river shut down and exposed point bars shrunk in size	Goudie (2022)

53	Jingjiang reach of the Yangtze	Three Gorges Dam	China, alluvial plain (350 km) 1981 to 2013	Cfa	Single-thread and multi-thread	D	Topographic data	Incision; narrowing	Han et al. (2018)
54	Middle reach of the Yangtze	Three Gorges Dam	China, alluvial plain, 590 km 1956- 2003	Cfa	Single thread	D	Sediment transport rate, flood level, a numerical simulation	Degradation	Li et al. (2009)

55	Lower Trinity River	Livingston	USA, alluvial plain (120 km), 1924 - 2014	Cfa	Single thread	D	Field measurement, numerical model, discharge, bathymetric surveys. digital elevation model, aerial photography, grain size sampling	Bed erosion, reduction in the sediment volume of channel bars, coarsening of sediment on bar tops, steepening of channel banks, reduction in lateral migration rates of river bends, up to 7 meters of channel-bottom incision, transforming an initially linear profile into a convex-up long profile	Smith and Mohrig (2017)

56	Mandakini–Alaknanda	Srinagar	India; mountain plain (190 km) 2010–2020 2013 extreme event,	Cwa	Single thread and multi-thread	U & D	Survey of India toposheets, satellite imagery, digital elevation model	U: highest degree shifts in thalweg; increase of the active channel width after the 2013 extreme event, depositional features has significantly higher values for post-flood period in 2013 than in 2012 D: most stable over the investigated time span, no significant difference was observed in the depositional features in relation to the two time periods	Agarwal et al. (2022)

57	Lower Yellow River	Xiaolangdi	China, alluvial plain, 248.9 km 1983–2019	Cwa	Single thread	D	Water levels, flow rates, suspended sediment concentrations (SSC), cross-sectional profiles; IHA-RVA and random forest (RF) approach	Incision; narrowing; lowered the water level,. Additionally, in the post-WSRS season, the cross-sectional geomorphic coefficients (CSGC) was lower in the post-dam period, while the average depth of river cross-sections increased.	Lu et al. (2022)
58	Tista	Gazaldoba barrage	India, alluvial plain, (75 km) 1987 to 2017	Cwa	Multi-thread	D	Satellite images	Downstream erosion of the riverbed and transport of the coarser bedload further down	Ghosh and Chakraborty (2022)
59	Yichang-Chenglingji Reach of the Middle Yangtze River	Three Gorges Dam	China, alluvial plain, (408 km) 1992 to 2017	Cfa	Single thread	D	Remote sensing images, cross-sectional profiles, hydrological datasets.	Reduction of channel bars area; increase in the length/width ratio (LWR) of the bars	Lyu et al. (2020)

60	Smolnik	Ro˙znów	Southern Poland, 1.5-km	Cfb	Single thread	U	Bathymetric and geodetic surveys, LiDAR data (dem), hydrodynamic model	Average water depth was increased, the average flow velocity was decreased	Liro et al. (2022)
61	Middle Yangtze River	Three Gorges Dam	China, alluvial plain, (955 km) 2003 to 2020	Cfa	Single thread	D	Discharge and water level, channel topography, bed-material composition, vegetation coverage, cross-sectional profiles	Incision; bankful depth and area increased; increased movable bed roughness	Zhou et al. (2023)
62	Ribb	Ribb	Ethiopia, alluvial plain (77 km); 1995-2010	Aw	Single thread	D	cross-sections data, bed materials, one dimensional model, discharge,	Ded degradation	Mulatu et al. (2021)

63	Yangtze River reach between Yichang and Datong.	Three Gorges	China, alluvial plain, (1,183 km) 1980- 2014	Cfa	Single thread	D	Topographic data, runoff and sediment concentration data, grading of suspended sediment, gradation of bed sand particles and riverbed, geology data	Increase erosion, erosional channels and erosional river floodplain, deep channels	Yang et al. (2018)

64	Lower Changjiang (Yangtze River)	Three Gorges Dam	China, alluvial plain, 1300 km 1981–2002 and 2002–2010	Cfa	Single thread	D	Runoff and suspended sediment concentration, suspended sediment fluxes, thalweg depths cross-sections, data of surveyed and literatures	Channel down cutting, erosional channel	Dai and Liu (2013)
65	Yangtze	Three Gorges Reservoir	China, alluvial plain, (660 km) 2003 to 2017	Cfa	Single thread	U	Topographical data	Decreasing the number and area of mid-channel bars (MCBs); decreasing the ratio of length to width of the MCBs leading to a shape adjustment from narrow–long to relatively short–round with the rising of the water level	Tang et al. (2021)

66	Green	Flaming Gorge Dam	USA; bedrock and mountain plain (104.4km) 1938- 1999	Dfb	Single thread	D	Historical aerial and oblique photographs, stream-gaging records, and field observations	Narrowing (10–30%); deposition of post-dam sediment and stabilization of pre-dam deposits	Grams and Schmidt (2005)

67	Lower Jingjiang Reach	Three Gorges Reservoir	China, alluvial plain, (22.5 km), 1981 to 2017	Cfa	Single thread	D	Hydrological dataset, topographic maps, runoff and sediment load data, field measurements (flow velocity, water level, suspended sediment concentration and size, bed materials, and morphological changes)	Erosion on the point bars	Wang et al. (2022)

68	Middle Reaches of the Hanjiang River	Danjiangkou Reservoir Six cascade reservoirs Wangfuzhou Xinji Cuijiaying Yakou Nianpanshan	China, alluvial plain, (263 km) 1986–2018	Cfa	Single thread	D	Remote sensing images, hydrological data (sediment concentrations, water level and runoff)	Decreasing the mid-channel bars'area (23.19%)	Zhang et al. (2019)
69	Aras	Aras Dam	Iran, alluvial and mountain plain, (160-km) 1984–2019	BSk	Single thread	D	Remote sensing images	Active channel narrowing (2.05 m/year); lateral deposition and narrowing	Fazelpoor et al. (2021)
70	Hwang	Hapchon	Korea, alluvial plain, (25 km) 1982- 1996 2002	Cwa	Single thread	D	Field survey data	Incision; encroachment of riparian vegetation onto previously active bar surfaces	Choi et al. (2005)

71	Jingjiang Reach of the Yangtze River	Three Gorges Dam	China, alluvial plain (347 km) 1975 to 2017	Cfa	Single thread	D	Flow and sediment data, river bathymetry data, river channel topographic maps	Incision; migrating bar surficial erosion and steady bar lateral erosion	Yang et al. (2023a)
72	Middle Yangtze (Shashi Reach)	Three Gorges Dam	China, alluvial plain, (194 km) 1980 to 2013	Cfa	Single thread	D	Flow and sediment load, suspended sediment concentration (SSC), suspended sediment discharge (SSD), and suspended sediment data, bed-material grain sizes	Incision; decrease of the width-to-depth ratio	Zhang et al. (2016)
73	Lower Reaches of the Yangtze River	Three Gorges Dam	China, alluvial plain, (753.4 km) 1989–2019	Cfa	Single thread	D	Satellite images, water level data, runoff and sand transport volume, median particle size data topographic maps	Overall change in river morphology small in the horizontal direction, but the local area changed significantly	Dai et al. (2023)
74	Lower Weihe River	Sanmenxia	China, mountain plain, (208 km) 2006 to 2018	Bsk	Single thread	D	Cross-section data, water and sediment data	Flushing at both ends and siltation in the middle, while continuing to exhibit non-flood flushing and flood	Ma et al. (2022)

siltation features

75	Middle-lower Yangtze	Three Gorges Dam	China, alluvial plain, (1231 km) 2002-2016	Cfa	meandering channel patterns and anabranching channel patterns	D	Cross-sectional profiles, bathymetric maps	Incision; local changes of channel bar erosion; riverbank retreat and bed material coarsening	Yang et al. (2023b)

76	Tisza	Novi Becej	Hungary, alluvial plain, 1876 and 2017	Cfa	Single thread	D	Flow data, hydrologic monitoring stations data	Flood level increased; river stages for low flows have decreased, and the water slope has decreased	Kiss et al. (2019)
77	Yellow and lower Wei Rivers	Sanmenxia dam	China, alluvial plain, (~ 260-km) 1960–2018	BSk	Single thread	U	Cross-sectional surveys	Aggradation; the retrogressive aggradation. the erosion/deposition centers migrated towards the dam by ~50–60 km during 1974–2010 and migrated upstream after ~2010.	Zheng et al. (2022)
78	Dunajec	Czorsztyn Reservoir	Poland, alluvial plain, (4.5-km) (1982–2013)	Dfb	Single thread	U	Aerial photographs and orthophotos, LiDAR data	Increase average bar area; increase width-depth ratio	Liro (2016)
79	Lower Yangtze River	Three Gorges dam	China, alluvial plain (~118k); 1981-2016	Cfa	Single thread	D	Field surveys, hydrological station records, satellite images, topographic data, historical practice reports	Rapid bar growth; riverbed at the Heishazhou reach, experienced apparent erosion	Yan et al. (2022)

80	Stony Creek	Black Butte	California, alluvial plain, (8 km) 1950 to 1990	Csa	multi-thread	D	Historical cross sections survey	Incision (over 5 m); changed from an active braided channel to an incised, single-thread channel	Kondolf and Swanson (1993)
81	Karoon	Gotvand	Iran,, alluvial plain, (128-km)	BSh	Single thread	D	Remote sensed data	Widening (+3.5 m); decrease meander neck length (274 m); decrease flow length and river sinuosity	Yousefi et al. (2016)

82	Dry Creek	Warm Springs Dam	USA, Dry Creek study reach (10.5 km)	Csb	pre-dam multithread post-dam channel was a single-thread meandering stream	D	Aerial photographs	Stream length varied 64% less; channel incision and constrained channel migration	Gordon and Meentemeyer (2006)

83	Lowland English River River Ter	Leighs reservoirs	England, alluvial plain, 1966 to 1981	Cfb	Single thread	D	Field data	Increase of channel capacity	Petts and Pratts (1983)
84	-Magdalena River, -Cauca River, -Sinú River Verde River Yaguará River	-Betania and Prado, (22km), 1969-2020 -Salvajina, (7.7 km)1961-2020 -Urrá I Dams (26 km) 1991-2020	Colombia, alluvial and mountain reach	Am	Single thread multi-thread	U & D	Aerial photographs, satellite images	D Urrá I : widening (17%), sinuosity decreased. sinuosity decreased -1.31% on average U: widening (600% and 562%) Salvajina : U: widening, with some changes in sinuosity D: narrowing by −0.17 m (−0.21%) and the sinuosity by 0.09 (4.74%) D:Betania and Prado Dams: without important changes in sinuosity U: widening up to 249%. sinuosity, remains almost	Alvarado et al. (2023)

								constant	
85	Thirteen river reaches Ebro basin	Several reservoirs	Iberian Peninsula, alluvial plain and mountain plain (from 3.47 to 25.09 km); 1957 to 2010	Cfb	Single thread	D	Aerial images, discharge data	Narrowing; decrease sediment bar mean surface and number	Besne and Ibisate (2015)
86	Upper Connecticut River basin	Dams	USA; alluvial plain	Cfa	Single thread	D	Aerial photographs, at-a-station data, field-measured U.S. Geological Survey, stream gauge data, channel hydraulic geometry and discharge data	No to minor channel morphology changes	Magilligan et al. (2008)
87	Italian rivers	Pieve di Cadore	Italy; mountane and alluvial plain (~220 km); 1900s-1991	Cfa/Cfb	Multi-thread	D	Maps and aerial photographs	Narrowing (more than 50%); decrease of braiding index; incision (up to 2 – 3 m); changes in channel pattern (from braided to wandering)	Surian (1999)

88	White River	Lake Francis Case	US, alluvial plain (120 km), 1954 to 2011	Dfa	Single thread	U	Field survey, field sampling and GIS mapping, historical aerial photos	Original White River channel and adjacent floodplain aggraded by up to 12 m	Volke et al. (2019)
89	Upper Missouri River	Garrison and Oahe Dams	US, alluvial plain (512 km), 1958 to 2007	Dfb	Single thread	U & D	Aerial photography, stream gage data, cross sectional surveys	D: removal islands in channel; eroding the bed, banks, and islands, increase in cross-sectional area U: crational of large islands on the outside of the bends from sediment drop off and backwater effects, increase in islands and sand bars and minimal change in channel cross-sectional area, Channel widening	Skalak et al. (2013)

90	Po River	Isola Serafini dam	Italy, alluvial plain (70 km), 1954 to 2014	Csc	Single thread	U	Orthophotos and satellite images, topographic surveys, Samples of river bed sediment, borehole logs, gauging station	Lateral migration rate of the channel is up to 45 m/yr upstream of the influence of backwater flow and ca.10 m/yr at the transition from normal to backwater flow conditions (30 km from the dam), deposition of coarse-grained sediment and 46 the emergence of the gravel-sand transition of the river.	Maselli et al. (2016)
91	Carpathia Rivers (San, Wisłok, Ropa, Raba and Dunajec, Rivers)	Solina-Myczkowce, Besko, Klimkówka, Dobczyce, Czorsztyn-Sromowce Reservoirs	Polish Carpathian Mountains, mountane and alluvial plain (1.0–1.5 km and 2.0–2.5 km above each reservoir; 0.5–1.0 km and 1.5–2.0 km below the dams)	Dfb, Cfb	Single thread	U & D	Field research	Proportion of mid-channel bars is different in upstream and downstream, of dams	Wiejaczka and Kijowska-Strugała (2015)

92	Missouri River	Several dams	US, mountain and alluvial plain (575.4 km)	BSk, Dfa, Dfb	Single thread	U	Aerial imagery	Formations of many deltas contain thick sediments	Volke et al. (2015)
93	Weihe	Sanmenxia	Chaina, mountain plain	BSk	Single thread	U	Field survey, hydrological data, maps	Rise in base level, aggradation, bed shallower and wider, neck-cutoff, decrease sinousity	Xu (1990)
94	Laohahe River and the Yangchangzihe River	Hongshan	China, alluvial plain	BSk	Single thread	U	Hydrological data, field survey, aerial images	Sedimentation,	Xu (2001)
95	Laohahe	Hongshan	China, alluvial plain	BSk	Single thread	U	Aerial images, hydrological data	Changes from wandering to meandering channel, narrowing, sedimentation, smaller width to depth ratio, increase sinuosity, lower degree of braiding	Xu and Shi (1997a)

*Aw: Tropical wet and dry (savanna climate); BSh : Hot semi-arid climate; BSk : Cold semi-arid climate; Cfa: Humid subtropical climate; Cfb: Temperate oceanic climate or subtropical highland climate; Csa: Hot-summer Mediterranean climate; Csb: Warm-summer Mediterranean climate; Cwa: Monsoon; Dfa:

Hot-summer humid continental climate; Dfb: Warm-summer humid continental climate; Dwb: Monsoon-influenced warm-summer humid continental climate.

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TABLE S2 Hydrological and physiographic characteristics of the studied rivers.

River	Drainage basin area (Km^2)	Length (km)	Basin relief (m)	Mean annual precipitation (mm yr^{-1})	Mean annual discharge ($m^3 s^{-1}$)
Ahar Chai	3035	132	2864	330	1.3
Karkheh	51,482	900	3642	477	167
Dunajec	1147		2055	1700	
Lower Yellow River	23,000	768	93.6		1218
Hwang	925	45		1,105	
Yeşilırmak	36,114	810		646	181.10
Stony Creek	1920	200		975	
Yegua Creek	3,407		148	991	7.95
Saint-Maurice	43,000				
Guadalete	3360	159		600	
Yangtze	1.8×10^6	~6,300		1400	5,000
Guadalquivir	57,527	656.2	566	600	118
Karoon	67,500	950	4536		504
Barakar		113	650		
Lower Trinity River	46 100				
Brazos	118,350	~625			
Sabine	25,540	~225			
Serpis	752	75		586	1.3
Yellow	752,443	3471	2000		
Maule	20,295				125
Vistula	171000	267			
Rivers in the Polish Carpathians	19,600	250		1225	
Hanjiang	159000	1567			1310
Huanghe	750,000	5464			
Italian rivers	301 280		2500	990	
Lower Sabine River	25 267				
Trinity	46,100				
Volga	1360000				8000
Tigris					663
Quevedo	4268		4012		240
Peixe	10,769	380	405	1300	63.40
Green	115 770				
Thirteen river reaches Ebro basin	85,362			1500	
YiHao reach					
Lhasa	32,471	551	3600		237
Teesta	~9500				
Rede		58			
Polish Carpathians	19,600	250	774	1225	
Ningxia-Inner Mongolia Reach		1217		275	
Coastal Rio Grande	450,000	(>3000		635	~49
Ebro	85,000	930			216.5
Tista			6965	2412	
Smolnik	64.9	15.45			
Zambezi	1330000	2660		1050	22000
Ribb		77	2213	1,300	
Hanjiang	46,800	240		950	
Aras	100,220	1072		900	1100
Po	75,000	651			
Missouri		3768			
Hwang	1325.6	116.9		1,105	
Shashi Reach	68×10^4	950			
Ulan Buh		100			
Weihe	134,766	818			
Tisza	157,200	962			
Upper Connecticut River				900	