

Diving rules at the University of Gothenburg

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Summary	Rules for diving work at the University of Gothenburg responsibilities and organization as well as rules for systematic work environment management for diving activities

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1 General

The vice-chancellor decided at a meeting at the 17th of June 2013 to establish rules for diving at the University of Gothenburg. Therefore, the previous regulations, signed at the 6th of June 1995, are no longer applicable.

The rules of diving have been developed to make diving activities as safe as possible at the University of Gothenburg. The rules are based primarily on the Swedish Work Environment Authority's Provisions on Diving Work and General Recommendations on the implementation of the Provisions (AFS 2010:16 Work Diving and AFS 2005:6 Occupational medical supervision) together with the Armed Forces publication rules for military shipping (RMS-Dyk).

1.1 Regulations and literature

On each unit where diving occurs, the actual versions (with updates) of the following laws, regulations and the diving rules of the Universities should be available:

- The Work Environment Act (SFS 1977:1160)
- Use of work equipment (AFS 2006:4)
- Use of personal protective equipment (AFS 2001:3)
- Configuration of personal protective equipment (AFS 1996:7) "Utförande av personlig skyddsutrusting" (not yet translated to English)
- Work diving (AFS 2010:16)
- Gas bottles (AFS 2001:04) "Gas flaskor" (not yet translated to English)
- Occupational medical supervision (AFS 2005:06)
- Systematic work environment management (AFS 2001:01 with amendments)

Furthermore, the latest version of Armed Forces publication rules for military shipping (RMS-Dyk) and RMS-Diving Field should be available.

1.2 All diving is voluntary

All participation in diving activities with the University of Gothenburg is voluntary.

1.3 Exception from diving rules

The Work Environment Authorities may grant, under § 18 Environment Work Ordinance, exceptions from regulations the authority has issued. Applications for exceptions from regulations on diving work have to be done by the head of department (or equivalent) at the unit that is affected by the possible exception. It is the head of department's (or equivalent) responsibility to ensure that the exception prescribed is followed. Exception from Work Environment regulations also means dispensing of these operations from diving rules of the University of Gothenburg. Note if the exceptions from the Swedish Work Environment regulations on diving operations are related to a specific person, this shall be indicated in the personal file in the central register for medical examinations.

There should also be noted what the exception applies, a time limit for the exception - as well as the other restrictions mentioned (see point 6.1.).

2 Validity of the regulations

The rules of diving at the University of Gothenburg apply to all diving undertaken by:

- Employees at the University of Gothenburg in connection with their employment
- Students or researchers at the University of Gothenburg in connection with their education or research
- Others that the University of Gothenburg has the coordinating responsibility for e.g. employees, researchers and students from other universities, hired divers, etc.

The rules of diving apply to these groups when diving occurs at Swedish universities or Swedish ships unless someone else has taken over responsibility for the coordination of the diving activities. The rules must also be followed when diving abroad or at foreign ships unless they conflict the national or local rules.

If more restrictive regulations apply in the country where the diving is conducted these local regulation must be followed.

Special rules apply for leisure diving when equipment belonging to the University of Gothenburg is used, or if diving is done in the Sven Lovén Centre for Marine Sciences stations harbor area (see section 7).

2.1 Swedish visiting divers

For Swedish visiting divers the same requirements apply as for the university's own divers. The visiting diver's employer must certify that the diver may carry out the specified diving work at the unit, and the diver meets the current certification requirements for professional divers, that CPR-training is not older than 3 years and that the diver has successfully passed the medical examination for diving work. The medical examination shall not be older than what is specified in AFS 2005:6, § 53.

Swedish visiting divers shall, well in advance, contact the head of department/equivalent or diving activities leader to receive the diving permit at the subjected unit. To receive the permit she/he should also present a plan for the dives and signed permission from the employer.

2.2 Foreign visiting divers

The foreign diver's employer must certify that the diver may carry out the specified diving work at the Swedish unit and that she/he understands that the diver should follow the Swedish working environment authority regulations and the rules of diving at the University of Gothenburg. The diver's employer, however, may impose restrictions in diving work even if the Swedish rules allow these operations.

The diver must present a medical certificate from their home country that she/he have attended and successfully passed the examination to carry out work diving. The medical

certificate shall approve the diver to conduct the intended dive work and shall be valid during the time the diver performs diving work at the University of Gothenburg. The diver should be able to show copies of the result of the medical examination. The foreign medical certificate validity intervals apply at the University of Gothenburg if the range is equal to or below Swedish time requirements. Swedish regulations apply if there are longer intervals between the examinations in the diver's home country. In case of doubt an officially approved Swedish diving doctor should be consulted.

Foreign visiting divers shall well in advance contact the head of department/equivalent or diving activities leader to receive the diving permit at the subjects unit. To receive the permit she/he should also present a plan for the dives and signed permission from the employer.

3 Work environment responsibility

The head of department or equivalent is responsible for the work environment at the University's units.

Head of department/equivalent:

- shall inform affected students, researchers, teachers, other staff and visiting divers about the current diving regulations
- shall issue diving permit for each diver at the unit
- shall ensure that the prescribed medical examinations are preformed
- shall ensure that the prescribed CPR training is arranged
- shall see to that the diving activities leaders, the diving supervisors, and the divers have the necessary training opportunities
- shall ensure that the diving activities leaders, the diving supervisors, and the divers have the documented practical and theoretical skills to conduct the diving work
- shall ensure that the divers are informed and can use the equipment provided by the unit e.g. compressor, OXYBOX etc.
- shall ensure that the University's diving gear (and private equipment used in the diving work) is maintained and checked in accordance with applicable regulations
- shall organize training sessions for diving staff so that they maintain and further improve their diving skills

Head of department/equivalent is responsible for the University's register of the specified unit's divers, their medical examinations, training certificates, etc., and that individual diving journals are updated and accurate.

4 Diving activities leader

The head of department/equivalent at the units where diving takes place can designate diving activities leader/s. However the head of department/equivalent is still ultimately responsible for the work environment.

The diving activities leader/s should have adequate knowledge of their mission and are appropriately informed about the rules, regulations and instructions, etc. regarding diving operations.

The head of department/equivalent and the diving activities leader/s agrees on what assignments the latter should perform. The agreement must be in written form and signed by both.

The following information is an example of what can be included in the diving activities leader mission:

- issuing diving permit at the unit
- ensure that diving teams are informed about current rules and regulations at the unit
- if necessary, provides support to build up a competent diving team
- ensure that the diving team is informed of the equipment provided by the unit, e.g. compressor, emergency equipment and OXYBOX etc.
- briefing about local emergency procedures/movements associated with diving
- check that the divers have the required diver training, medical examination and CPR-training
- ensure that the diver are familiar with the applicable safety regulations and ensure that these are followed
- responsible that the information on the divers medical examinations etc. are entered in the common registers
- responsible for the common registers of the individual dives (diver journal) kept up to date
- check that only equipment designed for Nordic waters are used for diving
- responsible that the unit's equipment undergoes the prescribed revision and maintenance (service) that measures according to the result of the revision will be undertaken
- responsible that the suits being used for diving are maintained properly
- responsible that the diving operation is conducted in a safe manner
- ensure that accidents or incidents associated with the diving activities are reported and forwarded

5 Regulations and diving methods

The regulations of diving look different depending on which diving method is used. Therefore the regulations are divided in two sections:

- Diving with hyperbaric self-contained underwater breathing apparatus (SCUBA) (5.1)
- Snorkeling and free diving (APNEA) (5.2)

5.1 Diving with hyperbaric self-contained underwater breathing apparatus (SCUBA)

5.1.1 Competence requirements

Divers should have a certificate or diploma at least at the level of the Swedish Occupational diver certificate (Yrkesdykarcertifikat) Diver S30. Higher certificate/diploma may be required for special diving assignments.

Diving supervisors should have a certificate or diploma at least at the level of the Swedish Occupational Dive Leader certificate (Dykarledarcertifikat) Dykarledare S30 (DyKL S30). Higher certificate/diploma may be required for special diving management operations.

Diving supervisors shall, before conducting a dive mission, have undergone training for the specific conditions that is applicable at the unit and the area where the dive mission will be conducted.

A diploma¹ corresponding to standard for European Scientific Diver (ESD) are considered equivalent to the the Swedish Occupational Dive certificate (Yrkesdykarcertifikat) S30 and

¹ A certificate corresponding to the standard for ESD and AESD, respectively, are issued in Sweden by the Swedish Armed Forces Diving and the Naval Medical Center after the approval of the applicant merits of Swedish Science Diving Committee to the application should be sent (for the current e-mail addresses see www.scientific-diving.eu) Divers who received certificates equivalent to the standard of ESD or AESD receive a new Occupational Diver certificate (Yrkesdykarcertifikat) with the addition of epithet "scientific diver". The university ambition is that all divers should fulfill the European standard for scientific diver European Scientific Diver (ESD) eller Advanced European Scientific Diver (AESD)

scientific dives.

For those that are undergoing training (e.g. students) the dive supervisor determines the level of competence required for the individual dive. The lowest level of certification shall not be less than stated standards for CMAS **, PADI Rescue Diver or equivalent certification for recreational divers (sport divers).

Certificates corresponding to the standard for ESD and AESD are issued by different organizations in different European countries (see www.scientific-diving.eu) but these certificates are not available in all European countries. Visiting foreign divers, except for students, should therefore have a certificate corresponding to ESD or AESD. If they lack any of these diplomas their employer should certify in written form that the diver has the experience and knowledge at least equivalent to these required certificates. Test dives and other tests can be done to examine whether the knowledge is sufficient.

For foreign students the same rules apply as for Swedish divers, i.e. the diving supervisor determines the level of competence required for the individual dive.

5.1.2 Medical examination etc.

The head of department/equivalent has the responsibility that diving staff routinely conducts medical checkups/examinations² and that dates and results of the checkups are filed in the Diving Register of the University of Gothenburg. Medical checkups shall be conducted

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Certificates corresponding to the standard for ESD and AESD, respectively, are issued in Sweden by the Swedish Armed Forces Diving and the Naval Medical Center after the approval of the applicant merits by the Swedish Science Diving Committee where to the application should be sent (for the current e-mail addresses see www.scientific-diving.eu). Divers who received certificates equivalent to the standard of ESD or AESD receive a new Occupational Diver certificate Yrkesdykarcertifikat with the addition of epithet "scientific diver". The university ambition is that all divers should fulfill the European standard for scientific diver European Scientific Diver (ESD) or Advanced European Scientific Diver (AESD)

² The employer is obliged to organize medical checkup, offer employees to undergo this and to ensure that only those who have undergone a medical checkup are employed with the kind of work that causes the controls (AFS 2005: 6, § 2). These controls should not entail any cost for the employees (AFS 2005: 6, § 4)

according to AFS 2005:6. The medical check, referred to in § 54, may be undertaken with another employer but in this case the date for the checkup should not be older than 12 months when the diving commence § 53.

Medical examination according to § 54 results in an assessment of the individual's physical and mental ability for diving work. This also applies to students.

Continuous disregard of these rules may be subject to a fine (AFS 2010:16, § 24).

For medical checkups of employees the occupational health company that the University has a contract with should be contacted. For medical checkups of students the student health (Studenthälsan) company should be contacted.

Medical doctors performing the examination of the diver must fulfill the requirements of AFS 2005:6, § 8.

The copy of employability for work diving is to be sent to the head of department/equivalent at each unit where the diving will be conducted and to the University work environment engineer. The unit's head of department/equivalent will file the employability in the central register.

Female divers who are pregnant and have notified her employer are not allowed to carry out diving work (AFS 2010:16, § 25).

Continuous disregard of these rules may be subject to a fine (AFS 2010:16, § 25).

5.1.3 Training in cardiopulmonary resuscitation (CPR-training)

The diving leader, divers, dive tenders and other persons that are involved in diving activities should undergo CPR-training with a repetition every three years and must be able to show a certificate of completion of training to the head of department/equivalent. The head of department/equivalent files this information of CPR-training in the central register.

5.1.4 Air transport after diving

Flying at an altitude less than of 300 m can be started directly after diving.

When flying at heights above 300 m, but less than 3 000 m (or higher with airplane equipped with a pressurized cabin (cabin pressure equivalent to approximately 2400 m altitude), the following applies:

- After diving without the necessity of decompression stops flying can begin at the earliest 3 hours after the end of the dive.
- After diving with decompression stops or after surface-decompression flying can flight begin at the earliest after 12 hours.

- After diving with extreme exposure and after recompression treatment flying can begin not earlier than after 24 hours.

Flying at a height of 3000 m aircraft unpressurised may commence no earlier than 24 hours after completion of diving.

5.1.5 Diving at higher altitude than sea-level

Due to the lower air pressure at higher altitude the decompression time will be longer than for the same dive at sea level. Therefore, mostly when diving at altitude, a correction for the altitude should be applied when using the decompression tables. Correction for altitude shall always be made when diving at altitudes are greater than 300 m over sea level.

5.1.6 Alcohol

Alcohol may not be consumed during or within 8 hours before the planned dive. This applies for the whole diving team.

All of the members of the diving team must be able to pass a traffic control in respect to sobriety (maximum of 0.2 per mille of alcohol in the blood) at least 8 hours before the planned diving.

5.1.7 Certified Equipment

All equipment used in diving must be CE-marked. If possible, the equipment must be cold water certified and/or have approved equipment that eliminates the risk of freezing (e.g. freeze protection on breathing regulators).

5.1.8 Personal Protective Equipment

The employer shall, without cost for the employee, provide the personal protective equipment needed for the work.

5.1.9 Maintenance of equipment

The University's equipment for diving (scuba cylinders, breathing regulators, air filling apparatus, dive suits, etc.) shall comply with the requirements of the Work Environment Authority's provisions; Configuration and the use of personal protective equipment (AFS 1995:7 and 2001:3) and work equipment (AFS 2006:4).

The equipment must be maintained, checked, repaired and stored in accordance with manufacturer regulations so that its intended function is guaranteed. Details of the services performed shall be included in registers (see Section 6.2.1).

The above also applies to private equipment used in the service. Private equipment should only be used in exceptional cases.

5.1.10 Diving air quality

Filling of gas tubes, for diving, may only be conducted at a facility that has quality control of the air. The quality should meet the standard SS-EN 12021. The air from the university's facilities for diving air should undergo annual quality control.

5.1.11 Maintenance of knowledge

The employer must ensure that those who perform or take part in diving work has and maintains sufficient knowledge and skills. A rescue/causality exercise should be held at least once every year.

Competence preservation or skills diving in general is carried out if necessary.

5.2 Snorkeling and free diving/APNEA

When snorkeling or free diving, it shall, if the risk assessment has not been deemed it be unnecessary, always be a surface guard that can keep watch over the diving area, call diver attention and intervene in the event of danger.

Snorkeling and free diving may be made to a maximum depth of 10 meters and only if overall conditions permit.

Free diving to depths greater than 2 m should be done in pairs. One of the divers stays at the water's surface. The divers may not be further apart than they can communicate using agreed hand signals, which can result in a significant limitation of the depth of immersion.

Diving flag has to be used when snorkeling and free diving is in progress.

Snorkeling and free diving is not permitted:

- if the water temperature falls below +4 degrees Celsius (valid throughout water column for the intended dive),
- if strong currents or turbid water prevails
- in the dark or in other complicated (i.e. weather, significant sea-traffic) conditions.

If required, wetsuits with sufficient protection against the cold shall be used.

Only observations and simple work with normal weight bearing is allowed with this diving method.

Before snorkeling and free diving occurs, the unit's head of department/equivalent or diving activities leader should be notified with details of the dive, diving assignment, participants, return time, etc. and if one or more of the station boats are used.

A risk assessment of the dive site must be made before diving in order to ensure good conditions.

Jobs that may involve a risk of entanglement may not be performed.

A Report of Deviation is made in accordance with AFS 2010:16 § 6.4.1.

6 Documentation

6.1 Common registers for the University of Gothenburg

6.1.1 Register of dive medical examinations, CPR-training, diving competence etc.

In every unit where diving occurs, data should be registered for diving personnel approved for diving (date and outcome of the last medical examination), the last approved CPR training, diving competence etc. Details of persons who are temporally hired (hourly employment) by the University to perform work diving, shall be entered in the registry in the same way as for other employees.

Exemptions from the Swedish Work Environment Authority regulations for Work Diving that is related to a specific person shall be entered in that persons file in the registry. It shall also be noted what the exemption covers, the time limit of the exemption and any restrictions specified in the exemption.

A register is given by the University Work Environment safety engineer. Entering data is done in primarily by the head of the department/equivalent or other persons designated by her/him.

Details of divers who are hired but not employed by the University of Gothenburg for example, self-employed or a person working for another company, may, with the written consent from the person in question be, entered in a register of non-employees at the University.

6.1.2 Register of dives (diving journals)

In every unit where diving occurs, data over the personnel dives should be registered. This also applies to visitors and hired divers.

Divers, who are employed at the University of Gothenburg (and having an x-account) is responsible themselves to register the dives they have conducted in the diving journal within one week from the day the diving took place. If not possible, the head of department/equivalent or diving activities leader are notified of the delay and when the registration of the data will occur.

Registering of dives information for individuals without a Gothenburg University x-account shall be done by the diving supervisor.

Approval to the register is given by the University Work Environment safety engineer.

6.2 Local registers that shall be saved at each unit

6.2.1 Inspection/maintenance of equipment

The head of department/equivalent or whoever she/he appoints ensures that data when checking/servicing of equipment have been conducted is entered in a designated directory at the unit.

6.2.2 Risk assessment and measures

Before each dive a risk assessment shall be made. The risk assessment shall be documented, dated and stored in suitable form.

If the risk assessment justifies it measures that minimize the risks of diving work shall be carried out.

The measures shall be documented, dated and stored in a suitable form.

The risk assessment is carried out by the diving supervisor for each diving in consultation with the other members of the dive team.

It is important that all the members of the diving team are fully aware of the risks involved in the current dive.

6.2.3 Dive plan

Diving work shall be planned so that it can be implemented safely. Before diving work begins a written dive plan has to be prepared. The dive plan is based on a risk assessment of the diving work planned. The dive plan is conducted by the diving supervisor for the current dive in consultation together with the other members of the diving team. It is important that all members of the diving team are aware of the content of the dive plan.

6.3 Personal register

6.3.1 Personal diving log book

Each individual diver should always carry personal diving log books containing relevant information of their conducted dives which are registered the same day as the dive is conducted.

6.4 Other registers

6.4.1 Reports of work injuries, incidents and deviations during work diving

The boundaries between what should be counted as incidents and deviation is not quite clear. A rule of thumb may be that an incident occurs during the dive on while a deviation is detected before the dive has commenced or after the termination of the dive.

Reporting of work injuries, incidents and deviations are made from the website <http://www.arbetsmiljo.gu.se/arbetsmiljo-a-till-o/dykning/>.

In the forms it is specified to whom and where the incident shall be reported.

7 Leisure/recreational diving

Special rules apply for leisure diving if diving related equipment (such as boats, compressor for diving air, etc.) owned by the University of Gothenburg are used or if the diving is conducted within the stations docking area at the Sven Lovén Centre for Marine Sciences.

The University of Gothenburg has no work environment responsibilities for what employees and students do in their spare time.

7.1 SCUBA-diving

Those who conduct leisure/recreational diving should have the competency equivalent to CMAS ** or PADI Rescue Diver. Essentially, the dives shall be performed according to the Swedish sport diving federation (Svenska sportdykarförbundets - SSDF) diving practice. The University of Gothenburg may, however, impose restrictions. In the risk assessment and dive planning factors that are addressed in Work Environment Authorities provision for Work Diving (AFS 2010:16) shall be considered.

The diver should provide the station diving activity leader a current health declaration/dive medical examination according to the SSDF's recommendations. The diver must also have completed a CPR-training within the past three years and must have a leisure time accident insurance that covers diving.

Maximum allowed diving depth is 30 meters. The dive time should be adjusted so that no decompression is needed.

Only diving with normal weight load is permitted.

All equipment used in the diving must be CE-marked. If possible, equipment must be cold-water certified and/or approved equipment that eliminates the risk of freezing (e.g. freeze protection on breathing regulators).

Diving is not allowed in areas with strong currents or in turbid water, during heavy wave exposure or any other complicated conditions.

A written examination proof that the scuba gear has undergone service/maintenance

according to manufacturer's recommendations should be presented to the head of department/equivalent or diving activities leader.

A responsible diving supervisor shall be appointed. The dive supervisor notifies the head of department/ equivalent or diving activities leader about when the dive will begin and when the dive team have returned to the station.

Documented risk assessment and diving plan shall be in accordance with the Work Environment Authority provisions for Work Diving (AFS 2010:16)
Report on the incident or deviation is made in accordance with section 6.4.1.

7.2 Snorkeling and free diving/APNEA

When snorkeling or free diving, it shall, if the risk assessment has not been deemed to be unnecessary, always be a surface guard that can keep watch over the diving area, call diver's attention and intervene in the event of danger.

Snorkeling and free diving may be conducted to a maximum depth of 10 meters if conditions permit.

Free diving to depths greater than 2 m should be done in pairs. One of the divers has to stay at the surface. The divers may not be further apart than they can communicate using agreed hand signals, which can result in a significant limitation of the depth of immersion.

A diving flag has to be used when snorkeling and free diving is in progress.

Snorkeling and free diving is not permitted if the water temperature falls below +4 degrees (valid throughout water column for the intended dive), if strong currents or turbid water prevails, in the dark or under other complicated conditions. If required, wetsuits shall be used as protection against the cold.

Only diving with normal weight load is permitted.

Before the snorkeling or free diving occurs, the head of department/ equivalent or the diving activities leader shall be notified about details of the dive, diving assignments, participants, returning time, etc. and if boats of the field station are used.

A risk assessment of the site must be made before diving in order to ensure good conditions.

Reports of incident's or deviations are made in accordance with section 6.4.1.