

DANUBE GLOSSARY

Impressum

Danube STREAM project consortium

Network of Danube Waterway Administration – data and
user orientation

Basic Danube Glossary 2019

Photos: Danube STREAM

Layout: Plovput

Introduction

The [Danube Glossary](#) originates from the period of cooperation in the international project NEWADA duo (Network of Danube Waterway Administrations - data and user orientation), 2012-2014, under the South East Europe Transnational Cooperation Programme. The Danube STREAM project has continued on this basis, enabling its project partners to now prepare this new edition.

The [Danube Glossary](#) is mainly focused on Danube waterway users. It contains elementary terminology used by Danube waterway administrations staff in their daily business of providing safe and sustainable navigation conditions on the Danube River, but also general information about the river aiming at raising awareness of the general public. The terminology is related to inland navigation, civil engineering, traffic and transport engineering, geodesy, hydrography, hydrology, geographic information systems, river information services, ecology, nature and environmental protection. Special attention in this edition is given to the geographical terms related to the Danube River waterway, but also to the currently emphasized project cooperation among the Danube riparian countries and its management.

[The Danube STREAM project](#) - Smart, Integrated and Harmonized Waterway Management - is co-funded within the first call of the EU Danube Transnational Programme (Interreg Danube Transnational Programme) and started on the 01st of January 2017 with a duration of 30 months.

For more information, please visit the following links:

<http://www.interreg-danube.eu/danube-stream>

<http://www.interreg-danube.eu/approved-projects/danube-stream>

A

ADN	Regulation annexed to the European Agreement concerning the International Carriage of Dangerous Goods by inland Waterways (UNECE document)
AGN	European Agreement on Main Inland Waterways of International Importance
alluvial	made of gravel/mud/silt/sand deposited and formed by rivers or floods
alluvium	a fine-grained deposit, composed mainly of mud and silt, deposited by a river
Altmuehl	a river in Bavaria, Germany, a left tributary of the river Danube
anchorage	an area off the coast which is suitable for a vessel to anchor
Arges	a river in Southern Romania, entering Danube at Oltenita

apron	layer of stone, concrete or other material to protect a structure's toe against scouring
aquatic dredged material placement	dredged material placement options under which the dredged material is submerged under water and remains water-saturated
aquatic habitat	submerged water communities in the sea, rivers, or lakes
Austria	one of the Danube riparian countries
Automatic Identification System (AIS)	automatic communication and identification system intended to improve the safety of navigation by assisting in the efficient operation of vessel traffic services (VTS), ship reporting, ship-to-ship and ship-to-shore operations

B

- backwater** water held back in a channel or stream by a dam
- ballasting** intaking ballast water to enable the vessel to clear a bridge, increasing the draught
- bank protection** works to protect the bank from eroding
- bar (sandbar)** elevated region of sediment (sand or gravel) that has been deposited by the flow
- barrage** facility for damming a river to control its water level
- barge** vessel without its own motor, it is towed/pulled by a tug
- Basel Convention** Convention on the control of transboundary movements of hazardous wastes and their deposits (1989)
- baseline study** an inventory of a natural community or environment to provide a measure of its condition at a point of time, often done to describe the status of diversity and environmental condition

- bathymetry** a study of underwater depth of water bodies, topography of a water body
- beacon** a light or other visible object serving as a signal, warning, or guide along the waterway
- bed erosion** the deepening of a stream by erosion of its bed
- bed load** the weight or volume of gravel rolled or moved by a stream along its bed in a unit of time
- bed load function** relationship between bed load and discharge in a given cross-section of stream
- bed profile** a curve indicating the elevation and shape of a river bed; may be a longitudinal curve or a transverse curve at a cross-section
- Bega River** rises in Romanian Banat and flowing into Tisza River
- Belgrade Convention** Convention regarding the regime of navigation on the Danube; signed in Belgrade on 18 August 1948; see *Danube Commission*
- benchmark** a fixed point or mark whose position is known to a high degree of accuracy and is normally marked in some way

bend radius radius of curvature of the fairway

benthos biotic community that lives on the bottom of a body of water, classified according to the size to megalobenthos, macrobenthos, mediobenthos and microbenthos

berth anchorage place for vessels in ports, a ship's allotted place at a wharf or dock, a place in the water near the shore where a ship can safely stop



bilge the lowest inner part of a ship's hull

bilge water water containing oil from the engine room area of a ship

biodiversity the range of different species of flora and fauna found in a given region, area, habitat or within the ecosystem

boat master captain of a ship who bears responsibility for the ship



- bottleneck** sector of the waterway with restricted fairway parameters, due to morphological, hydrological or traffic density related reasons
- bow** front part of a ship
- bow thruster** located in the front part of the ship, helps steering the ship
- branch** parallel river stretch or closed river stretch
- branch canal** a shipping canal branching off from a waterway that forms a "dead end", for connecting cities or industrial zones close to the waterway
- Breg** a river, joins with Brigach to form the Danube in Donaueschingen, Germany
- Bratislava Agreement** Historical agreement concluded between the former state-run companies operating on the Danube, regulating, among others the legal relationships between the carriers and their partners for the international transport of cargo on the Danube
- bridge** a structure built to span physical obstacles such as a body of water, valley, or road, for the purpose of providing road or rail transportation passage; see vertical clearance

- Brigach** a river, joins with Breg to form the Danube in Donaueschingen, Germany
- bulk cargo** unpacked cargo that is discharged via grabbers, diggers and similar machinery (e.g. coal, ore, grain)
- Bulgaria** one of the Danube riparian countries
- bunker boat** ship that is used to supply other ships with fuels, consumables and food (possibly also for waste disposal)
- buoy** floating device that aids the skippers by marking the fairway to allow ships to navigate safely



C

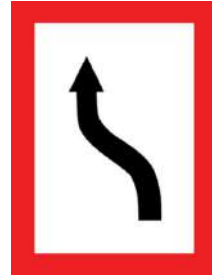
- cabotage** transport between two ports in the same country
- calibration** comparing accuracy of an instrument's measurements to a known standard; setting attributes and computational parameters so that a model properly represents the situation being analysed
- canal** mostly artificially created waterway or channel, mainly for the passage of vessels
- capital dredging** the activity of creating new civil engineering works by means of dredging, such as harbour basins, canals, etc., and the deepening of existing waterways, approach channels
- Carte de Pilotage** navigational chart
- cargo** goods carried on a ship or other vessels

- catchment area of the river (drainage area, drainage basin)** drainage area of a river and its tributaries, overground and underground
- caution area** an area where the skipper has to be made aware of circumstances influencing the safety of navigation
- CCNR** Central Commission for Navigation on the Rhine
- CEF** the Connecting Europe Facility (CEF) is a key EU funding instrument; it supports the development of high performing, sustainable and efficiently interconnected trans-European networks in the fields of transport, energy and digital services.
- CEMT classification** the Classification of European Inland Waterways is a set of standards for interoperability of large navigable waterways forming part of the Trans-European Inland Waterway network within Continental Europe and Russia; it was created by the European Conference of Ministers of Transport in 1992
- Central Danube** navigable stretch of the Danube River between the Hungarian port of Gönyü (km 1,794) and the Iron Gate hydropower and navigation system (km 931)

CEVNI	European Code for Inland Waterways, document of the UNECE
chainage	distance along fairway axis from the mouth of the river in upstream direction.
chamber	the space enclosed between the upper and lower gate of a lock
chevron	u-shaped structure pointing upstream to divert the river flow along both sides of the structure
clay	a fine-grained earthy deposit, mainly of hydrous aluminum silicates
class certificate	Certification from an authorized institution that the ship meets the technical requirements of a particular waterway
closure bund	a dam structure in soil or rock to close a branch
coarse-grained soil	a soil in which sand and gravel predominate
coastal	of, relating to, or near a coast

coastal
waterway sign

inland navigation sign placed at the bank of the river



confluence

the junction of two rivers, especially rivers of approximately equal width

container

standardized transport unit

container vessel

motor cargo vessel that has been constructed specifically for transporting containers

convoy

formation consisting of one motorized and one or more non-motorized vessels (towed convoy, a pushed convoy or a side-by-side formation)



coordinate system

a reference system consisting of a set of points, lines, and/or surfaces, and a set of rules, used to define the position of points in space in either two or three dimensions

communication area

an area in which a vessel has to report or may request information

construction site

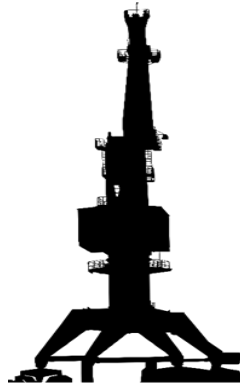
a location where construction works are being executed

corridor

a strip of land or waterways that connects different areas and different infrastructure facilities

crane

machine used for moving heavy objects by suspending them from a projecting arm or beam



crane bridge	horizontal part of the crane
crest level	level of the top of hydraulic structure (e.g. groyne, sill, guiding bund, embankment)
cross-border	passing, occurring, or performed across a border between two countries
critical sector	sector/section of the fairway where no sufficient depth/width/vertical clearance is guaranteed and available
cross-section, profile	a plane cut, generally perpendicular to the centerline of the river or the fairway
cruise	a voyage on a ship or boat taken for pleasure or as a vacation and usually calling in at several places
cruise ship (cruise liner)	a passenger ship used for pleasure voyages



D

dam a massive wall or structure erected across a valley or river for impounding water

Danube Awareness Day an official event with the main purpose to present and discuss good practices in waterway management, that allow an equilibrium between good ecological and good navigation status

Danube-Black Sea Canal an artificial waterway between Cernavodă and Constanța (Romania)

Danube Delta the second largest river delta in Europe, after the Volga Delta; has a high level of nature protection



Danube the Danube River - *Donau, Dunaj, Duna, Dunav, Dunărea, Dunay*

Danube Bend a curve of the Danube in Hungary, near the city of Visegrád, the Transdanubian Mountains lie on the right bank, while the North Hungarian Mountains on the left bank

Danube Commission (DC) an international intergovernmental organization established by the Convention regarding the regime of navigation on the Danube signed in Belgrade on 18 August 1948; since 1954 its seat is in Budapest; official languages are German, Russian and French

Danube Commission member states Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, Moldova, Ukraine, Russia

Danube Competence Center a Danube focused association of tourism actors for a sustainable and competitive destination Danube, based in Belgrade

Danube Day marked each year on the 29th of June, when 14 countries of the Danube Basin jointly celebrate one of Europe's greatest river systems and the people and wildlife that rely on it; established in 2003



Danube Delta the largest river delta in the European Union



Danube River Protection Convention international convention for cooperation on transboundary water management in the Danube River Basin; signed on 29 June 1994 in Sofia and came into force in 1998

Danube Tourist Commission (DTC) an international tourism marketing association

Danube Transnational Programme (DTP) the Danube Transnational Programme is a financing instrument of the European Territorial Cooperation (ETC) - Interreg

Danube-Tisa-Danube Canal (DTD) an artificial waterway in the Banat and Bačka regions (Vojvodina, northern province of Serbia)

database one or more structured set of persistent data managed and stored as a unit and generally associated with software to update and query the data

daymark a sign used to code passing and crossing day beacons on the inland river system

dead water zone a stretch of a river where water is restrained

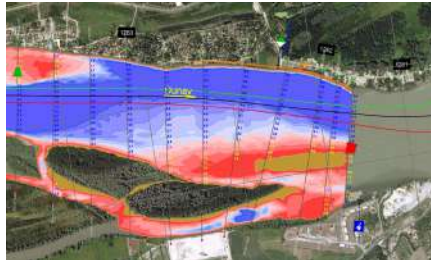


debris wastes or remains of something broken down, destroyed or detached; any oversized material adversely affecting the hydraulic transport system

deepwater section a river section with great depths

delta a landform that forms from deposition of sediment carried by a river as the flow leaves its mouth and enters slower-moving or stagnant water

depth contour a line on a map connecting points of equal depth below the hydrographic datum



Design High Navigation Level (DHNL) design navigation level determined with the 1-D hydraulic model associated with the 1% duration of discharges over the 30 year period

Design Low Navigation Level (DLNL) design navigation level determined with the 1-D hydraulic model associated with the 94% duration of discharges over the 30 year period

DG ENVIRONMENT	the Directorate-General for Environment is the European Commission department responsible for EU policy on the environment
DG MOVE	the Directorate General for Mobility and Transport is the European Commission department responsible for EU transport policy
dike (or dyke)	an embankment or a levee for confronting water especially along river banks to prevent flooding of lowlands
discharge (Q)	the volume rate of water flow, including any suspended solids (e.g. sediment), dissolved chemicals and/or biologic material, which is transported through a given cross-sectional area ($Q=A \times V$, where A is cross sectional area (m^2) and V is the mean velocity of water (m/s))
discharge regime	characteristics of the discharge of a water body governed by factors such as climatic conditions, characteristic regional features of the catchment area
dock	artificially formed area of water on the bank of the river for reception of ships
downstream	direction towards the mouth of the river

draught (draft)	the vertical distance between the lowest point of the hull or the keel and the maximum draught line
Drava	the Drava River, navigable tributary of the Danube River
dredger	device, machine, or vessel that is used to excavate and remove material from the bottom of a water body
dredging	excavation of sediment from the riverbed with floating equipment
dredged material	material excavated from the riverbed
drought	continuous dry weather that is without significant rainfall
dry dock	an enclosed basin from which the water can be pumped out (a ship gets waterborne into the dock, the dock gates close, water is removed, the ship stays on docking blocks for repairs or cleaning)
dumping ground	an area where dredged material or other potentially more harmful material is deliberately deposited

duration curve a curve showing frequency with which given values are equalled or exceeded during a certain period

D4D portal a portal website as a unique database and distribution mean of the latest versions of electronic navigational charts and supporting files of all Danube riparian countries (<https://www.d4d-portal.info/>)

E

- E port** port whose parameters are in line with the UNECE classification of European ports of international importance (specified in AGN)
- E waterway** waterway whose parameters are in line with the UNECE classification of European waterways of international importance (specified in AGN)
- E-80-Danube** European international waterway E-80 - Danube River
- ECDIS** *see: Inland ECDIS*
- echo sounder** an instrument for measuring the depth of water by recording times for sounds to be echoed back from the river bed
- ecology** study of interactions among organisms and their environment, the interactions organisms have with each other and with their abiotic environment

ecosystem	a community of living organisms (plants, animals and microbes) in conjunction with the non-living components of their environment (like air, water and mineral soil), interacting as a system
EFIP	European Federation of Inland Ports; gathering nearly 200 inland ports in 19 countries of the European Union, Switzerland and Ukraine
EIA	Environmental Impact Assessment
Electronic Navigational Chart (ENC)	database, standardized as to content; structure and format, issued for use with ECDIS on the Authority of Government authorized Hydrographic Offices; contains all the chart information necessary for safe navigation and may contain supplementary information in addition to that contained in the paper chart (e.g. sailing directions) which may be considered necessary for safe navigation
embankment	a levee, an artificial bank raised above the immediately surrounding land to redirect or prevent flooding by a river, lake or sea
Emerald	Areas identified in the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)
ENI	European Navigation Identifier

Enns	a southern tributary of the Danube River, joining northward at Enns, Austria
environmental indicator	measure for evaluating a given environmental state as quantitatively as possible
environmentally-friendly	designed, established or existing in a way not to harm the natural environment
ERI	Electronic Reporting International
erosion	geological term; process by which particles are removed by the action of wind, flowing water or waves; in the medium to long term, causes a drop in ground water levels
ESPOO	Convention on Environmental Impact Assessment in a Trans-boundary Context (UNECE)
Etiage Navigable et de Régularisation (ENR) or Low Navigation Level (LNL)	water level derived from the rating curve, defined for all navigable sections of the river, defined by the 94% duration of discharges over the 30 year period, on days without ice (defined by the Danube Commission)

EUSDR	Strategy of the EU for the Danube Region (Danube Strategy), Macro regional strategy of the EU gathering 9 EU member states and 5 non-member states
EU funding	fundings established by EU, mainly provided through the structural and other funds
EU transport policy	the policy established by the European Commission; aims to develop and promote efficient, safe, secure and sustainable transport and to create the conditions for a competitive industry
evaporation	physical change of water into humidity or moisture suspended in the air

F

facility	space or objects necessary for navigation, such as locks, gauging stations, bunkers/fuel stations, berths
fairway	part of the waterway with specific depth, width and vertical clearance which enables continuous navigation
fairway channel	the navigable cross-section of the fairway with the minimum width and depth necessary for continuous navigation
fairway availability	availability of certain fairway parameters necessary for continuous navigation
fairway axis	center line of the fairway
fairway parameters	depth and width of the fairway, vertical clearance and bend radius

FASRB	Framework Agreement on the Sava River Basin - international agreement, which integrated all aspects of the water resources management and established the (joint) International Sava River Basin Commission (ISRBC) for the implementation of the FASRB, with legal status of an international organization
ferry	a boat service shuttling between two points
FIS (Fairway Information System)	geographical, hydrological and administrative information regarding the waterway (fairway)
FIS portal	The Danube Fairway Information System Portal website is mainly based on measured and estimated figures concerning water levels and bottlenecks including forecasts, notices to skippers, ice messages, waterway objects, authorities and relevant chart files (http://danubeportal.com/)
fixed bridge	a bridge having permanent horizontal and vertical alignment
fixed costs	standby costs
floating crane	crane installed on a floating unit

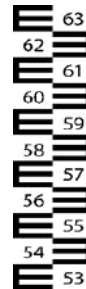
- floating equipment** floating structures carrying machinery used for work on waterways or in harbours (dredgers, elevators, derricks, cranes, etc.)
- floating sign** a marking sign borne on water, susceptible to position changes within a certain area
- flood** an overflow of water that submerges land which is usually dry; excessive stream flow resulting from precipitation or snowmelt
- flood control** regulation of flood waters to prevent or minimize inundation of valuable property or land
- flood probability** the likelihood that a flood of a given magnitude will be equalled or exceeded in a given period; probability of 10% will be a 10-year flood, probability of 1% would be a 100-year flood
- floodplain (flood plain)** an area of land adjacent to a stream or river that stretches from the banks of its channel to the base of the enclosing valley walls and experiences flooding during periods of high discharge
- flow direction** the course along which a river or other stream moves

ford shallow sector of the river that stretches across the whole width of the river

free flowing not impounded

G

- Gabcikovo** the second largest dam system on the Danube, operated at Gabcikovo, downstream of Bratislava
- gates (of the navigation lock)** the watertight doors which seal off the chamber from the upper and lower pounds
- gauge zero** elevation of the gauging station with respect to the mean sea level
- gauging station** equipment for measuring the water level of over-ground water bodies
- Germany** one of the Danube riparian countries
- geodetic survey** a survey that takes figure and size of the earth into account, used to precisely locate horizontal and vertical positions suitable for controlling other surveys



georeference to assign coordinates from a known reference system to the page coordinates of an image or a plane map

GIS Geographic Information System

GPS Global Positioning System

granulometric riverbed improvement use of coarse gravel to cover lower zones of the riverbed in order to halt riverbed degradation of a river

granulometry (of the sediment) size of particles of sediment forming the riverbed

gravel unconsolidated rock fragments that have a general particle size range and include size classes from granule – to boulder-sized fragments



Great Morava a tributary entering Danube at Smederevo, Serbia



green buoy

green floating navigation sign that marks left limit of the fairway



ground water

all subsurface water that fills voids between highly permeable ground strata comprised of sand, gravel, broken rocks, porous rocks, etc. and move under the influence of gravitation

**groyne (groin),
T-groyne**

a rock structure generally at the angle to the river centerline to confine the flow in the fairway

guide bund

a transverse river training structure aiming to narrow the riverbed and to divert flow into the fairway in order to maintain sufficient depth by increasing the natural sediment transport capacity

H

habitat	the sum of environmental conditions in a specific place that is occupied by an organism, population or community
harbour area	an area of water and land with the works necessary for the formation, protection and maintenance of a harbour
harbour master office	the authority under which jurisdiction the harbour area is
Haut-Niveau Navigable (HNN) or High Navigation Level (HNL)	water level derived from the rating curve, defined for all navigable sections of the river, defined by the 1% duration of discharges over the 30 year period, on days without ice (defined by the Danube Commission)
hazardous goods	materials and objects that can be hazardous to human health and environment in case of traffic accidents
head water	stretch of the waterway that is directly above a river power plant

hopper barge	open vessel with a hinged bottom for transporting and dumping dredged material
Hron	a tributary entering Danube at Štúrovo, Slovakia
hull	watertight body of a ship or boat
Hull Database (European Hull Database - EHDB)	database containing standardized information on vessels, including European Vessel Identification Number
Hungary	one of the Danube riparian countries
hydraulic modelling	application of specialized software packages in order to determine and predict flow velocity patterns of the river
hydrodynamics	a sub area of hydraulics, rules on motion of the water and forces acting in the process
hydrodynamic resistance	resistance met by a body when moving through water

- hydrographic survey** surveying of the riverbed with specialized equipment in order to analyse changes of the riverbed and available water depth
- hydrography** a branch of applied sciences which deals with the measurement and description of the physical features of oceans, seas, coastal areas, lakes and rivers, as well as with the prediction of their change over time, for the primary purpose of safety of navigation and in support of all other marine activities, including economic development, security and defence, scientific research, and environmental protection
- hydrology** the study of the movement, distribution, and quality of water, including the hydrologic cycle, water resources and environmental watershed sustainability
- hydromorphology** physical characteristics of the river, including the riverbed, banks, connections with the landscape, including longitudinal continuity and habitat continuity
- hydraulic structures** a product of application of hydraulic principles and fluid mechanics theory for purpose of reaching economic and/or social benefits from water, as well as prevention of the damaging effects of water (e.g. dams, channels, levees, etc.)

I

Ialomița

a river of Southern Romania, discharges into the Borcea branch of the Danube in Giurgeni

IBA

Important Bird Area



ICPDR

International Commission for the Protection of the Danube River; HQ in the UN Office in Vienna

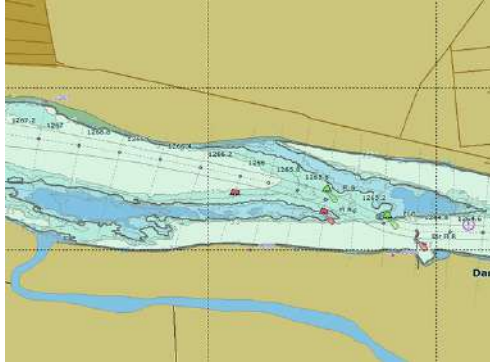
ice message

a notice to skippers about the ice occurrences along the fairway



IENC

Inland Electronic Navigational Chart; see: *Electronic Navigational Chart*



IEHG

Inland ENC Harmonization Group

IHO

International Hydrographic Organization; established in 1921 as the International Hydrographic Bureau (IHB) with 18 nations as members; HQ in Monaco

Iller

a tributary entering Danube at Ulm, Germany

Ilz

a tributary entering Danube at Passau, Germany

**impounded
river section**

section of a river that lies between two consecutive barrages

INEA	the Innovation and Networks Executive Agency (INEA) is the successor of the Trans-European Transport Network Executive Agency (TEN-T EA), which was created by the European Commission in 2006 to manage the technical and financial implementation of its TEN-T programme
indicator species	biological species serving as an indicators of environmental change; a mean of describing environmental conditions of narrow ecological amplitude with respect to one or more environmental factors
informative sign	a waterway marking sign with an informative function
infrastructure costs	costs of construction and maintenance of waterway infrastructure
Inland AIS	Inland Automatic Identification System - tracking and tracing system for inland navigation
Inland ECDIS	a standardized system for displaying electronic navigational charts for inland waters and associated information, that displays selected information from proprietary electronic navigational charts for inland waters and optionally information from other sensors of the craft;
Inn	a tributary entering Danube at Passau, Germany

intermodal transport	transport of goods in one and the same transport unit on two or more transport modes
intermodal transport unit	loading unit standardized for two or more transport modes (container, swap body)
International Commission for the Protection of the Danube River (ICPDR)	transnational body established to implement the Danube River Protection Convention
international waterway	a waterway crossing several bordering countries, established as an international waterway through certain legally binding documents
interstate waterway	a waterway crossing several bordering countries established as an interstate waterway through certain legally binding documents
IPA	a financing instrument of the European Union referring the non - member states - Instrument for Pre-Accession Assistance
IPA	Important Plant Area

- Ipeľ** a river in Slovakia and Hungary, a tributary of the Danube River
- Iron Gate** river gorge on the Danube River at the joint Serbian-Romanian stretch of the river
- Isar** a Germany's second most important tributary of the Danube after the Inn
- Iskar** a right tributary of the Danube entering at Gigen, Bulgaria
- island** (sand) bar overgrown with bushes and trees
- ISRBC** International Sava River Basin Commission; the first constitutional session of the Sava Commission was held on 27th of June 2005, the permanent Secretariat started to work on 09th of January 2006; HQ in Zagreb
- ISRS code** International Ship Reporting Standard Location Code, a unique identifier for each RIS object

J

Jiu a tributary flowing into the Danube a few kilometers upstream from the Bulgarian city of Oryahovo

Joint Danube Survey a river research expedition catalysing international cooperation from all 14 of the main Danube Basin countries and the European Commission, united through the International Commission for the Protection of the Danube River (ICPDR); carried out only once every six years



Joint Statement Joint Statement on Guiding Principles for development of inland navigation and environmental protection in the Danube River Basin; a document jointly accepted by the International Commission for the Protection of the Danube River, the Danube Commission and the International Sava River Basin Commission

K

- Karas** a river in Serbia and Romania and a left tributary of the Danube
- Kazan** Small and Big Kazan; located at the Iron Gate Gorge; the deepest part of the Danube River (depth over 90 m)
- keel** the long supporting piece of a ship's frame that lies lengthwise along the bottom

L

landscape	visually perceived natural scenery
Lech	a river in Austria and Germany and a right tributary of the Danube
left bank	left side of the river when moving from the source to the mouth of the river
lightering	transhipping or unloading a vessel's cargo (if the vessel is too low) on land or to another ship - primarily in the event of low water levels
lighthouse	a tower or other structure containing a beacon light to warn or guide ships at sea
load factor	percentage of the maximum possible loading of the cargo vessel

lock (navigation lock)

hydraulic system to overcome differences in height along a waterway, in which vessels may be raised or lowered by filling up or emptying out one or more lock chambers



lockage

the process of passing a vessel through a lock

lock chamber

a rectangular space located between gates of a lock, in which vessels may be raised or lowered during locking

lock overhaul

maintenance or replacement of elements of a lock

longitudinal dike (training wall)

a rock structure parallel to the river centerline to confine the flow in the fairway

LoS level of service established for several navigation availability parameters

Low Navigable Water Level (LNWL) *see: Etiage Navigable et de Régularisation (ENR)*

Lower Danube navigable stretch of the Danube River between the Iron Gate hydropower and navigation system (km 931) and the estuary of the Danube River into the Black Sea (including the Sulina Canal and the Kilia Arm)

M

maintenance dredging	the activity of keeping existing watercourses, harbour basins, etc., at the required nautical and / or hydrological depth by removing siltation
maintaining	to keep in a condition of good repair or efficiency
mandatory sign	a waterway marking sign with a mandatory function
marina	a specially designed harbour with moorings for pleasure yachts and small boats
marking plan	plan of the position and other attributes of the all floating and coastal signs for a certain fairway or a stretch of the fairway
marshland	land consisting of marshes (area of land always wet)
mean discharge	average quantity of water that flows through a certain cross-section of the river per unit of time on average over a certain period of time (m ³ /s)

Mean High Water (MHW)	mean of multi-year maximum water levels, the average water level measured at a water gauge over a specific period of time
Mean Low Water (MLW)	mean of multi-year minimum water levels
Mean Water Level (MWL)	mean water level over a multi-year period
Middle Danube	navigable stretch of the Danube River between Devin Gate, at the border of Austria and Slovakia (km 1,794) and Iron Gate, at the border of Serbia and Romania (km 931)
Mlava	a river in Serbia, right tributary of the Danube
mobile crane	crane not fixed that can be moved or driven
Moldova	one of the Danube riparian countries
Morava	a tributary entering Danube near Bratislava
mooring facility	the equipment or structure used to secure a vessel



morphological modeling

application of specialized software packages in order to determine and predict morphological changes of the riverbed

morphology (of the river bed)

describes the shapes of river channels and how they change over time

motor cargo vessel

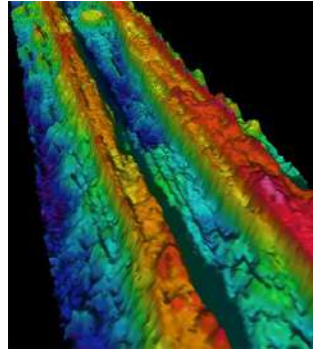
self-propelled vessel with its own motor drive and cargo hold for transporting goods

motorized vessel

craft using its own mechanical means of propulsion, except craft whose engines are used only to cover short distances (in harbors or at loading and unloading points) or to make them easier to handle while being towed or pushed

multibeam

specialized equipment for hydrographic surveys, used for precise 3D imaging of the riverbed



multimodal transport

transport of goods by using two or more different modes of transport



N

Naab a river in Bavaria, Germany and a left tributary of the Danube

NAIADES an EU action programme in support of inland waterway transport

national park a park in use for conservation purposes, area of the highest level of protection (lot of national parks are located along the Danube River, such as Donau Auen National Park, Fruska Gora, Djerdap, Danube Delta, etc.)



Natura 2000 EU nature & biodiversity policy



nautical conditions

how suitable the waterway is throughout the year and whether available water depth is suited for commercial navigation

navigable waters

waters sufficiently deep and wide for navigation by all or specified sizes of vessels

navigational closures

stops of navigation due to high water, ice, lock failure, construction or maintenance works etc.

NEWADA

the project NEWADA (Network of Danube Waterway Administrations) was a part of the South-East-European Transnational Cooperation Program, aimed at improving coordination in promoting, planning and operation for primary and secondary transportation networks; project implemented from 2009 to 2012

NEWADA duo

the successor project of the NEWADA project, started in 2012 and ended in 2014

non-navigable

not available for navigation

notice mark

a waterway marking sign in accordance with the European Code for Inland Waterways (UNECE)

Notices to Skippers (NtS)

information messages that can be sent by or on behalf of a Competent Authority to (inland) ships relating to situations or events that may impact the navigation situation on a fairway



O

- Olt** a river in Romania, entering Danube at Turnu Măgurele
- on board** on or in a ship or other vessel
- operating costs** variable costs of the waterway transport depending on the travelling and transport performance
- orthophoto** an aerial photograph geometrically corrected such that the scale is uniform; unlike an uncorrected aerial photograph, an orthophoto can be used to measure true distances, because it is an accurate representation of the Earth's surface; commonly used in the creation of a Geographic Information System (GIS)
- Osam** a river in northern Bulgaria, entering Danube at Nikopol

P

Paper Chart a chart adjusted for printing with informative features in the field of navigation

passenger vessel vessel constructed and equipped for passenger transport



passenger quay quay specialized for passengers, not for cargo transport

PBA Prime Butterfly Areas

PIANC The World Association for Waterborne Transport Infrastructure (former Permanent Association of Navigation Congresses)

point bar	a bar attached to the inner bend of the river
polluter pays principle	principle recommended by the OECD and the EU that the polluter should carry the costs of measures required to compensate for or clean up pollution
pontoon bridge	also known as a floating bridge, uses floats or shallow-draft boats to support a continuous deck for pedestrian and vehicle travel
port	part of a water body and connected space on the land with facilities and equipment for transshipment and storage of cargo
port fees	charges for the use of port or transshipment site
port infrastructure	quay walls, paved surfaces and railway tracks at a port
port superstructure	port facilities that are erected on the port infrastructure (e.g. cranes, warehouses, etc.)
precipitation	rainfall, snowfall or any condensate
prohibitory sign	a waterway marking sign with a restrictive function



- protected bank** a river bank along which one or more solutions for preventing river bank erosion are applied
- Prut** a tributary of the Danube River, its course in part forms the Romania's border with Moldova and Ukraine
- public port** port owned by the government, use of the port by all navigation companies under the same conditions
- pushed barge** vessel designed or specially equipped to be pushed (*see: barge*)
- pushed convoy** group of vessels, one at least of which is placed in front of the motorized vessel propelling the convoy and is known as a pusher
- pusher** motorized vessel used to push non-motorized freight carriers - barges



Q

quay

a stone or metal platform lying alongside or projecting into water for loading and unloading ships

quay wall

constructed vertical or almost vertical wall that can hold waterside cranes



R

- Rába** a river in south-eastern Austria and western Hungary and a right tributary of the Danube
- radar reflector (active)** an electronic system that responds to a received radar pulse by transmitting a similar radar pulse; target detection is improved because the actively transmitted pulse is generally more powerful than would be the case with passive reflection
- radar reflector (passive)** a device mounted on navigation signs or small crafts that provides a strong radar signature without consuming energy
- Ramsar Convention** areas identified in the Convention on Wetlands called the Ramsar Convention
- reconnection of sidearm** opening of former cut-off sidearm to a regulated river for supplying of water to ecologically valuable regions
- red buoy** red floating navigation sign that marks right limit of the fairway

reduced visibility	conditions in which visibility is reduced due to fog, snow, rain, smoke or any other reason
Regen	a river in Bavaria, Germany and a left tributary of the Danube, at Regensburg, Germany
relocation of dykes	the activity of relocating dykes further away from the river, making the floodplains wider
reservoir	a storage space for water; can be created by controlling a stream that drains an existing body of water, by using a dam or by excavating flat ground or constructing retaining walls and levees
restricted area	an area designated by the competent authority in which entry is prohibited or restricted to certain vessels, or certain transit rules apply
retention lake	a retention pond holds a specific amount of water indefinitely; the pond is designed to have drainage leading to another location to keep the pond from overflowing during heavy rains, but otherwise the pond is intended to always be full

revetment

see: *embankment*

Rhine-Danube Corridor

the only waterway among newly established EU Trans-European transport network



right bank

right side of the river when moving from the source to the mouth of the river

riparian countries

countries in a transboundary area along the same river or stream; Danube riparian countries are Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, Moldova, Ukraine, Russia

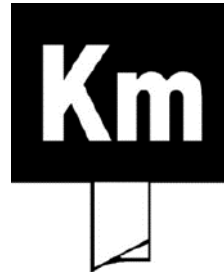
riparian zone (riparian area)

the interface between land and a river or stream (Danube riparian countries are Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, Moldova, Ukraine, Russia)



riprap	the term usually applied to armor stone with a combination of the following characteristics: wide gradation; generally bulk placed; often placed as a cover layer and frequently used in riverbank applications
RIS Directive	RIS Framework Directive of the European Union (2005/44/EC)
river	a large natural stream of water flowing in a channel to the sea, a lake, or another stream
river basin	the land area that is drained by a river and its tributaries
River Information Services (RIS)	harmonized information services to support traffic and transport management in inland navigation, including interfaces to other transport modes
RIS index	location code introduced as unique identifier of objects that allows the connection of information from various RIS; provides a meta-list of these data
riverbed	the base of a river

- river course** the course of a river is a line parallel with its banks
- river surveillance area** a defined and named administrative area of river surveillance
- river training works** hydrotechnical works based on construction of different structures for river regulation
- Romania** one of the Danube riparian countries
- rkm** river kilometer, chainage



S

Sava	the Sava River, navigable tributary of the Danube River entering at Belgrade
scour	erosion of the riverbed
SEA	Strategic Environmental Assessment
section, reach or sub-sector	part of the river within sector
sector (of the river)	part of the river between two sections
sediment	naturally occurring material transported by water, or ice, and/or deposited by the force of gravity acting on the particle itself
sedimentation	the process of separation of suspended solid particles from a liquid stream via gravitational settling
sediment load	the amount of sediment passing a cross-section of a river in a specified period of time

sediment transport	movement of eroded soil and rock particles in water flow
Serbia	one of the Danube riparian countries
shallow section	an area within the waterway bounded with limited depths not adequate for navigation
ship waste	waste materials produced on a ship or other vessel
shipper	contracting body of a transport
shipping company	company for waterway transport, having its own vessels and sales organization on land
sidearm	a branch of a river, where the amount of flow is smaller, than in the main branch
sill (bottom sill)	underwater structure constructed perpendicular to the fairway axis
siltation	pollution of water by fine particulate terrestrial clastic material, with a particle size dominated by silt or clay

singlebeam	specialized equipment for hydrographic surveys, used for surveying of cross-sectional or longitudinal profiles
Sió	an artificial channel in central Hungary, flows into the river Danube
Siret	a river that rises from the Carpathians in the Northern Bukovina region of Ukraine, and flows southward into Romania before it joins the Danube near Galati
skipper	the captain of a ship or boat
Slovakia	one of the Danube riparian countries
sounding	hydrographical measurement using an echo sounder
special port	port specialized in the transshipment of certain types of good, for example, oil
species	group of related individuals with a common hereditary morphology, chromosomal number and structure, physiological characteristics and way of life, separated from neighbouring groups by a barrier, which is generally sexual in nature, and occupying a definable geographic area.



specific weight	ratio of the weight and the volume of a body
squat	level to which a ship sinks while it is in motion compared to its stationary condition on waterways
stakeholder	a person, organization or a subgroup of an organization that have a common interest in a project or activity
stakeholder's participation	ability and enabled possibility of stakeholders to participate in the planning and implementation of infrastructure projects on the river
stakeholder's forum	organized and structured mechanism for stakeholders and public participation in planning and implementation of infrastructure projects on the river
standby costs	costs for keeping ship on standby without taking operational costs into consideration
stern	rear part of a ship
strategic traffic image	information affecting decisions of the users of River Information Services, displaying all relevant vessels in the RIS area, including their characteristics, loads and positions

stream	a continuous flow of water
stretch	a part of the river
suspended sediment	part of the sediment load that is in suspension (which is not bed load)
suspension bridge	a fixed bridge consisting of either a roadway or a truss suspended from two or more cables which pass over towers and are anchored by backstays to a firm foundation
sustainability	utilization of a renewable system in a way that this system is maintained as far as its important characteristics are concerned and its stock level may be regenerated in a natural way

T

t	ton
tailwater	section of the waterway that is directly below a river power plant (<i>see: headwater</i>)
Tamiš	a tributary entering Danube at Pančevo, Serbia
tanker	motor cargo vessel for transport of liquid goods
telematics	integrated application of telecommunication, automation and information technology
TEN-T	the Trans-European Transport Network (TEN-T) is a European Commission policy directed towards the implementation and development of a Europe-wide network of roads, railway lines, inland waterways, maritime shipping routes, ports, airports and rail-road terminals
terminal	facility with infrastructure and equipment for transhipment of goods

time of lockage	time between entering and leaving the lock
ton-kilometer (tkm)	related to transport performance
towed convoy	group of vessels towed/pulled by one or more motorized vessels
Tracking and Tracing System	part of the RIS; process of monitoring and recording the past and present whereabouts of a ship shipment, as it passes through different handlers on its way to its destination, through a network; tracing refers to where the product has been, while tracking refers to where it is going next
Tisza River	the Tisza River, navigable tributary of the Danube River entering at Titel, Serbia
training wall	longitudinal dike
transhipment	shifting of transport units or cargo from one to another mean of transport
transhipment site	transhipment point located on the bank of the waterway without its own port basin

transponder	wireless communication, display or control device that accepts incoming signals and automatically responds to them (combination of the verbs "transmit" and "respond")
tributary	a river branch
transport performance	statistical parameter in transport which takes into account the distance and weight of transported goods, measured in ton-kilometer (tkm) as a product of the weight in tons (t) transported and the route covered in kilometers (km)
tug	motorized or self-propelled vessel towing non-motorized freight carriers called barges
Twenty-foot Equivalent Unit (TEU)	a statistical parameter based on a 20 foot ISO container for describing transport capacities
two way route	a river stretch where the upstream and downstream navigational routes are permanently separated

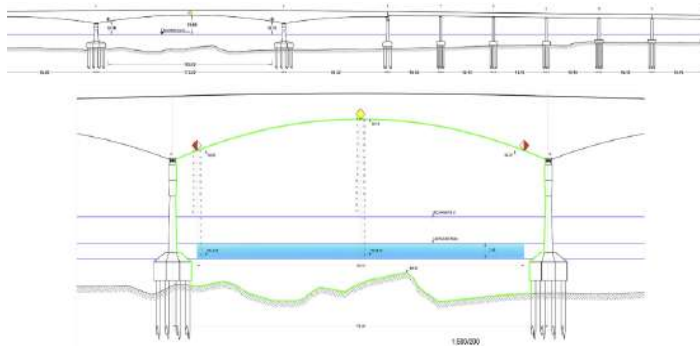
U

Ukraine	one of the Danube riparian countries
UNECE	United Nations Economic Commission for Europe
unprotected bank	a river bank along which river bank erosion exists, but no solutions for preventing river bank erosion are applied
unsurveyed area	an area for which no bathymetric survey information is available
Upper Danube	navigable stretch of the Danube River between Kelheim in Germany (km 2,414.72) and the Hungarian port of Gönyü (km 1,794)
upstream	direction toward the source of the river
upstream voyage	movement of vessel in the direction of the source of the river

V

Váh a tributary entering Danube at Komárno, Slovakia

vertical clearance vertical clearance or distance between high navigation level or max regulation level and lowest part of the bridge construction in the navigation opening



vessel and waterway craft, including small craft and ferry boats, as well as floating equipment



Vessel
Traffic
Services
(VTS)

shore-side systems which range from the provision of simple information messages to ships, such as position of other traffic or meteorological hazard warnings, to extensive management of traffic within a port or waterway

VHF

very high frequency

Vuka

a river in eastern Croatia, a right tributary of the Danube River

voyage
planning

application for planning of voyages in the context of River Information Services



W

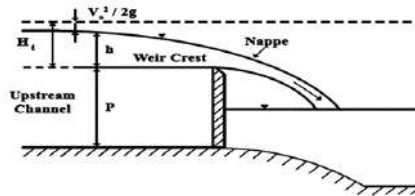
- warehouse** a site where raw materials or manufactured goods may be stored prior to their distribution for sale
- water gauge (station)** *see: gauging station*
- water level (or gauge height or stage)** water height at a certain point in the cross-section of a water body
- water level forecast** estimation of water level in the near future
- water self-purification** the ability of a body of water to purify itself of pollutants
- waterway** any navigable water body
- waterway administration** the authority responsible for waterway management

waterway marking system

the established system of marking along the fairway, using the prescribed signs

weir

a dam across a stream of a river, with the purpose of backing up or diverting water flow



WFD

Water Framework Directive - EU directive (2000/60/EC) which harmonizes the legal framework for water policy within the EU, related to sustainable and environmentally sound water utilization

wildlife

referring to all non-domesticated living organisms including not only vertebrate animals (mammals, birds, fish, amphibians and reptiles) but also invertebrate animals, vascular plants, algae, fungi, bacteria and all other wild living organisms

winter shelter

a location established for securing the vessels during winter periods

winterport

see: *winter shelter*

WLAN	Wireless Local Area Network
wreck	the ruined remains of a stranded or sunken vessel that has been rendered useless
WWF	World Wildlife Fund



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viadonau



SLOVENSKÝ
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Plavput

