Tyrolean Rafting Curriculum

Workshop ‘Quality and Safety’
Project Water Tiroler Oberland
Tyrolean Rafting Curriculum

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   LH-Stv. Hannes Gschwentner
   Dr. Anna Hosp

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© 2004-2008 Workshop “Quality and Safety”
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i. Foreword

LHStv. Hannes Gschwentner

Innsbruck, 2004-04-05

Dear friends from the white water sporting scene!

Rafting and other types of white water sports have become increasingly significant in Tyrol in the past years. If at the beginning of this boom the emphasis was predominantly on the ‘wild’ nature of rafting on the Inn and its tributaries, the practice of this leisure activity has finally and gradually become officially regulated. This was necessary in order to reconcile the different interests with as little conflict as possible, such as the interests of tourism, of nature protection, of the fishing industry and of many similar groups.

It is extremely gratifying that in the meantime in Tyrol only licensed companies offer white water sports as a tourist attraction. The specialist training for rafting guides, developed by the Tyrolean rafting association, by the EU regional association and by the Alpine Safety and Information Centre (ASI), is a recent milestone in the area of quality and safety - both criterions are certain factors of success in both white water sports as well as in the tourism industry.

LHStv. Hannes Gschwentner
(Landesrat für Verkehr, Umwelt und Sport)
(Official responsible for traffic, the environment and sport in Tyrol)
i. Foreword

LR Dr. Anna Hosp

Innsbruck, 2003-06-11

Dear White water sports enthusiasts!

When the ASI-Tirol publish the rafting curriculum for a joint rafting training program, in cooperation with the rafting association, the regional development associations as well as other experts, this can be viewed as a thoroughly positive development for the rafting sport. At the beginning of this development the ‘wild’ aspect of rafting Tyrolean Rivers was associated with correspondingly negative symptoms and also risks. In the meantime rafting has become a serious and increasing part of summer tourism, which although it cannot compete with the top winter sports destinations it can benefit the regions in Tyrol. I refer to regions situated on such rivers as the upper Inn, the Lech or the Isel.

The main connecting theme is also an example for good cooperation between interest groups and the authorities for which I would like to express my thanks. I hope that the curriculum supports all endeavours for sustainable offers of the highest quality in Tyrol’s tourism. Not least important is the sheer enjoyment from the practice of the white water sport

Dr. Anna Hosp

(Landesrätin für Raumordnung, Naturschutz und Gemeindeangelegenheiten)
(Advisor for environmental planning, nature protection and affairs for the local authority in Tyrol)


ii. Introduction

Workshop ‘Quality and Safety Criteria’

White water sports as a part of the leisure and tourism industry have reached such a high level of significance in the Tyrol, which is vital for many regions of our federal state.

The year 2003 has been declared as ‘the year of water’ and in order to view white water sports in this same light the Alpine Safety and Information Centre (ASI) as well as the Institutes for Regional Development (IRI and ASI) together with the Tyrolean Rafting Association have set up a joint project which is assessing the question of safety in white water.

It is the aim of this joint project to summarize, standardize and coordinate the safety criteria, particularly within the sport of white water rafting.

The goal is to achieve a benchmark for all safety aspects for the whole of Tyrol and as a result all rafting companies should be presented with corresponding and valid guidelines on a supra-regional level.

The result of this joint project for safety with all its approved safety criteria is a benefit to all parties concerned: To the managers of the rafting companies, to the rafting guides and above all to the clients who undertake such an activity. Thus the latter can enjoy this ‘trend sport’ under the scrutiny of the highest quality and safety standards.

Friedrich-Karl Huber (M.A.)
President of the Tyrolean Rafting Association
Active contributors to the workshop:
Friedrich-Karl Huber (M.A.), President of the Tyrolean Rafting Association, Sport Camp Tirol, Landeck
Josef Edinger, legally qualified expert for rafting, Schwaz
Andy Leaney, Feelfree Outdoor, Haiming-Oetz
Marcel Pachler, Faszinatour Outdoor, Haiming-Pfunds
Neil Newton Taylor, Rescue3 International
Ariane Guem (M.A.), Regional development association Imst
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Werner Senn (M.A.), Alpine Safety and Information Centre ASI, Landeck
(see also Appendix iii.2 Authors)

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Oswald Stock, Sport Ossi, Kramsach
Michael Paul, Natur Pur, Sautens
Hans Neuner, Bruno Pezzey Rafting, Silz
Alex Schuchter, Liquid Bliss Adventures, Pfunds
Werner Kräutler (M.A.), Regional development association Imst
Alois Thurner, Tyrolean tourist board, Innsbruck
1. Legal Observations of Rafting

1.1 Legal Principles
1.1.1 Federal Laws
1.1.2 Province laws
1.2 On the Problematic Nature of Accidents and Laws in General
1.3 Criminal Law, Liability
1.4 Negligence
1.5 Civil Law
1.6 Contract Law
1.7 About Legal Insurance Cover

1.1 Legal Principles

1.1.1 Federal Laws

The legal principles of rafting take the form of the following federal laws:

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinance on (rafting) navigation</td>
<td>Federal Law page Nr. 258/1997</td>
</tr>
</tbody>
</table>

The latest version can be found at:
http://www.ris.bka.gv.at/bundesrecht/

1.1.2 Province laws

Contact at the local authorities in charge of shipping
Traffic Department
DI Klaus Bültemeyer
A-6020 Innsbruck, Valiergasse 1
phone +43.512.508.3663
fax +43.512.508.3665
Email verkehr@tirol.gv.at
http://www.tirol.gv.at/themen/verkehr/verkehrsrecht/schifffahrt

Information is also available at the above Internet address on the rafting season dates, the issued licenses, and the necessary infrastructure for the rafting guides license (rafting guides examination), etc.

1.2 On the Problematic Nature of Accidents and Laws in General

Austria’s countryside is varied and diversified to such an extent that every imaginable type of sporting activity can be practised throughout the whole year. The search for adventure, living for the moment and the need for an adrenaline rush are of the highest priority for the young and those who have remained young in our intrepid adventure-hungry sporting society. The thrill, whether it is in bungy Jumping, rafting, paragliding, tearing down steep slopes and snowfields on a mountain bike, flying fox, hydro speeding, canyoning etc. dispels fear and
boredom. Of course everyone hopes they are spared from accidents, however this cannot be ruled out. There are even constant attempts to strike sporting injuries from the medical insurance list of cases. These basic socio-political concerns have however nothing to do with legal responsibility.

Observed from a legal standpoint it may be said on the one hand that a certain risk of physical injury to the sporting participant, more or less substantial and in many ways varied, has its roots in the nature of the sport. The inevitable risk of physical injury involved is to a large extent and to a certain degree admired. On the other hand the case often swiftly arises in the aftermath of an accident, also with so-called ‘adrenaline sports’ where the injured party attempts to apportion blame and denies his/her individual responsibility.

In general however, in the case of an accident with resulting injuries, this of course also applies in the area of rafting and canyoning, the fundamental issues are investigated, in order to clarify whether the injury was caused by the individual him/herself or caused by another individual. Hence in Austria such occurrences are established as so-called offences following the accusatory principle, this means they will be officially investigated, even against the expressed will of the victim and independent of public interest. A legal non-professional does not for the most part differentiate between criminal and civil law liability but combines these distinctions of legal liability.

1.3 Criminal law, liability

Liability is having to take responsibility for the consequences of a detrimental action or omission. In a criminal procedure an investigation takes place to see if an element of the offence has been committed under the penal law code, and if the perpetrator should be punished with a fine or a prison sentence. Invariably only one natural person is held criminally responsible for a particular offence (rafting guide, canyoning guide, rafting company manager etc.). The criminal procedure is then officially implemented by the state. The facts of the case are investigated by the Gendarmerie (The Police) and charges are brought forward by the prosecuting attorney. In the case of an indictment by the prosecuting attorney or district attorney the main trial will take place before the responsible court. The trial ends with either a discontinuation of proceedings, an acquittal or a conviction. With the exception of § 81 StGB (criminal code) and more serious cases in § 177 StGB (criminal code) the district court is responsible.

Subsequent to the criminal procedure, in most cases a civil action will follow if no out of court settlement has been reached. Even in the case of a discontinuation of proceedings or an acquittal in the criminal procedure the perpetrator can be made liable in civil law.

1.4 Negligence

In a criminal procedure in connection with leisure and sporting accidents offences of negligence are investigated, it is only rarely that such offences ‘with intent’ are brought to bear.
How is the concept of negligence strictly defined in legal terms (in contrast to an offence ‘with intent’)?

Negligence § 6 StGB: Criminal code
One who is guilty of negligence, acts without the due care and attention, to which according to the circumstances, he is bound and according to his/her mental and physical capabilities which are appropriate to him/her and therefore he/she does not recognise that he/she may be realising facts of a case which correspond to elements of an offence.
One who is also guilty of negligence thinks it is possible that he/she is realising the facts of a case but does not intend it to happen.

According to the criminal code the following offences are applicable:
Negligent bodily harm § 88 par. 1 StGB
Death due to negligence § 80 StGB
Death due to negligence in particularly dangerous circumstances § 81 StGB
Negligence constituting a public danger § 177 StGB
Risk to physical safety § 89 StGB
Abandoning an injured party § 94 StGB

In criminal law a person will only be held responsible if he/she is at least guilty of negligence. The ‘perpetrator’ must be in the mental and physical position to act with the expected objective care. Adhering to this expected care must also be appropriate. With this element of appropriateness, unusual circumstances may also be taken into consideration, in which appropriateness is no longer relevant. For instance in extra-ordinarily extreme situations.

Also within the category of negligence is the case of so-called ‘Einlassungsfahrlässigkeit’ referring to the type of negligence involved in an ‘injury’ scenario arising from a case where an individual acts in a professional role without the necessary qualification or capacity:

This refers to persons lacking in the sufficient mental and physical qualifications to lead a rafting tour, for which they are in no way capable. For instance an inexperienced and unqualified rafting guide, who takes over a rafting tour and, due to a lack of knowledge, causes an accident.

1.5 Civil law

In a civil procedure it is a question of financial compensation for the damages, which have occurred. Hence the principle: 'Where there is no plaintiff there is no judge’, if the injured party makes no claim and does not initiate legal action, no legal action will take place.
The whole civil law liability risk can be covered by the settlement of liability insurance. Therefore if a rafting guide, a canyoning guide or the rafting company manager is made to pay compensation, the liability insurance will pay this claim.
In addition, according to civil law there is also the possibility to take legal action
not against the individual rafting guide but against his employer - the rafting company. This is in practice what tends to happen in such cases since the rafting guide is just a ‘vicarious agent’ to the company, which as a rule has to be expected a higher financial backing.

One category of civil law is so-called contract law, which is highly significant in legal rafting matters as is explained in the following. An overview of contract law gives an initial insight:

### 1.6 Contract Law

In a legal sense we are closing contracts on a daily basis, without being aware of its or their implications. With the booking of a rafting tour a specific carriage contract with numerous main and accessory performance obligations is being agreed.

Most daily legal business transactions are based on a contract, which after agreement on the most fundamental elements of the contract come into being through proposal and exception. The principle of freedom of contract states that the conclusion, the formalities, the configuration and the ending of the legal transactions are left in principle for the parties involved to decide themselves.

The contractual relationship frequently includes a debt relationship, which refers in principle to the main and accessory performance obligations.

Main performance obligations could for instance be the following: With the purchase and typically the transfer of an object and the payment of the price of acquisition. The classic main performance obligation in rafting is the routing of a more or less difficult river. The interdependent accessory performance obligations here are for instance diverse duties of providing all the necessary information, duties of warning, a duty to protect, and other duties to take care. These must not be expressly agreed, but arise from the contract conditions and respectively from respect of the practiced form of doing business.

In principle the liability is the same from a criminal law or civil law viewpoint. As a rule liability is attributed for a causal, illegal and culpable action, which has led to the injury of a third party.

Civil law liability goes further than criminal law liability. Liability is also attributed:

- If no charge is brought forward
- If no criminal law verdict of guilty is given
- If the criminal procedure is discontinued or if the case has been acquitted
- When the group of those who are liable is larger (vicarious agents: criminal code §1313a)
- In a civil procedure divergent foreign law can be applied (§ 48 IPRG) (International civil law code).
1.7 About Legal Insurance Cover

The advantage in the area of civil law liability is that certain risks can be legally covered through insurance. Every licensed business must have an insurance cover in the form of personal liability insurance in order to be allowed to exist.

As regards insurance cover and where applicable claims for compensation against a rafting guide, the rafting guide’s contractual relationship with his/her employer is from a legal viewpoint of prior significance. He/she maybe working as an employee of the company, he/she maybe working under a free contract of employment or possibly even under a contract for services. With a contract for services particularly he/she would have to namely arrange the insurance cover him/herself and also with a free contract of employment there could be varying legal insurance regulations.

Therefore every rafting or canyoning guide is well advised to clarify with his/her rafting company if and how the risk of his/her occupation is covered by insurance. It is a very important piece of advice as interviews with various insurance companies have shown. A ‘normal’ personal liability insurance for sports does not as a rule cover the risks involved in rafting and canyoning. It should therefore be additionally contractually agreed with each respective insurance company and hence it is very important on the one hand that it is made clear with the company if a sufficient insurance cover is provided for and on the other hand (it depends on the contractual relationship between employer and employee) if he/she must make provision him/herself for sufficient legal insurance cover.
2. Tour Plan

2.1 Introduction
A professional tour plan should reduce or prevent risks or accidents in advance. In general the tour plan requires a duty of care: consulting numerous sources of information, analysing information (How reliable is the source? How old is the information? Is it still valid?) From which medium (Internet, Radio, TV…) was the information obtained is not important.

Main elements of the tour plan

<table>
<thead>
<tr>
<th>Group</th>
<th>Equipment</th>
<th>Tour / River</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who? How many?</td>
<td>Check the equipment</td>
<td>Area</td>
</tr>
<tr>
<td>Physical and mental condition</td>
<td>Emergency equipment</td>
<td>Demands</td>
</tr>
<tr>
<td>Responsibility</td>
<td></td>
<td>Length / difficulty</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possibility to avoid it or turn back</td>
</tr>
<tr>
<td>Weather</td>
<td>Situation according to time of year</td>
<td>Information</td>
</tr>
<tr>
<td>Weather report</td>
<td>Water level</td>
<td>Map material</td>
</tr>
<tr>
<td>Development</td>
<td>Day light</td>
<td>Topographies</td>
</tr>
<tr>
<td>Temperatures</td>
<td>Threat of thunderstorm</td>
<td>Guide’s material</td>
</tr>
<tr>
<td>Rain down pours</td>
<td></td>
<td>Expert information</td>
</tr>
<tr>
<td>Quality of visibility</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Objective conditions on the stretch of water (See chapter 8 ‘How to act in case of an accident’). Other people’s reports and a vague indication from them on arising difficulties are by no means sufficient for a trip on a complex stretch of water. Information on the water level, descriptions of the river and stretch of water are an absolute necessity, key areas particularly should be surveyed on the spot. Finally while scouting the river one should agree on areas for safety and rescue measures, in order to be prepared for an emergency situation.

2.2 In advance - the day before
Make inquiries with the kayak clubs, rafting companies and individuals etc. about this section of the river.
Survey of the stretch of water:
Survey the stretch personally if it has not been rafted for a long time. Confirm evacuation points - Where can the river be reached by a road vehicle (possibly an emergency services vehicle etc.)? Where can a helicopter land?

Weather report + forecasts - TV - radio - Internet - newspapers

Water levels - have they been rising or falling up to the day of the tour?
Source: tape recorded message of the water level or a website with the water level

Rafting guide:
Prepare yourself the evening before so that you are fit and ready for action on the day of the tour (sufficient sleep, no alcohol etc.).
Charge your mobile telephone.

2.3 On the day of the tour
A team talk usually takes place on the rafting base for this purpose (base manager, trip leader, raft guides).

Information on dangerous changes in conditions on the stretch of river
Sources: TV, radio, Internet, newspapers
www.alpinesicherheit.com
Are there new obstacles?
Water levels: Sanna water level on 05442 61222
or enquire at the rafting companies, kayak clubs or with individuals.
Exchange of information between rafting companies and also other outdoor companies)

Water level:
Pay attention at a high water level to a change in the character of the river, to the speed of the current - a lack of eddies - which ones are still there?
To tow-backs in drops and weirs - to possible driftwood
Portage?

Take account of the weather forecast in the tour plan
Sources: TV, radio, internet, newspapers
For Example the effects or threats from strong rain, hail, short and heavy bursts of rain, sudden falls in air temperature and atmospheric pressure, thunderstorms, cold weather, heat etc.
http://tirol.com/innsbruck/wetter/
http://www.zamg.ac.at
Pay attention to the possibility of local storms

The duty of obligation and not the source of the information is decisive!
2.4 Equipment Check

Inspect the rafting guide’s equipment - see chapter on equipment
Is the equipment ok and is everything ready for use?

Carry mobile telephones on your person in a waterproof box - check that the battery has been charged. Save the numbers of the rafting base and of the other rafting guides in the phone

Emergency numbers
  Euro emergency number 112 - works in the whole of Europe
  Rescue and Water rescue: 144
  Mountain rescue: 140
Save the numbers and have them mentally at the ready
Turn the mobile off - turn it on - enter 112 as PIN → Emergency 112 is possible on all networks, not just the home net
(See also chapter 8 How to act in case of an accident in relation to this)

The raft equipment - Inspect and make sure it is ready for action. See chapter 5 ‘Equipment’

The Customer’s equipment
  Carry out a safety inspection on this equipment - see chapter 5 ‘Equipment’

Check the people are fit to go on a rafting tour
  (Alcohol, medicine, medical and psychological conditions etc.)

2.5 Final Preparations before the tour

With most rafting companies there is a group talk before the tour, at which all the rafting guides involved in the trip and the responsible manager at the base discuss the planned tour together.

The trip leader determines safety procedure for the trip:
- The assignment of the guides to the boats
- The order of the boats at the launch and at the landing
- Raft order on the river - in convoy - rafting in groups
- Back up from each boat at danger spots. For example after rapids, portage

2.6 Conduct on the water

Conduct on the water must be discussed prior to the trip. Communication on the water is largely only possible through signals and signs. Trips normally take place in convoys of 3 or 4.

The actual river conditions can of course be very different to the expected ones: e.g. due to higher or lower water level, rain/ thunderstorms, driftwood, obstacles, etc. or also due to out of date topographies/maps. The water level of the Inn for example can rise by up to one metre within half an hour.
Show awareness of responsibility and safety - always act with foresight. Be aware and have an overall picture of the group and the section of the river.

2.7 Feedback and exchange of experience

Exchange of experience is an important part of modern safety management. The same as you talk before you go on a tour you should discuss with your buddies on their observations, on danger zones, water level and unusual events on the water. Accidents and dangerous sections should be published (e.g. on the internet) so that also other sportsmen get to know it. This feedback is basis for your next tour plan.
3. Signals and Signs

3.1 Hand Signals

3.1.1 The three most important hand signals

<table>
<thead>
<tr>
<th>Attention - Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention!</td>
</tr>
<tr>
<td>Emergency situation - help is needed</td>
</tr>
<tr>
<td>One arm raised, one hand stretched out above the head</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impassible point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impassible point</td>
</tr>
<tr>
<td>Both arms crossed above the head</td>
</tr>
<tr>
<td>Person in danger</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Person in danger - help immediately</td>
</tr>
</tbody>
</table>

### 3.1.2 Further hand signals

<table>
<thead>
<tr>
<th>First aid / medic</th>
<th><img src="image2" alt="" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>We need first aid and a medic</td>
<td>Both arms crossed in front of the chest. One arm horizontal - one vertical</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Okay</th>
<th><img src="image3" alt="" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>Everything is ok</td>
<td>Hand in fist shape with thumb stretched out upwards</td>
</tr>
<tr>
<td></td>
<td>One arm above the head (used at large distances)</td>
</tr>
<tr>
<td>Eddy out - looping in</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td>Navigating left/right or into an eddy</td>
<td></td>
</tr>
</tbody>
</table>

1. One arm stretched out with the index finger pointing up making a circular movement...

2. ... and then (after recognition of the signal) pointing in the relevant direction
3.2 Whistle Signals

In order to be rescued or to conduct a rescue one must first of all be able to attract attention to oneself. Due to loud surroundings or bad visibility this is often only possible with a signal from a whistle. The signal from a whistle also helps in searches in the dark or in rough terrain. Therefore every rafting guide carries a pea-whistle on his person, most often attached to his chest.

![Signal whistle](image)

**Figure 2: Signal whistle**

<table>
<thead>
<tr>
<th>Whistle signals</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention - stop</td>
<td>1 blast</td>
</tr>
<tr>
<td>Attention in the upstream direction</td>
<td>2 blasts</td>
</tr>
<tr>
<td>Attention in the downstream direction</td>
<td>3 blasts</td>
</tr>
<tr>
<td>Emergency / Emergency situation</td>
<td>3 blasts, constantly repeated</td>
</tr>
</tbody>
</table>
4. Reading Water

4.1 Introduction
The aim of the following chapter on ‘Reading Water’ is to convey the knowledge of the most important specialist terms and characteristics of the water in a geographical, hydrological, meteorological, morphological and nautical sense.

4.2 Definitions and Terms
Obstructions
An obstruction is everything, which disturbs the smooth flow of a river. There is a distinction between natural and artificial obstructions.

1. Natural Obstructions:
Rapids, waterfalls, bends on the river, stones and rocks, barriers of rocks, blocked passages, drops, swells, cataracts, lodged trees.

2. Artificial Obstructions
Weirs of all types, bridge pillars, jetties, bank reinforcements, iron, wooden stakes, piles of concrete, the debris from blasted or fallen bridges, dams, barrier deposits of gravel and scree, a rise in the riverbed, lines (for example chord wiring for measuring water levels), rubbish.

Orientation of the River
Orientation on the river always occurs downstream.
Right Side: Right riverside, as we face downstream.
Left Side: Left riverside, as we face downstream.

Tip:
Further definitions of terms can be found in the Tyrolean rafting script http://www.tirol.gv.at/themen/sport/wassersport/downloads/wassersport_raft_fuehrerschein_technik.pdf (Reading Water questions 36 - 73)

4.3 Grading of Difficulty
The river grading system is the system, which determines the level of difficulty of a section of a river. The level often changes with changes in the water level. The conditions can alter drastically with high or low levels.
Stretches of white water will be subdivided into different categories of level of difficulty according to their raft ability, from I (easy) to VI (at the limit of navigability/raft ability).

Definitions of Grades of Difficulty
A precondition for the white water grading scale is a particular fierceness of the stretch of water. This includes how the riverbeds, riverbanks, variations in the current are extensively altered by nature. Dams and weir systems are not included in the definition of white water.

<table>
<thead>
<tr>
<th>Level of Difficulty</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Easy</td>
<td>Regular currents, regular waves</td>
</tr>
<tr>
<td>II</td>
<td>Moderately difficult</td>
<td>Irregular currents and waves, medium-sized rapids, stoppers and whirlpools, single obstructions</td>
</tr>
<tr>
<td>III</td>
<td>Still clearly navigable/raftable</td>
<td>High irregular waves, large rapids, powerful stoppers, whirlpools and pressure areas, blocked passages, drops, a larger number of obstructions in the current</td>
</tr>
<tr>
<td>IV</td>
<td>Very difficult</td>
<td>Passage not always recognisable, scouting mostly necessary, high continuous rapids, powerful stoppers, whirlpools and pressure areas, shifted obstructions in the current, higher drops with towbacks</td>
</tr>
<tr>
<td>V</td>
<td>Extremely difficult</td>
<td>Scouting essential, extreme rapids, stoppers and pressure areas, narrow shoots and obstructed passages, higher drops with difficult launching and landing possibilities</td>
</tr>
<tr>
<td>VI</td>
<td>At the limit of navigability/raftability</td>
<td>The passage in general is impossible. At certain water levels perhaps navigable. High risk</td>
</tr>
</tbody>
</table>

Footnote:
For rafting there is no grade VI in this region and therefore there is also no example. Commercial rafting is only permitted on rivers up to IV.

The above-mentioned examples are valid with the above-mentioned water levels and can alter very drastically with differing water levels. Therefore the estimated

¹ Hydrographic water level - corresponds to the kayak water level 170 at the Huberbrücke (Huber bridge)
details of grad ability can give a merely approximate idea of the difficulty of the river.

**4.4 Variations in the Current**

Due to the geological conditions, the amount of water and the physical laws of nature which rule the water, diverse bank and riverbed formations can be produced, which for their part in turn influence the variations in the current.

**Waves**

If water is forced to change its state of motion by rocks or other obstructions, waves are formed. A regular recurring up and down movement of the water surface is characteristic of waves.

The difference between waves in a river and waves in the sea is that river water flows downstream, however the waves remain in the same place. A distinction can be made between different types of waves: breaking waves, exploding waves (they build up regularly, reach their full height and crash) and staggered waves.

**Eddies/ Kehrwasser**

The build up of an eddy comes as a result of the suction effect, where fast flowing water passes by calm water. The faster the main current the faster the eddy. At
the same time a line between the two currents is recognisable (eddy line, Verschneidungslinie), this is also where more or less strong whirlpools can form.

Illus. 4.3: Eddy/ Kehrwasser

Stopper waves
Large quantities of water, which flow quickly downwards and come up against sufficiently large resistance, roll at a horizontal axis up river, the under current normally flows down river. On top of that a characteristic is a constant rotation.

Illus. 4.4: Stopper waves build up after water washes over an obstruction

Rapids
A rapid occurs due to the increase in the speed of the current at a narrowing in the river or at the increase in the gradient. The nature of a rapid is determined by the shape and size of the rocks or of other obstructions on the riverbed.

‘Prallwand’: A wall of rocks situated in the direct flow of the current where pressure areas develop.
If water flows up against a rock wall or a river embankment a damming up effect causes a cushion wave. Below the water line the rocks are being eroded to the side and downwards. The rock wall is being undercut and the gravel bed in front of the wall is being deeply scooped out. The more the rock wall is being hollowed out, the
smaller the cushion wave. The water that is rebounding downwards from the rock wall rotates down stream from the place of impact back up to the surface and boils back up like a mushroom. At a Prallwand one can be pulled under water even with a life jacket.

Examples: Aschbach in Ötztal, Tösens

Illus. 4.5: Differing currents at different Prallwände (Walls of rock)

4.5 Guiding Techniques and Where to Use Them

The following section explains guiding techniques in relation to the situations when they should be used.

| Eddy in (entering an eddy) | Eddies can be approached with varying techniques: 
|                           | Variant 1: fast approach into the eddy 
|                           | High approach (angle approx. 45° - guideline!) 
|                           | approach with speed, a shift of weight, crossing of the eddy line/Verschneidungslinie, continue to paddle until the stop command is given  
|                           | ➔ drift 
|                           | Variant 2: ferry gliding forwards and backwards 
|                           | are safe variants, which make a slow and accurate approach possible 
| Eddy in (exiting an eddy) | Normally setting off with the bow facing upstream, build up speed to pass over the eddy line/Verschneidungslinie 
| Safety loop              | A manoeuvre to avoid an obstruction by taking a safe line through the eddy 
| Ferry glide              | The angle of attack and speed depend on the conditions of the current and the line the raft takes 
| Forward ferry glide      | A sideways shift with the help of the boat’s upriver angle of attack without the boat turning into the direction of the current. 
<p>|                           | In this way it is possible to reach the other bank or also a man or object overboard without drifting too far downstream |</p>
<table>
<thead>
<tr>
<th>Backwards ferry glide</th>
<th>To avoid obstructions in a fast current or in a blocked section of river. Placing the stern at the appropriate angle of attack in the direction of the current and all back paddling to reduce the speed of the raft and to shift the raft sideways</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traverse</td>
<td>To traverse the river from bank to bank, without ferry gliding. In this situation the raft is near or sometimes also in the flow of the current. More ‘height’ or length of the bank is lost than with ferry gliding</td>
</tr>
<tr>
<td>Lining</td>
<td>The raft is towed, while in the water, up or downstream, from the bank - while attached to a line</td>
</tr>
<tr>
<td>Stopper waves</td>
<td>Stoppers are to be approached with speed at a right angle to the axis of rotation of the stopper, stoppers with a backwards motion &gt;¼ to the length of the boat are to be avoided. Stoppers can also be used as a steering aid. Approach and steer towards strong or large stopper waves with a high tempo to avoid surfing or getting stuck</td>
</tr>
<tr>
<td>Drops/Falls</td>
<td>Approach with speed and with the distribution of the crew’s weight towards the back and inside of the raft ➔ ’Get down’ or ‘in position’ command (disperse). Pay attention to the catapult effect on the guide and on the passengers</td>
</tr>
<tr>
<td>Cataracts</td>
<td>There is a requirement for thorough inspection, a search for the safest line, an understanding of possible safety measures, a controlled approach and with a sudden change in tempo, watch out for ‘man overboard’ and the ensuing rescue measures. An often important technique for cataracts is to slow down and to avoid obstructions by backwards ferry gliding and therefore shifting the boat sideways</td>
</tr>
<tr>
<td>Draw stroke</td>
<td>The paddle is placed in the water to the side of the boat and paddler, as steep (vertical) as possible, the paddler leans out as far as possible and draws in to the outer tube of the raft - the effect is a sideways shift of the boat</td>
</tr>
<tr>
<td>Sculling</td>
<td>The paddle is placed in the water at the side of the boat (as vertical as possible) and is moved forwards and backwards in a figure of eight shape, the scoop side of the blade is therefore alternately turned back and forth so that, due to the angle of the blade, it meets a resistance and the boat then shifts sideways. Footnote: advanced paddling technique</td>
</tr>
</tbody>
</table>
4.5.1 Approaching Obstructions

What is required at an unavoidable collision with an obstruction?
Reduce speed (back paddle), approach as accurately as possible at a right angle to the broadside axes - if the broadside collides with the obstruction give the command: ‘high side left’/ ‘high side right’ always towards the obstruction to avoid getting the boot wrapped, feet remain inside the raft.
- Cushion waves from obstructions (rocks) can also be used as a steering aid, in that you can mount the cushion so that the raft drifts in the intended direction.
- In principle deliberate collision is to be avoided - the danger of flipping with all the resulting consequences is too high

Danger areas should be assessed for:
- General navigability
- Possibilities for safety, landing and portage.
- Pay attention to the oncoming section (accidents, swimmers, safety!)
- Ability of my team
- Ability of my accompanying rafts in the convoy
- Water level and current

‘Prallwände’ A wall of rocks situated in the direct flow of the current where pressure areas develop.
These can represent a particular danger, above all when they are undercut. This is the case at a ‘Prallwand’ where there is no clearly visible cushion wave. Pay attention to the situation and to the power at the pressure areas (‘cushion’). Again safety here comes first. This means changing direction with time to spare (ferry gliding), either through the eddy, using a safety loop or steering with the stern facing the ‘Prallwand’ (a forward stroke has more power). In emergency take action as with a ‘sideways collision with a rock’.

Bridge Pillars
How to act at bridge pillars: in emergency at a right angle (taken from the broadside axes) meet head on with the bow (stern).
5. Equipment

5.1 Raft - rubber dinghy

Definition of ‘Raft’
‘Raft’: an inflatable man-powered paddle craft which is intended for the navigation of rivers with a high speed current (white water) and due to its design permits a minimum number of four people. (From the ÖNORM - Austrian Standard)

5.1.1 Material

The most frequently used materials for rafts are
- Rubber (India), which is glued together and
- Plastic/hypalon coated polyester mesh (reinforced polyester) which is welded together in a heating process

Necessary qualities:
tear-proof, shock-proof, weather-proof, cold-resistant, air-tight - relatively hard - stiff, torsion ally resistant, temperature resistant from -40 to +80 degrees, ozone-resistant.

Boats are glued - vulcanised - and also moulded in a heat vulcanisation process:
Parts made of raw India rubber are glued together and then the finished boat is vulcanised with heat and pressure, this leads to a homogeneous unity in the boat and to the highest level of air tightness.

Rafts in Austria are subject to the so-called ÖNORM² (Austrian standard) and must fulfil certain conditions.
Every boat has to be inspected at the technical traffic department test centre and it is then allocated an official license plate. This license plate is to be displayed on both sides of the raft (height of the type - 150mm thickness of the type 20mm). The boat also receives a certificate of registration and an inspection card. The inspection card must always remain with the raft.

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² ÖN V5868/2000
5.1.2 Symmetrical and asymmetrical rafts
The ONORM (Austrian standard) differentiates between symmetrical and asymmetrical rafts:

**Asymmetrical Raft**
The bow is raised in comparison to the main tubes and the stern consists of a wall construction, which is connected to the main tubes. The main tubes run forward joining in an arrow shape at the front. The stern is provided with a backboard, the stern must be at least as high as the main tubes.

**Symmetrical Raft**
The bow and the stern have the same form and in comparison to the long tubes are raised at the ends. **Paddle**-powered rafts are international. **Rafts with oaring, oar boats, cataracts** and **pontoon**s all differ.

There are rafts with and without stern rudders.

5.1.3 General Regulations for Rafts
A raft must have at least five independent air chambers. The separation of the chambers may be across the tubes or the length of the tubes (each one according to the manufacturer).

With regard to stability of the raft the ÖNORM (Austrian standard) stipulates that a raft with its highest permitted load which loses all the air in one chamber must remain buoyant, and through its system of power and steering is still able to reach the bank of the river with its payload. The same applies to a raft loaded with the minimum amount of passengers (without luggage).

The **floor** may be inflatable or foam and must be formed (vulcanised, glued or laced together) so that it is steadfast and provides safe usage. The **main tubes** must be in the dimension corresponding to the over all proportions of the raft and guarantee sufficient freeboard and stability for the planned purpose.

The **Stern** must be at least as high as the main tubes (particularly important for asymmetrical rafts). The raft can be fitted with **cross tubes/thwarts**. These can be permanently fixed or removable. (Laced up or hemmed in etc.).

The **Seating** for the passengers must be made out of a non-slip surface material. A laced up floor must be re-knotted (between the holes) (at least 4 times), and laced up foot straps also (see below).

Each air chamber must be fitted with a check valve system.

The **Valves** must be able to be closed airtight by hand (independent of the check valve system), allow a measured reduction of air pressure and enable measurement of air pressure by means of a pressure gauge machine (air pressure counter).

The valves must be so positioned
- to allow accessibility (during the rafting trip) and a connection to the inflation device
- so as not to interfere with the positioned passengers in the raft
- so as not to interfere with the navigation of the raft
- So that they cannot be damaged or broken off by other moveable parts of the raft
- so that when they are detached they may only fall inwards into the raft

The raft has four or more carrying handles. A raft must also have a safety line (also called a circular or grip line), which is fixed tightly or tied together through at least four D-rings on each side so that it is not possible for people to slip through it or objects (stones, rocks etc.) to get caught on it. The line must have a diameter of at least 12mm and can be lagged with tubes (garden hose).

5.1.4 Bailing

Entering water must be able to drain out of the raft constantly - this is what is meant by bailing.

Rafts must be self-bailing. Bailing must take place constantly to enable the emptying of wave and spray water quickly, regardless of the boat’s position on the river (For example: bow pointing upriver).

Bailing systems:
hole-bailing (bailing holes) - bailing tubes - knotted-in floor

The raft must have two suitable foot straps for each passenger, which have to be mounted to prevent the passenger slipping through, or getting caught. Apparatus for holding the feet may be foot straps (belts or lines), foot pockets or cross tubes.

5.1.5 Treatment and maintenance of the rafts

Air pressure 2 - 0,3 bar
Pay attention when inflating the rafts on a hot day, avoid direct sun light, a fully inflated raft can burst its chambers through air expansion.
Close the valves tightly with the valve caps.
Pay attention to sharp edges (particularly when loading fully inflated rafts).
Always carry the boats - do not drag them over sand, gravel etc.
Report any damage - so that the next guide has a fully functional boat.

Boat maintenance
Pay attention to the manufacturer’s advice (maintenance instructions will depend on if the material is rubber or plastic). Treat the outer plastic layer with boat plastic protectant (Bootsmilch); treat the inner chambers with talc (Federweiß).
Keep the rafts in a dry and shady storage place.
Rafts should be stored in a slightly inflated state.
All repairs should take place in a dry place and on a dry raft.

5.2 The Paddle

The Paddle - consists of a T-grip, a shaft and a blade. The material is mainly a plastic - aluminium mixture. Wooden paddles and paddles of other combinations of materials also exist.
Length: approx 145 cm - 175 cm, a guide’s paddle can be slightly longer (155 cm - 175 cm)
Each boat must have a reserve paddle on board.

5.3 Equipment

5.3.1 Passenger’s equipment
**Neoprene suit** - Long johns, neoprene Jacket - often covered in nylon on both sides.
The stitches are glued or stitched with interlocking stitches. Heavily exposed areas (knees, backside) should be reinforced with patching (supratex). This will also provide a sufficient grip whilst seated.
The thickness of the neoprene depends on weather conditions: at least 3 to 4 mm, on warm days, wind breakers or paddle jackets are also a possibility.

**Footwear:**
Neoprene socks, sandals (Teva), trainers or **neoprene Shoes** - should fit well enough that on the one hand you do not slip out and on the other hand do not ‘swim’ in the shoe.

**Buoyancy Aids:**
Buoyancy aids must adhere to the EN (European norm) and have a minimum **buoyancy of 7.5 kg**. They must be the right fit for the passenger’s body and must be kept in good condition. They consist of buoyancy mass (mainly from foam), which is stitched into a nylon texture material (Cotex).

**Helmet:**
Helmets are mostly plastic (or also carbon etc.). They should fit well and the helmet should not slide around. Ideally the ears are also covered.
Recommendation: buy a helmet with a soft sun visor attachment

5.3.2 Guide’s equipment:
**Neoprene long johns**, neoprene **jacket** (depending on the weather conditions, otherwise a wind breaker), stable footwear - neoprene shoes (or neoprene socks in trekking shoes), **helmet**, **paddle**, **buoyancy aid** with rescue system and integrated throw bag, 2 carabiners, a pulley for Z -drags, knife, whistle, flip-line.
(Additional recommendations: prusiks and slings - small throw-bag in the back pocket of the buoyancy aid.

**Throw-bag:** the float line must be 20m long and have a 8mm diameter.
Rescue and flip-lines: rope or line with carabiners - corresponding to the length of the rafting guide’s body mass - at least 3.5 metres.

**Knife:**
The blade must be able to be locked into place so that it can penetrate a boat (resistant material).
It has to be serviceable to at least one hand, also under the water.

5.3.3 Equipment on the raft:
- First aid box or barrel (first aid pack in accordance with ÖNORM V 5101)
- Throw-bag at least 20m long, 8mm in diameter including the throw-bag straps
- 2 carabiners
- Safety line
- Bow and stern lines 3 - 4 m
- Substitute paddle - reserve paddle - in the boat
- Possible drinking water on long tours
- Recommendation: mobile telephone

5.3.4 Treatment and maintenance of the equipment
- Neoprene suits: wash, disinfect and dry regularly
- Paddle jackets: wash, disinfect and dry regularly
- Shoes: wash, disinfect and dry regularly
- Safety check: buoyancy aids, throw-bags, rescue systems, functioning zips, Velcro straps and clips.
- Helmet: check the strap, clip and make sure it is a good fit
- Paddle: repair or dispose of broken paddles
- Pump/ blower: grease it regularly
- Throw-bag: always hang it out to dry after the tour (open end facing down)
- First Aid box: open due to possible condensation. Replace materials after use
- Boat: see above under the heading Raft

### 6. Knots

1. Introduction
2. Basic Knots
3. Other Knots
4. Conclusion
6.1 Introduction

As a guide it is essential to know how to tie the basic knots and in which situations to use them. Guides must be able to perform tasks quickly, efficiently and safely. Tying the correct knot under pressure is a skill, which can only be developed through practice.

A good knot is one that does not weaken the rope, can be readily identified and be easily untied. Not all of these components are found in every knot so it is important to choose knots with the required components for each situation.

The strength of a knot is determined by how much it will weaken the rope. All tight bends within a knot will compress the fibres on the inside of the bend and stretch them on the outside thus weakening the rope. In order to minimize this it is essential to use long knots such as figure of 8 when working with very heavy loads.

The ease with which knots can be identified becomes important when a number of guides are around a busy rescue site. When all guides are using the same knots it will only take a quick check to see if the system is ready and safe.

Untying knots that have been placed under load can be very difficult, especially if the ropes were wet when the knot was tied and then left in the sun to dry. Working the knot back and forth or bending one of the outside loops, often creates enough movement to untie even the tightest knot. Do not hit knots with a hammer or rocks as this may damage the fibres within the rope.

The knots, which a guide will be required to learn for the rafting exam, are as follows:
6.2 Basic Knots

**Single Figure of 8**

The most simple is the figure of 8 knot. It is used mainly to make a stopper in the end of the rope or as the initial part of a follow through knot. It is also very easy to untie.

**Double Figure of 8**
Follow-through Figure of 8:

This is one of the easiest knots to tie and one of the strongest and most universal. It is mainly used for joining 2 ropes together, setting up a z-drag, making a loop in the end of a rope in order to clip into and for fixation.

Clove Hitch
The clove hitch provides a quick and secure method of attaching a rope to a tree or stone (anchor). It can also be used to fasten a carabineer to a rope. It is normally easy to untie after it has been used. You can tie it with just one hand.

**Reef Knot, Square Knot**

The Reef Knot can be used to connect two rope ends of equal diameter that are under tension. It holds thus only, as long as it is under tension. To ensure the knot does not come undone a single figure of 8 can be tied on the ends of the rope.

**Bow Line**
The Bow Line is a basic knot with a wide range of uses. It is mainly used in climbing where the loads are not so great. One of its uses is to make a firm loop at the end of a rope. It can also be used when setting up a z-drag when a karabiner or a shackle is not available.

**Munter Hitch, Italian Hitch**

Used as a simple friction device when belaying or lowering.

### 6.3 Other Knots

The above knots are the minimum a guide must know! It is important that guides make every effort to learn the following knots in order to be able to set up a simple rescue system and rig rafts correctly.

**Barrel Knot**

A strong self-locking very compact knot used for joining 2 ropes of equal or nearly equal diameter.

**Prussic Knot**

The prussic is a friction knot. It grips the rope well when placed under load but will slide easily when loose. It can be used as a brake on a tensioned rope system.
Truckers Hitch

Used to tighten ropes or crank down loads. It is quick and simple to tie.

Tape Knot

The tape knot is used to join 2 pieces of tape together or to make a loop in one end of the tape. The knot is simply an overhand knot in a tape. If the knot is tied on one end of a tape, the other end can be fed back through the knot to form a loop of tape.
Double Loop Figure of 8

A very strong and versatile knot. It can be used to spread the load when connected to a carabiner or to make a very simple but effective self-equalizing anchor system.

4. Conclusion

There are a number of other useful knots, which can be used once you have gained more experience. It is however important to be able to tie and use the basic knots quickly and in the correct situations.
7. Safety Talk

7.1 Conduct and rules in the raft
7.1.1 Introduction
7.1.2 Sitting positions
7.1.3 Paddling technique
7.1.4 Commands
7.1.5 Environmental aspects
7.2 Conduct and rules outside of the raft
7.2.1 How to act as a swimmer
7.2.2 Swimming in white water
7.2.3 How to act as the boat’s crew - rescue
7.2.4 Flip
7.3 Summary of the safety talk

The following chapter contains the procedure and further basic knowledge for the safety talk - the guiding instructions (safety talk) for the rafting guide.

7.1 Conduct and rules in the raft
7.1.1 Introduction

- Short introduction of yourself
- Explanation of the sitting positions (before the actual introduction)
- Show the guests how to sit in the raft
- Show how to place the feet in the foot straps
- Show how to paddle
- Then everyone in the boat

Only now can the actual introduction take place.

Question: Can everyone swim? - Is anyone ill or has anyone any weaknesses?
Question: Does anyone take drugs? - Prescription drugs? - Does anyone have circulatory problems or a weak heart? - Has anyone consumed alcohol?

A rafting tour may not take place if the rafting guide shows signs of fear, fatigue or weaknesses or if there is a pressure to perform, as is so with high water.

Check that no one has valuables on them for example rings, watches...

Footnote: Checking that each guest has signed the forms (Insurance form, rules of liability among others) does not take place with every rafting company.

The guide must be seated in the boat for the safety talk so that every guest has a good view and can hear everything (keep eye contact!) That is to say sit yourself at the highest point at the front of the raft.
7.1.2 Sitting positions

Launching and landing
- Explain launching and landing of the boat
- Before the trip: while boarding the raft:
  The riverside paddlers board first, then the bank side paddlers board.
  The front paddler on the bank side holds the raft. He boards the raft when I say.
- Landing:
  The bank side paddlers get out first. The front paddler holds the boat on the riverside until everyone is out. The riverside crew continues to paddle - until I say: get out!
Note: If there are children among the guests, an adult has to get into the boat first.

Explanation of the various positions in the raft
- A symmetrical raft, explain which is the front and back end of the raft (main features: foot straps, where the throw-bag is connected, floor valves)
- Bailing system - bailing holes in the floor
- For what purpose are the foot straps, footholds and the thwarts?
- Each leg has a place where it is secured
- Both legs always remain inside the raft!
- Paddlers are seated on the slip-proof padding in the middle of the tubes; do not slip too far inside the raft!
- Positions at the front - for the leading paddlers - they are responsible for setting the rhythm - it is wet and there is lots of action!
- Positions towards the back are not so wet
- Scared or nervous guests should be seated next to the guide
- Overweight guests should be seated in the middle of the raft so as to maintain the balance

Two rafting guides
The position of the guide if there are two guides is dependant on the stretch of river and on the water level and is normally decided by the company itself. It is possible that both are at the back or one at the back and one at the front.

7.1.3 Paddling technique

The paddle consists of three parts: The T-grip, the shaft and the blade. It is the most important piece of equipment that we need.
One hand takes the grip, the other the shaft. The hands should be as wide apart as possible so that if the paddle is held above the head, the lower and upper arms form a right angle.

It is important that the grip is always held - there is a danger of injury to the paddler seated next to you. The guests should be made aware of this risk of injury, which occurs when pushing off an obstruction (rocks).
We have two types of paddle strokes:

1. **The basic forwards stroke**
The upper body bends far forwards; the paddle is placed in the water vertically in front of the body and with the help of the body pulled backwards - *to the height of the sitting position*. The use of the upper body saves strength, you can paddle for longer and the paddle strokes are more effective.

2. **Basic backwards stroke**
The paddle sits on the hips (at the hip bone). This serves as a pivot. Lean the upper body forwards and turn outwards. Through leaning the upper body backwards and pulling/pushing the arms, the paddle’s blade will be pressed forwards in the water. The paddle remains fixed to the hip the whole time.

The paddlers in the front positions (leading paddlers) set the rhythm.

7.1.4  Commands

While rafting a river it is important that everyone works together as a team. Commands should be clearly and precisely given. In order that everyone works well together it is necessary that everyone paddles in sync according to the commands, which the guide gives.

The following commands are:
- All forwards
- All backwards
- right backwards
- left backwards

Commands are clearly announced, for example: *right forwards, left backwards* (there is no automatic opposite paddling for the other side expected)

In high grade rivers or sections the following commands could be useful, as fast reactions are essential:
- *Draw stroke left and right*
- *Right backwards* and automatically left forwards (To be arranged in advance)
- *Left backwards* and automatically right forwards (To be arranged in advance)

Footnote for the draw stroke: too complex and not useful for the guests. It could be taught if the rafting company so wishes.

**Stop**
All commands are ended with the command *stop*. Only at the stop command should the team stop paddling.

**Safety commands**
There are further commands, which must be adhered to for safety reasons. These will only be used on rare occasions. If I am to call a safety command it is important that they are carried out quickly.
There are the following safety commands
‘Over left!’ or ‘highside left!’
‘Over right!’ or ‘highside right!’

Summary of the commands:

<table>
<thead>
<tr>
<th>English</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>All forwards</td>
<td>Alle vorwärts</td>
</tr>
<tr>
<td>All backwards</td>
<td>Alle rückwärts</td>
</tr>
<tr>
<td>Left forwards</td>
<td>Links vorwärts</td>
</tr>
<tr>
<td>Left backwards</td>
<td>Links rückwärts</td>
</tr>
<tr>
<td>Right forwards</td>
<td>Rechts vorwärts</td>
</tr>
<tr>
<td>Right backwards</td>
<td>Rechts rückwärts</td>
</tr>
<tr>
<td>Stop</td>
<td>Stopp</td>
</tr>
<tr>
<td>Over left or High side left</td>
<td>Alle nach links</td>
</tr>
<tr>
<td>Over right or High side right</td>
<td>Alle nach rechts</td>
</tr>
<tr>
<td>Get down</td>
<td>Alle ins Boot</td>
</tr>
<tr>
<td>Position</td>
<td>Position</td>
</tr>
</tbody>
</table>

Note on „Get down“: The guests are to get out of the foot loops (danger of injury).

7.1.5 Environmental aspects

Ecological awareness in such a sport as rafting, which is in such close contact to nature, should be self-evident. The most important rules of conduct:

- No polluting the river or river banks
- No littering
- Keep the landing and launching sites clean
- Use the public toilets provided
- Avoid making unnecessary noise
- When an encounter with fishermen takes place remain calm and float by - if possible on the opposite side of the river

7.2 Conduct and rules outside of the raft

7.2.1 How to act as a swimmer

It may be that during the trip passengers voluntarily or involuntarily swim. This is not a problem as you are equipped for the water with a buoyancy aid and a neoprene suit, which protect you. There are however a few points to watch out for.

The water is very cold (between 6 and 10° C); this means that if you fall into the water, it is a shock for the body. The first reaction to the cold is that you may struggle for breath. Therefore it is very important that as soon as you come up again, you continue to breath calmly. Orientate yourself immediately towards the boat. This means that as soon as you surface, watch for the raft and try to actively swim to it. Should you not find the boat immediately, do not panic, but turn yourself around one time. More often
than not the boat is directly behind you. Grab the line as soon as possible and hold on tight. You will then be helped into the boat. 

Very important! Never try to stand up in the water. Always lift the feet up, lie down flat in the water. Rocks or fallen trees could be lying on the riverbed, under which you could get your feet stuck. The water would then press you down under the surface (demonstrate with the thwart!).

If you do swim - keep eye contact with the rafting guide and watch out for his/her instructions (Signals).

7.2.2. Swimming in white water

There are different techniques for ‘swimming in white water’: active and passive. You should always try, first of all, to reach the boat yourself by actively swimming.

Active swimming means: on the stomach and front crawl! Should you find yourself in the position where you cannot actively swim back to the boat or you are in a cataract, then take up the passive swimming position, this is lying on your back, feet downstream, legs slightly bent. This position allows you to see what you are heading towards and allows you to push yourself off the obstructions with your feet. You can use your arms to stabilise your body. Important: try to lift your toes out of the water. I can then see that you are lying well in the water. In swells turn yourself on your back and keep your feet pointing downstream etc.

7.2.3. How to act as the crew of the boat - rescue

The team is there to help to rescue a swimmer.

Pulling the swimmer into the boat: If the swimmer is at the boat and hanging onto the line a member of the crew pulls him/her back into the boat.

Important: Only one person helps to pull the swimmer back into the boat, not the whole crew. The rest of the team continues to follow the guide’s commands.

Hauling in technique: The helper wedges his/her feet under the outer tube. The swimmer is seized with both hands by the buoyancy aid (by the braces). By leaning the whole body back the swimmer can be pulled with one powerful tug back into the boat. (demonstrate!)

Dragging the swimmer back to the boat: If the swimmer is not gripping the line on the boat, we will paddle to the swimmer as he/she is trying to actively swim to the boat. When the swimmer is within reaching distance a paddle can be stretched out - grip first, to him/her (the only case in which the grip can be let go of!) and he/she can be pulled back to the boat.

Throw bag: Should a swimmer be too far away from the boat and is no longer able to reach the boat by actively swimming, (for example: swimming against the current) ideally we would try to come to him with the boat. Otherwise there is the throw bag, in order to pull the swimmer back to the boat.
Implementation: as a swimmer you should try to hold eye contact with me in the boat. When I have eye contact, I then call ‘throw-bag’. I then throw you the throw-bag line so that, ideally it lands over your shoulder or close by to you. You get a grip on the line with both hands (not the bag).

Never wrap the line around the wrist, the arm or throat: when the line becomes taut you are no longer able to let go and the wrist, arm or throat is strangled. Allow yourself to be pulled back to the boat. Ideally lie on your back so that the water dams behind your head and your face is clear for you to gain air to breath. You hold the line in front of the chest and let it run over your shoulder out behind you towards the boat.

Important: hold the line tight until you have reached the boat, you will then be helped back into the boat as described earlier (Demonstrate!)

7.2.4 Flip

1. Explain when and how a flip happens!
A flip is capsizing of the raft. A flip may happen at any time.

2. How to act after a flip: if the raft flips we are all, myself included as a guide, in the water.

Important: Here too - do not panic! Continue to breath calmly, orientate yourselves and swim to the boat! Spread yourselves between bow and stern and hold the line tightly! It is possible, when the boat flips, that you will surface again under the boat! Here too - do not panic! There is air and light under the raft. Orientate yourselves and go under to come out from the boat. Because you have buoyancy aids on you will have to actively push on the tubes above to go under them. Use your hands to walk along the tube and you are then out from under the boat! In order to upright the raft I climb onto the raft and turn it back over with the help of the flip line. In this moment there is the command: ‘all let go’. This means that everyone must let go of the line for a short moment, even if you feel a lot safer holding onto the boat. This is so that I am able to upright the boat, because otherwise I will not be able to flip it back over. I then climb back into the raft and help you to get in.

Summary of how to act after a flip:
- No panic
- Passengers are left for a short moment on their own
- Hold on to your paddles
- The guide re-flips the raft (let go of the line)
- Swim to the upstream side of the raft if possible
- All passengers back in the raft
- Count the crew - check for full attendance
7.3 Summary of the safety talk:

1. Introduction
2. Sitting positions
3. Paddling technique
4. Commands
5. Conduct in white water (What is expected of the crew, inclusive: rescue)
6. Flip

Conclusion:
In conclusion you, as the rafting guide, are responsible for everything. Therefore make sure you are familiar with every point, which must be given attention in the safety talk. You must be sure that all the guests are paying full attention. Make sure that every point has been understood before you deal with the next one. Remember - every guide is only as good as the weakest and least experienced member of the team.
8. How to Act in Case of an Accident  
(General Principles of Safety)

8.1 Introduction

With the event of an accident on the water it is not necessarily always a case of injuries or deaths, it can also just as easily be a foreseeable or non-foreseeable mishap.

The different conditions, which, in their combination, can either guarantee or impair safety, are material conditions, objective water conditions and personal conditions.

**Material Conditions** are linked closely to the equipment. The equipment must be complete and in working order in preparation for the navigation of a planned stretch of water. If the equipment is not prepared for the trip, he who is responsible is guilty of negligence. It is also worth pointing out that safety cannot be bought! The most expensive or best equipment alone does not, as it were, automatically guarantee safety.

**Objective water conditions** - Other’s reports and their vague advice about difficulties, which arise, are by no means sufficient in preparation for the rafting of a difficult stretch of water. Information on the water level, descriptions of the river and water must certainly be gathered, and key areas must be examined on the spot. Finally while scouting the river one should agree on areas for safety and rescue measures, in order to be prepared for an emergency situation.

**Personal Conditions** - the rafting guide should have the whole series of techniques and rafting manoeuvres at the ready to the best of his ability. If he/she wants to raft white water, he/she must be able to swim well and with stamina. A rafting guide lacking in techniques and rafting manoeuvres is not only putting him/herself in danger but also all of his/her passengers, who have placed their confidence in him/her for the white water tour.

An emergency situation can happen at any moment. How the passengers without prior experience on white water react cannot be assessed in advance. In addition one can be certain that on longer trips the passengers will become tired. This also means that a rafting guide with less training will become tired all the more quickly. The rafting guide also becomes tired more quickly when his/her steering and...
paddling techniques are insufficient, he/she may lose focus with time due to tiredness.

8.2 Types of accidents and rescue methods

Type of accident

- One or more passengers swim
- In a relatively calm stretch of water
- In rapids
- In a stopper
- In an eddy behind a natural or artificial obstruction
- In a weir
- Rafting guide swims
- Raft capsizes (flip)
- Boat is wrapped (obstruction, bridge pillar, tree, rock, etc.)
- Several boats are wrapped
- Boat gets stuck in a tow-back
- Boat is completely written off
- Loss of the boat and paddles
- Physical and psychological overload (blackout)

How can I successfully help at an accident?
In order to be able to successfully help, I must first be able to estimate my own strength as well as the power of the water. As there are accidents where a rescue is questionable or even impossible. In order to be able to systematically comprehend safety in white water, we must break it up into sections:

- How do I help?
- Where do I help?
- What can I use to help?

Question: How do I help?
If you are alone? (Self help)
Rescue with helpers?
Which rescue methods do I apply?
What is the victim's situation?
How and how close can I get to the victim?
How much time do I still have?

Question: Where do I help?
Firstly one must decide where he/she can eddy out/land the boat and where he/she can direct the following boats (in convoy). The best looking eddy is of no use if it is on the wrong side of the river. Consider whether it would be better to direct a following raft straight to the other bank or whether it should wait in the next eddy without disembarking. Additional embarking and eddying out requires precious time.
Question: What can I use to help?
Which rescue materials can I prepare, or rather what can I use/deploy most efficiently and quickly.

Practise and test out rescue methods on an annual basis! Reading through a script or watching an exercise is by no means sufficient.

Rescue methods:

Swimming accident
Self-help, Self-rescue, rescue from the boat, rescue with a paddle, throw-bag, rescue with a rope, rescuer without safety rope, rescuer secured by safety rope, safety rope across the river, emergency call.

Accident of wrapped boat
Self-help, self-rescue, throw-bag, rescue with a rope, how much time do I have? emergency call.

Accident on a weir
Self-help, exchange, throw-bag, rescue with line, rescue with boat, a chain of rafts, rescue line, rescue buoy, rescue hooks, rescuer secured by a rope, safety rope across the river, emergency call.

In order to avoid panic and chaos, the most experienced guide should take over the command of the rescue. Rescue humans first and then the equipment. Strangers helping, who have no idea about white water, should only be used for pulling or holding ropes.
8.3 Checklist: Rafting Accident & First Aid

The rafting checklist consists of front and back. It is laminated with a waterproof cover. You get it at ASI (Alpine Safety and Information Centre) in Landeck.

8.4 Alpine Emergency Call – How to Use your Mobile Phone

Emergency numbers:

112 European - Emergency services number  
European Coverage  
This also functions without a SIM card  
No fees  
Call will get highest priority within the network  
The number is attainable from all networks: Turn off your mobile phone, switch it on, dial 112 as PIN and push the call button

140 Alpine emergency  
Nationwide coverage  
No fees

144 Medical emergency  
Nationwide coverage  
No fees
Checklist emergency call with your mobile phone:

1. Signal received?
   - Yes: Call 140, 144, 112
   - No:
     1. Turn off your mobile
     2. Turn it on again
     3. Use 112 as PIN
     4. Push ‘Call’ button

2. Get a connection?
   - Yes: Call 112
   - No:
     - Area not covered by a network, No reception
     - No Emergency calls possible

   Change your position; try to call 112 at regular intervals
   - Call for Assistance

Emergency Call
1. What happened?
2. How many injured persons?
3. Where did it happen (location)?
4. Who is the caller?
5. When did it happen?
6. Weather conditions at the site of the accident?

Do not end the conversation with the emergency services operator until he/she has all the necessary information and has indicated the end of the call to you. Do not suppress your number. Tell them your own number to enable call back of emergency service.
8.5 Correct behaviour in the case of deployment of a helicopter

When a rescue helicopter is deployed there are often problems with bystanders who are not involved in the accident due to them waving/signalling and therefore giving the impression that help is needed.

Therefore if a helicopter is flying above you or your group, show very clearly if you need assistance or not:

Signalling a clear NO:

![NO](image1)

**NO**

We do not need help

Signalling a clear YES:

![YES](image2)

**YES**

We need help

Signal rockets, smoke signals or a bright coloured towel enable the marking of the area for deployment. Landing signals for the helicopter should be so that the helicopter approaches into the wind. At the landing site all loose objects should be taken away, in case they get caught in the rotary blades.
9. Rescue

9.1 Introduction

9.2 Basic Rescue Techniques
   9.2.1 15 Rules of River Rescue
   9.2.2 Low to High Risk
   9.2.3 Skills
   9.2.4 Situations
   9.3 Advanced Rescue Techniques

9.1 Introduction

White water rescue is a very big subject, so on your guides course you will only
cover the very basics. Specialist three-day Swift water rescue courses are available
to guides wanting to work on harder rivers where better rescue skills are required.
Like all skills, rescue training, if not practiced will be forgotten and useless when
you really need it. Therefore all skills should be refreshed before the start of a new
season, including re-flipping of rafts and swimming in a current.

9.2 Basic Rescue Techniques

9.2.1 15 Rules of River Rescue

Here are the 15 rules of river rescue that improve rescuers safety and the
likelihood of a successful rescue:

1. Always wear a lifejacket (PFD, Buoyancy aid). Even if you are only standing
   on the bank, as rescuers can quickly end up in the water. All lifejackets
   should be well fitted and in suitable condition to be used on the river.
   Ripped fabric, broken buckles or old foam have no place when on the water.

Fig 9.1: A “wrapped” raft
2. **Always deploy upstream spotters** at a rescue site with whistles to warn of hazards or downstream traffic.

3. **Your priorities are always the safety of yourself**, then your crew and fellow guides & guests before that of the victim. Creating more victims only means fewer rescuers for the original victim. Too many people die trying to rescue victims from swift water for the victim to have a higher priority than yourself.

4. **Have a backup plan**, as this saves valuable time if your first plan does not work.

5. **Always have multiple downstream back up**. Either bank-based rescuers equipped with throw bags (who can throw them) or chase boats (rafts or kayaks).

6. **Keep it simple using low risk techniques first**. Simple rescue options are quicker and easier for everybody to understand. Low risk means more safety for the rescuers.

7. **Always use the right equipment**. Using the wrong equipment leads to failed rescues and injuries. Always check that you have the minimal guide equipment on your raft/person and check that it is in a good condition.

8. **Never put your feet down in moving water**. Raft guides can also get foot entrapments!

9. **Never expect a victim to assist in their own rescue**.

10. **Never tie a rope directly to a rescuer**. Chest harnesses are a safer way to attach to a rope but entering water attached to a rope is always dangerous. Never tie anybody to a raft.

11. **Never tension in water ropes at right angles to the current**. Water pressure will cause the line to “V” up under load keeping the load (person) in the middle of the river.

12. **When tensioning ropes stand on the upstream side when unpinning boats**. To prevent injuries from ropes or d-rings snapping use a re-directional pulley whenever possible.

13. **Once you get the victim do not let them loose again**. For example when thrown a rope most people stop swimming and hold onto the rope. If you then let go of the rope the victim is worse off than if you had done nothing.

14. **Always use suitable personal protective equipment**. Check that it is designed for white water use and wear enough cold-water protection in case you go for an unexpected long swim.

15. **Always try and stop an accident before it happens**. Experienced guides can see accidents coming in advance. For this reason an experienced guide is a trip leader, and experienced guides only should be working on harder rivers. There are many rules in place that govern rafting in Tyrol. Most of them are for the safety of our guests and to ensure good practice in rafting companies. For example: the minimum guest equipment, minimum guide equipment and the banning of rafting on flooded rivers.
9.2.2 Low to High Risk

As it is always best to use a low risk rescue option if possible rather than a high risk one, learn to think of rescuing somebody as you would a swimmer from a raft.

<table>
<thead>
<tr>
<th>Low risk</th>
<th>High risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reach</td>
<td>Go</td>
</tr>
<tr>
<td>Throw</td>
<td>Tow</td>
</tr>
<tr>
<td>Row</td>
<td>Helo</td>
</tr>
</tbody>
</table>

First we reach with the paddle, if they are within reach. If that doesn’t work then employ the throw bag if we can reach them and it is appropriate. If that doesn’t work then we paddle the boat across to them and only if we have lost all the paddles do we have to jump in the water ourselves and help them to swim back or if they can’t swim tow them back to the raft or bank. If we have failed at all these rescue attempts then we had better call for the helicopter to rescue them for us.

9.2.3 Skills

In order to assist a more experienced guide in a rescue situation a new guide should be able to tie all the knots shown in the Knots chapter of this manual. However as rescues are stress situations and sometimes occur at night, they should be able to tie them in less than ten seconds with their eyes shut.

All guides should be up to date with first aid and CPR procedures.

All guides should be able to launch a throw bag the full length of the rope accurately (within 1 m either side of a target at 20 m)

All guides should be fit enough to assist in a rescue. For example: run to help someone, rescue them out of strong current, lift them out of the water and carry out CRP for 15 minutes alone.

9.2.4 Situations

**Flips** - Guides must be trained to deal with flipped boats and the rescue of their crew. The more serious the river / rapid the quicker one must be at rescuing his crew out of the water. The swimmers can be rescued either back into the re-righted boat, onto the deck of the upturned boat or into another raft. Sometimes people must be rescued to the bank or rescue themselves by swimming to the bank. If one or more of the other boats in the group flip the first priority is the safety of one’s own boat. If one’s own boat flips as well everything will be a lot harder. If it is the first boat of the group that flips the next boat must move downstream of it so any swimmer that gets washed downstream can be picked up. People who are hanging on the side of an upturned raft should not be rescued first.
unless of course the guide is nowhere to be seen. As soon as their guide re-rights the raft they will be quickly rescued anyway. However, people who are downstream of the raft will be carried further away from the raft by the current and their rescue becomes more difficult for the guide. Especially as the crew will be exhausted from the long swim and may have lost most of their paddles (even when told to hold on to them).

Wraps - Either on rocks or on the various bridge pillars boats can be caught by the current and held in place because the pressure acting on both sides of the raft is the same. The downstream tube will quickly be pushed upwards and the raft will end up vertically stuck by more than two tones of water pouring constantly onto the raft. Although with various rope systems the raft can be freed it is an absolute must to avoid such situations in the first place by avoiding rocks and bridge pillars. If a person is trapped between the boat and the rock or a pillar the raft must be cut in order to free him/her. For this a good river knife is needed, which the guide has to carry in a way that it does not get lost even when swimming.

Weirs - Weirs are dangerous, unfortunately often a lot more dangerous than they look. The most notable weir in the west of Northern Tyrol is the Brunau weir in the middle of the rafting section on the Lower Ötz. In most cases it is also very hard to rescue someone alive out of a weir without neglecting the safety precautions, unless the victim is close to the bank and rescuers are already there with all the necessary rescue-equipment. A guide must check to make sure he knows where the get out point above the weir is and that he has a back up eddy in case he misses the first one. Not wanting to walk the extra ten metres is no excuse for six dead guests!

Chest Harnesses - The main use of the chest harness is as a safer way of attaching a rescuer to a floating rope. Many ‘would be rescuers’ have already died attached to ropes in moving water.
The problem of tying directly to the rope in an un-releasable way is that if the rope snags on the river bottom the rescuer will be dragged to the bottom of the river and held there.
Furthermore, ropes can also wrap around the rescuer’s legs and body and thus take away from him/her the chance of releasing the rope and freeing him/herself. Instead, attaching to the chest harness means that one is able to release the rope he is tied on to in a critical situation.
Because a taut rope, which a person is attached to may inevitably pull him/her under the water it is vital to carry a river knife (which can be used with one hand) in order to free himself/herself by cutting the rope.

The chest harness can also be used to protect a rescuer who is on the bank and does not want to get pulled into the river (useful on wet slippery rocks or concrete). The rescuer can tie himself onto a solid object (tree or rock) that does not move in case the rescuer is pulled off his feet. The rescuer can still quick-release and move down stream quickly if necessary.

Furthermore, people often think that the chest harness is strong enough to abseil with. Since the chest harness is not designed for vertical rescues it should not be used for this (the angle of pull is all wrong). For vertical rescues a climbing sit harness can be improvised out of a standard climbing sling. It is not all that comfortable but it works better than traditional old school abseiling.

Note:
Cow tails fitted to chest harnesses are not so suitable for rafting as their carabineers often seem to clip themselves to the sideline of the raft without the guide noticing. As this is very dangerous it is better not to use this kind of rescue line for rafting.

Fig. 9.3: Cowtail
9.3 Advanced Rescue Techniques

Knowledge of the following rope systems can help in the tensioning of ropes in low angle haul systems either to un-pin a boat or for tensioning a line across the river.

Fig 9.4: Z-Drag

The Z-Drag is the standard hauling system for white water rafters. It requires only a minimal amount of equipment and is relatively quick to set up for an experienced guide.

Fig 9.5: Pig rig

The pig rig system is better for tensioning ropes as it can be removed from the rope when no longer needed - something that is impossible with the Z-drag. Use of the Italian hitch means that the main line can be tightened and tied off easily.

Note:
Throw bag ropes have a maximum breaking strain of 1000 kg, which makes them unsuitable equipment for the unpinning of rafts in a current. Canyoning 11mm static ropes with a maximum breaking strain of 3000 kg are what are needed.
10. Shipping Signs

10.1 Introduction

The shipping signs for the sea and river traffic system in this chapter have been divided into categories. Supplementary signs have also been included. Shipping signs are not portrayed on the backside, it has to remain white.

Footnote:
Since the completion of the rafting guide's examination is a qualification certified by the government the knowledge of all listed signs appearing on the federal law paper is a necessity.

10.2 Signs of Prohibition

Prohibited passage or water way

<table>
<thead>
<tr>
<th>No vessels permitted on the following stretch of water</th>
<th>Rectangular red sign with a horizontal white stripe</th>
</tr>
</thead>
</table>

Shipping ban on rowing vessels

<table>
<thead>
<tr>
<th>No rowing vessels permitted on the following stretch of water</th>
<th>A square white sign with a red border, red slash and a black rowing boat</th>
</tr>
</thead>
</table>
### Shipping ban on sports vessel

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>No sports vessels permitted on the following stretch of water</td>
<td><img src="image" alt="Square white sign with a red border, a red slash and black wording “SPORT”" /></td>
</tr>
</tbody>
</table>

### Mooring prohibited

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mooring of all vessels prohibited at this point</td>
<td><img src="image" alt="Square white sign with a red border, a red slash and a black “P”" /></td>
</tr>
</tbody>
</table>

For Example, at Ötzschlag where there is a pumping/suction station

### Prohibited passage in the red zone area

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passage must be completed through the white zone area</td>
<td><img src="image" alt="Two red and white square signs standing on their ends" /></td>
</tr>
</tbody>
</table>

Example: Mühlau Railway Bridge

### Producing wave or slipstream prohibited

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>At this point or in the following stretch of water speed must be restricted in case of dangers caused by waves or slipstream</td>
<td><img src="image" alt="Square white sign with a red border, a red slash and two horizontal black waves" /></td>
</tr>
</tbody>
</table>

### Overtaking prohibited

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>No overtaking at this point or on the following stretch of water</td>
<td><img src="image" alt="Square white sign with a red border, a" /></td>
</tr>
</tbody>
</table>
10.3 Signs of Requirement

Prescribed direction of transit

The set directions, indicated by the arrows, must be followed (This is often supplemented with a blue sign as with road traffic signs)

Requirement for particular attention /warning sign

Exercise particular attention at this point and in the following stretch of water

Requirement to stop under specific circumstances

Obligation to stop before the sign unless the signal has been given to continue. The main sign is often supplemented with an explanatory sign

For example, for customs clearance, e.g. on the Inn at Finstermünz
Requirement to sound the horn/ for a blast on the whistle

<table>
<thead>
<tr>
<th>‘Sounding the horn’ can mean a short burst on the pea-whistle or a high-pitched cry. A short sound (usually about one second)</th>
<th>Square white sign with a red border and a black dot</th>
</tr>
</thead>
</table>

10.4 Indication Signs

Annulment

<table>
<thead>
<tr>
<th>The end of a regulated or a prohibited area in one direction (a general sign)</th>
<th>Square blue sign with a white diagonal line from the top left to the bottom right corners</th>
</tr>
</thead>
</table>

10.5 Supplementary signs

Under this heading all traffic signs are included, which are used on the waterways. For example, General no go areas for water traffic, directional arrows, launching and landing points or general notices.

Prohibited stretch of water

Illus. 10.1: An example of a prohibited stretch of water
Announcement

Illus. 10.2: An example of a notice

Launching point sign

<table>
<thead>
<tr>
<th>Launching point right</th>
<th>![Sign Illustration]</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Sign Illustration]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Launching point left</th>
<th>![Sign Illustration]</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Sign Illustration]</td>
<td></td>
</tr>
</tbody>
</table>

For Example:
Ötztaler Ache, launching point in Ötz

Illus. 10.3: Example of a launching point
Landing point sign

<table>
<thead>
<tr>
<th>Landing point right</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
</tr>
</tbody>
</table>
| Ausstiegsstelle rechts  
Landing point right  
Débarquement à droite  
Sbarco a destra  
Místo výstupu vpravo |

<table>
<thead>
<tr>
<th>Landing point left</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.png" alt="Image" /></td>
</tr>
</tbody>
</table>
| Ausstiegsstelle links  
Landing point left  
Débarquement à gauche  
Sbarco a sinistra  
Místo výstupu vlevo |

10.6 Signs of Recommendation

**Recommended water way/ passage under bridges**
in both directions

| The sign marks the recommended passage under bridges for traffic in both directions |
| ![Image](image3.png) |
| Square yellow sign standing on it’s end |

Comment: Only relevant with oncoming traffic. Non-applicable in Upper Tyrol

**Recommended passage under bridges**
in one direction

| The sign marks the recommended passage under bridges for traffic in one direction |
| ![Image](image4.png) |
| Two square yellow signs, standing on their ends |
**Recommended Passage**  
(Fairway/channel)

<table>
<thead>
<tr>
<th><strong>The green area marks the recommended channel</strong></th>
<th><img src="image" alt="Two square green and white signs, standing on their ends" /></th>
</tr>
</thead>
</table>

**Recommended area to pass through**

<table>
<thead>
<tr>
<th><strong>The green area marks the recommended channel</strong></th>
<th><img src="image" alt="Square green and white signs standing on their ends" /></th>
</tr>
</thead>
</table>

**10.7 Signs of restriction**

**Restricted height**

<table>
<thead>
<tr>
<th><strong>The height of vessels passing through is restricted. This sign is often supplemented with information on the exact height restriction</strong></th>
<th><img src="image" alt="Square white sign with a red border and a black triangle pointing downwards from above" /></th>
</tr>
</thead>
</table>

**Restricted width**

<table>
<thead>
<tr>
<th><strong>The width of vessels passing through is restricted. This is often supplemented with information on the exact width restriction</strong></th>
<th><img src="image" alt="Square white sign with a red border and with a black triangle on the left and right sides" /></th>
</tr>
</thead>
</table>
### Distance requirement

<table>
<thead>
<tr>
<th>The waterway/passage is limited—the given distance (in metres) from the bank must be kept on the following stretch of water</th>
<th>Rectangular white sign with a red border. A black background with the given figure in white shows the distance that must be kept.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(For example: 40 m from the right hand side in the direction of travel)</td>
<td></td>
</tr>
</tbody>
</table>
iii. Appendix

iii.1 List of Illustrations

Title picture: Inn river in Landeck shortly after the Sanna confluence  
Photo: Christian Klingler, ASI-Tirol

Chapter 3: Photos provided by ASI-Tirol.

Chapter 4: Illustrations- Baur/Hahn/Holz, Bennett

Chapter 5: Illustrations Christian Klingler, ASI-Tirol

Chapter 6: Illustrations Benett / ASI-Tirol  
Photos: Faszinatour

Chapter 8: Illus. 8.1 ASI-Tirol  
Photos: Thomas Kracker / Team Christophorus 5


Chapter 10: Photos: Josef Edinger, Christian Klingler  
Illustrations ASI-Tirol

iii.2 Contents

Georg Fernsebner, Wolfgang Huber
Faszination Wildwasser - Lehrbuch der Österreichischen Wasser-Rettung Tirol  
White water swimming · Rafting · Canyoning / GDangers · Safety · Rescue  

Holger Machatschek
Richtig Wildwasserfahren  
BLV Verlagsgesellschaft, 2. Auflage 1993

Robert Steidle
Wildwasserfahren  
Technik · Training · Taktik  
BLV Verlagsgesellschaft 1976

iii.3 Authors

Josef Edinger, legally qualified expert for rafting, based in Schwaz. He is examiner  
of the most senior shipping authorities for rafting in Tyrol.
Ariane Guem (M.A.) is the director of the association for regional development, Imst. The associations for regional development in Imst and Landeck were responsible for bringing *Project Water Tiroler Oberland* to life. It was their aim to summarise and focus on the whole theme of water in the Tiroler Oberland region in order to attain awareness in this area. Last year *Project Water Tiroler Oberland* won the Tyrolean environmental award.

Friedrich-Karl “Fuzzi” Huber (M.A.) from *Sport Camp Tirol*, which is situated directly at the landing point on the Sanna in Landeck, is president of the Tyrolean rafting association and has been working tirelessly on the further development of rafting since its introduction in upper Tyrol at the beginning of the nineteen eighties. He manages the project groups, whose members have developed the rafting program together.

Christian Klingler (MSc) is based at the Alpine Safety and Information Centre (ASI-Tirol) in Landeck and is responsible for technology and communication. He coordinated the various authors’ contributions in this publication and is in charge of the ASI outdoor website www.alpinesicherheit.com/outdoor.

Andy Leaney is General Manager of the Rafting Company *Feelfree* in Haiming. He participated in the development of rafting in the Tiroler Oberland region since its beginning. He also coordinates the practical part of the rafting guide’s examination for the province of Tyrol.

Marcel Pachler is manager of *Faszinatour Adventure & Sports*, Austria. He has been involved since the beginning of rafting and due to his many years of experience is a regular contributor on the theme of safety and continued development in the area of white water sports in Tyrol.

Werner Senn (M.A.) is director of the Alpine Safety and Information Centre (ASI-Tirol) in Landeck, was on repeated occasions Tyrolean kayak champion, is now an Alpine Gendarme (alpine policeman) and jurist and is the author of the ASI-Tirol advisor on skiing laws.

Neil Newton Taylor works for *Rescue3 International* und regularly organises training courses for the ‘Swiftwater Rescue Course’.

**iii.4 Note on Liability**

The large amounts of information in the Tyrolean rafting course book may be used as the foundations in order to prepare for the Tyrolean rafting guide examination and for white water rafting in general. One is not however to blind oneself to the fact that responsibility and decision-making lies in the hands of each individual. The course book claims neither to be exhaustive nor may it be used to create a legal precedent. Use of this document in legal proceedings is ruled out.