

Reducing the incidence of the bends in Indonesian fishing villages: Education may not be enough

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Thousands of divers have been paralysed and hundreds killed in the past several years in the Philippines and Indonesia as a result of the bends (Johannes & Riepen, 1995). The accidents occur when divers go down too often or too deep and/or stay down too long in pursuit of pearl shell, aquarium fish, lobsters or live reef food fish. The frequency of such accidents is said by divers to be increasing as they find themselves forced to go deeper and stay down longer after having depleted stocks in shallower waters.

Johannes and Riepen (1995) report that the fishermen are often informed poorly, or not at all, concerning the cause of the bends (see also the preceding article in this Information Bulletin by Michael Jacques). It might therefore be inferred that education is the key to greatly reducing the bends among divers in this region. Additional interviews we carried out in the Komodo region of Indonesia in May 1997 reveal that a more complex cause can underlie this problem.

Here, we found that divers were at least broadly aware of the dangers and causes of the bends. But diving is looked upon by boys and young men between about 15 and 25 years of age as a romantic and 'macho' activity. Moreover, just like teenage car drivers in western countries, they assume that 'accidents happen to other people' as they push beyond the safe limits.

Greatly reinforcing this willingness to risk their lives is another factor: chronic debt. Typically hookah gear and associated equipment cost about 20 million rupiah (roughly \$US 800), a sum that is well beyond the means of the majority of divers. So, to get their start, they borrow the necessary money from middlemen who buy their catch. The latter then put pressure on them to repay the debt as quickly as possible, sometimes accompanying them on their trips and urging them, we were told, to make four dives a day for an average duration of 40 minutes at depths of up to 45 m.

A serious non-lethal case of the bends typically involves paralysis from the waist down, from which the diver may recover completely, partially or not at all. We interviewed one 17 year-old-boy who had been stricken by the bends only 24 hours earlier. Frightened, sweating profusely, he

was paralysed from the waist down, unable to control his excretory functions and unable to feel his legs or feet.

He knew that there was a possibility that he would not recover. Yet when asked if he would go back to diving if he did recover, he answered unhesitatingly that he would. Older villagers did not approve of this attitude but said that it was common and that they felt helpless to do anything about it. 'Once you are in debt and your middleman says "dive", you have to dive', said one. Middlemen, it was pointed out, have nothing to lose when one of their divers is injured or killed. They simply repossess the victim's diving gear and resell it, sometimes at a profit, to pay off his debt.

Some villagers volunteered their (correct) belief that fatigue or alcohol consumption increases the likelihood of getting the bends. Yet, they said, young divers often went when tired from previous dives, and drank beer to help them warm up between dives.

One village leader told us that, if we volunteered to teach their young men more about the bends, the village would certainly agree, but only because they thought such education might be marginally useful. The real problem, they said, was lack of alternative employment opportunities. If a diver was lucky enough to be able to repay his debt and owned his diving gear, the incentive to exceed safe diving standards was significantly reduced, they said.

In order to try to reduce such dangerous diving practices in the Komodo region, as well as associated destructive fishing practices described by Jos Pet in the previous issue of this publication, The Nature Conservancy is working to develop various alternative employment opportunities. These include tourism, pelagic fishing for Spanish mackerel and aquaculture of groupers, abalone and sea cucumbers.

Reference

- JOHANNES, R.E. & M. RIEPEN. (1995). Environmental, economic, and social implications of the live reef fish trade in Asia and the Western Pacific. The Nature conservancy, Jakarta Selatan, Indonesia. 81 p.

1. The Nature Conservancy, Jakarta