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Originally sent to all BSAC Technical Instructors.

“Hogarthian rigging” and “Primary take” when teaching “out of gas response” on BSAC courses

Dear BSAC Instructor,

The recent introduction of the BSAC Sports Mixed Gas course and the subsequent automatic upgrading of all Extended Range Diver Instructors with a mixed gas qualification to Sports Mixed Gas Instructor have highlighted a problem. This problem concerns the teaching of “Hogarthian rigging” and “Primary take” within BSAC courses in general and on BSAC Technical courses specifically. Instructors who have qualified via the instructor workshop or observed course routes will be familiar with the BSAC policy regarding these techniques. However, it transpires that many of you who have automatically upgraded from ERD Instructor or those of you who teach within the regular Diver Training Programme (OD, SD, DL & AD) may not. I am therefore taking the opportunity to remove any ambiguity by explaining the BSAC policy and the reasoning behind it.

Definition of terms:

“Primary Donate” is the technique of a donating the demand valve the donor is breathing from to an out of gas casualty, the donor then resorts to his/her alternative gas demand valve.

“Primary Take” is the technique where an out of gas casualty snatches/takes the donor's regulator independent of any action by the donor, the donor then has to take up his/her secondary demand valve.

“Hogarthian Rigging” is the technique of routing a long (1.5 metre – 2 metre) primary regulator hose from the cylinder valve, under the right armpit, around the front of the body, around the back of the neck and culminating in the primary demand valve being the one the diver is breathing from.

BSAC has conducted field trials and as a result have arrived at the conclusion that “Hogarthian rigging” and “Primary Take” are incompatible with techniques taught within BSAC training programmes, do not work efficiently without significant donor input in some circumstances and are incompatible with some equipment types.

BSAC is aware that these techniques are taught and promoted exclusively by one US technical diving agency and favoured by some technical diving instructors from other agencies which, whilst not necessarily promoting it do not proscribe it either. Therefore I would like to take the opportunity to clarify BSAC policy as it is important to ensure you all understand why BSAC has taken a firm position on these particular techniques.

Some instructors from other training agencies teach and promote “Primary take”. This is where the casualty is taught to take the primary demand valve from the donor's mouth. Incident statistics have indicated that this has the potential to have serious and dangerous consequences. Most divers have not been conditioned to cope with such an event and there is an element of transfer of the problem from casualty to donor within this procedure. Fortunately current incident reports indicate that “Primary Take” is not a common response and most out of gas casualties have resorted to their conditioning by

training to give the appropriate signal and accept donation. It can be readily seen however that “primary take” is completely incompatible with rebreathers. For all of these reasons BSAC does not support or allow this technique to be taught by BSAC instructors to BSAC members or on BSAC courses.

“Primary donate” clearly ensures that an out of gas casualty will receive a working demand valve that supplies a breathable gas and if confronted with an out of gas diver the donor will choose whether to donate his/her primary or secondary demand valve. As long as the secondary demand valve is readily and easily accessible and the donor is well practiced in dealing with it this is workable. However, it is worth noting that this is not the only method of ensuring this desirable result. An alternative gas demand valve prominently placed within the triangle of access can achieve this equally well and has the advantage that the donor does not need to remove his/her own regulator and thus possibly exacerbate the problem. This latter is also a system that recreational divers will be conditioned to and familiar with, a benefit in terms of reduced training requirement when moving to upgrade their diving skills but also a system they are familiar with if confronted with an emergency underwater.

BSAC fully approves and supports the use of long hoses (1.5 metres - 2.0metres) to allow freedom of movement between donor and casualty in any out of gas situation. However the question of whether the diver breathes from the long or short hose arises when a long hose is fitted. Divers using independent twin-sets have a dilemma in that they have to swap demand valves at intervals during a dive. Since with independent twin-sets both regulators are in effect primary regulators the only complete solution in this case is to have long hoses on both regulators such that which ever demand valve is donated there is a long hose to facilitate freedom of movement.

In the case of a twin-set fitted with an isolation manifold there is a primary and secondary regulator and many divers employ a long hose on one and a standard hose on the other. The decision as to whether to breathe from the long or standard length hose is defined by whether the diver chooses to adopt primary donate or alternative gas source. However, instructors and divers should consider that swapping demand valves at least once during the dive to prove both regulators are in full working condition at depth is good practice. Having both regulators fitted with long hoses covers all bases and is worth consideration even with this configuration.

The field trials BSAC conducted with “Hogarthian rigging” revealed a number of issues. The primary and essential criteria when considering hose routing and stowage for the donation demand valve must always be ease and efficiency of deployment covering the widest possible range of deployment situations. Re-stowage is not and cannot be the defining criteria.

“Hogarthian rig” is favoured by some for the simple reason that it is by far the easiest method to re-stow, the donor can easily re-stow the hose without assistance. An instructor may demonstrate deployment and re-stow a number of times without difficulty. However, re-stowing is of little significance compared to efficiency of deployment. In a real out of gas emergency the out of gas casualty needs a quick, seamless and efficient deployment to facilitate a successful result. Having completed the donation and with the out of gas situation fully resolved it is unlikely that donation will be required again in the dive therefore the hose may then be re-stowed in any convenient way.

Deployment of a Hogarthian rigged demand valve can be problematic in some circumstances. The ideal situation is for both divers to be more or less horizontal and facing each other. In this situation the hose should deploy easily. Where both divers are vertical and facing each other in the water it will be necessary for the donor to rotate forward to facilitate deployment over the head. There is a possibility of dragging the donors mask strap off but this can be avoided by wearing the mask strap underneath the hood. If the casualty approaches from the left side of or from behind however, the donor must quickly rotate forward and to the left to allow deployment of the long hose. If the casualty approaches from

below the donor then it is necessary for the donor to roll forwards to facilitate deployment. In these cases the donor has to take significant action to enable the technique to work and this becomes proportionately more of a problem with the level of stress and urgency being experienced by the casualty. BSAC does not advocate that Hogarthian rig cannot be made to work, it is merely that it is a system that may require significant and speedy action from the donor to ensure it works, without such donor input there is significant potential for snag and procedure failure.

In contrast an alternative gas demand valve placed within the triangle of access combined with a long hose, stowed carefully under elastic bungees, either on the side of a cylinder or under the elastic ties of a wing or indeed any other method of hose stowage that can be relied upon to deploy efficiently without any action needed by the donor to ensure rapid deployment, works effectively and efficiently in all circumstances and with all equipment types or configurations, including rebreathers. An added benefit of the above system is that all recreational divers will have been trained in the use of alternative gas source. Minimal retraining is required as the only new element is the long hose and method of stowage.

In summary, it is clearly desirable that consistent and uniform emergency response techniques are established. The advantages of adopting a system that is widely taught and understood world wide at recreational level therefore requires minimal reconditioning through training and works efficiently without donor input with all equipment types and configurations are self evident. Therefore on the basis of trials and evidence BSAC has opted to teach as a preferred technique:

- Alternative demand valve stowed within the triangle of access
- The donation of a demand valve when required
- The configuration of a long hose/s stowed in elastic bungees such that it/they will deploy efficiently and seamlessly when required.

This preferred technique does not involve the use of “Hogarthian rigging” or “primary Take”. BSAC standards and policy require that these techniques cannot be taught by BSAC instructors to BSAC members or on BSAC courses. The various BSAC Course Instructor Manuals provide clear guidance on preferred techniques to be taught on BSAC courses.

I hope this has clarified the situation and given an understanding of the reasoning behind it.

Regards



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