

# Compressor Fishing Practices among Fisher-divers of *Lampirong* (*Placuna placenta*) and their Associated Health Risks in a Coastal Municipality in Panay, Philippines

Ma. Arve B. Baňez

Author's email address: mbbanez@up.edu.ph

Division of Professional Education, University of the Philippines Visayas, Iloilo City

#### RESEARCH ARTICLE

#### **Abstract**

**Background:** Compressor fishing is a strategy adopted by small-scale artisanal fishers of coastal communities in Panay, Western Visayas. The practice persists among subsistence *Lampirong* fisher-divers whose livelihood depends on seasonal fishing. *Placuna placenta* known locally as *Lampirong*, is valued for its shells, which are made into shell craft like the famous capiz window. Related studies which examined traditional diving practices and compressor fishing identified risk factors such as inappropriate dive training and use of unsuitable diving gears.

**Objective:** The study aimed to investigate the plight and health risks associated with common malpractices among *Lampirong* fisher- divers who utilize the compressor fishing strategy.

**Methodology:** In this ethnographic study, five (5) *Lampirong* fisher-divers narrated the health risks and managing practices that they have adapted to survive compressor fishing. Primary data from field observation and interviews with the fisher-divers as well as secondary data from related studies were utilized for comparison and analysis. Considering the health risks that compressor fishing poses to fisher-divers, this study attempted a reflexive position drawing from the principle of ecological public health.

**Results:** The health risks of compressor fishing are known to fisher-divers, thus, they have developed managing practices which include observance of certain clear-cut rules (the do's and don'ts) to ensure underwater survival. Improvised diving gears are worn but barely protect the *Lampirong* fisher-divers from decompression illness or sickness. Related studies validated these symptoms such as nose bleed, dull pain in the ears, blood dripping from the ears, headache, and physical fatigue from prolonged dives. They rationalized the practice of *Lampirong* compressor fishing as a means to bring food to the table for families in fishing communities.

**Conclusion:** While the Philippine law prohibits or regulates compressor fishing, there is still a need for a policy or program that will address the health risks caused by compressor fishing.

**Keywords:** compressor fishing, decompression illness (DCI) or decompression sickness (DCS), Lampirong fisher-diver, health and well-being, ecological public health

## Introduction

The livelihood activities of fishers directly impact the ecological condition of the coastal and marine ecosystems. Needless to say, the health and well-being of fishers are interconnected with the abundance and/or depletion of coastal and marine resources. "Ecological public health the need to build health and well-being, on ecological principles" frames this study of compressor fishing practices by small-scale, artisanal *Lampirong* (*Placuna placenta*) fisher-divers of a municipality in Panay, Western Visayas, Philippines [1].

A 2016 study in Sibulan town, Dumaguete, Negros Oriental, noted that the Sama (Bajau) fishermen, a non-Islamized indigenous community of migrant fishers, were skilled not only in spearfishing but also in compressor fishing. The study also described compressor fishing to be associated with illegal poison fishing [2]. A similar study in the northern section of Danajon Bank, Philippines reported that among illegal fishing fleets, compressor fishing operators directly employ the most number of fishers [3]. Their skills in compressor fishing have been exploited by patrons that buy specific species [4].



Several studies showed that traditional diving practices and compressor fishing were unsafe. Divers were prone to decompression sickness (DCS) and decompression (DCI) illness. A 2008 survey among 117 traditional muro-ami divers in Seribu Island, Jakarta reported them as having experienced muscle pain, myalgia, skin rash, ankle weakness, bowel movement and bladder dysfunction, visual disturbances, headache, vertigo, dyspnoea, chest pain, convulsion, unconsciousness, nausea, and vomiting. Three risk factors to DCS were: (1) non-use of a proper diving regulator (a diving device that allows you to breathe underwater); (2) lack of knowledge of the Valsalva maneuver, or the technique of clearing pus of the ear, and, (3) lack of knowledge and training on the ascend speed to sea-level surface [5, 6, 7, 8, 9].

This study focused on the health risks of compressor fishing, the traditional diving practices which *Lampirong* fishers have adapted to as well as managed. It also discussed the reasons why compressor fishing persists despite the risks on the fisher-divers' life and limb. There are several studies on compressor fishing which report them as a dangerous and destructive fishing strategy; however, few have dealt with the health risks of traditional diving practices in the Philippines.

Therefore, the study aimed to contribute to the expanding knowledge of traditional diving practices and the well-being of fisher-divers. The plight of *Lampirong* fisher-divers, the health risks and associated dangers which they are constantly exposed to due to compressor fishing are ecological public health issues that require urgent attention from the national and local government agencies. The findings of this study may be of use to create the national public health programs and policies that will benefit the well-being of fisher-divers and the fishing communities in the country in general.

## Methodology

This study was ethnographic which required field observation and interviews to generate the narratives from five (5) purposively selected *Lampirong* fisher-divers as key informants.

The research setting was a coastal municipality in Panay Island, Western Visayas, Philippines. It is a first-class town with a population of 89,115 (2015 Census). The town is primarily agricultural and the seasonal small-scale fishery is mainly for household consumption. There are six coastal

barangays and the key informants reside in the said municipality where the *Lampirong* resource is found. A survey of the coastal areas of Panay Island classified the municipality as sandy or rocky beach ecosystem [10]. The total population of fishers is 472; 352 males (13 *Lampirong* fisher-divers) and 95 females. The total registered boats along with the fishing gears is 193 based on the 2016 Municipal Agriculture Office (MAO) record. The name of the municipality is withheld to uphold anonymity.

Primary as well as secondary data from the records of the MAO were utilized in the study. A total of thirteen (13) fisher-divers have registered their motorboats and fishing gears with the Office. On the first week of April, data gathering was started to document and observe the actual compressor fishing of Lampirong. The researcher, a crew of three (3) composed of two (2) fisher-divers and one (1) "line-man" [the over-all assistant who waits in the motorboat and keeps a close watch if the compressor motor is running well, pulls the net full of Lampirong, and subsequently drops the empty net for the fisher-diver to fill] to gain a firsthand experience of compressor fishing. An active Fisheries and Aquatic Resources Management Council (FARMC) officer facilitated the opportunity for the researcher's taking part in the compressor fishing trip. Joining one trip gave the researcher the experience of the actual compressor fishing allowed me to observe details starting from the time we left the shore, the three-hourdive starting at about eight in the morning lasting until eleven in the morning, and, sailing back to landing. I conducted a series of interviews with the fisher-divers in May 2019, the season of compressor fishing of *Lampirong*. Observation and data gathered were validated in June 2019. The *habagat* season ushered in the northeast monsoon winds and the rainy season signaled the end of the Lampirong compressor fishing in the coastal community.

All field interviews were coordinated with the local government unit through the MAO-designated official. Thus, the gatekeepers represented the barangay officials as well as the FARMC officers, both at the municipal and barangay levels. The key informants represented two coastal barangays; one fisher-diver of Barangay A and four of Barangay B. The gatekeepers introduced me to the fisher- divers; and, in turn, I was referred by the fisher-divers to the next interviewee. I would interview the fisher- divers late in the afternoon after they have returned from compressor fishing the entire morning. All five informants narrated learning *mano-mano* or free diving at a young age of between 10 to 15 years old. The youngest fisher-diver is 28 and the oldest is 54 years old.



An informed consent form was read to the informants in Hiligaynon. The interviews approximately ran for 45 minutes. Added to the documentation were the photographs of the diving gears. Fieldnotes while waiting for the fisher- divers to surface also served as important references in writing. Code names were assigned to protect the identities of the key informants owing to the sensitivity of the subject as compressor fishing is prohibited under The Revised Fisheries Code RA 10654. A certification stating that the study has satisfied the ethical and technical review was secured from the Ateneo de Davao Graduate School.

To analyze the data collected, the transcripts and field notes were reviewed and organized according to the objectives of the study. The key findings were presented and analyzed drawing comparisons from the review of related studies. Hence, the compressor fishing health risks and managing practices which impact the well-being of *Lampirong* fisher-divers were exposed. The ecological public health principle foregrounds the concluding discussion.

#### Results

Lampirong (Placuna placenta)

Placuna placenta is the scientific name for the windowpane oyster. It is a bivalve marine mollusk with thin mica-like translucent shells. It can be found along the sandy or muddy coasts of India, Malaysia, parts of China, and the Philippines. The preferred habitat for the oysters is brackish water (fresh and salt water) along the muddy bottoms near mangrove forests, but the oysters can also adapt to survive in full salinity. Windowpane oysters differ from other bivalves in that they are not able to anchor themselves to substrate, instead, they rest on the sea floor [11]. The shell of this bivalve mollusk is locally known as capiz or capis. In Binisaya and Hiligaynon dialects, capiz is more commonly called the Lampirong (Figure 1).

Lampirong is one of the marine resources found in the coastal waters of Panay. The shell craft cottage industry in the 1970s grew with the abundance of the Lampirong stock. Based on oral accounts, in shallow waters, the Lampirong was handpicked mano-mano or by free diving. Fisher-divers hailing from Negros Occidental, in the islet of Molocaboc, Sagay and the municipality of Hinigaran brought the technology of compressor fishing to Panay. The local fishers learned compressor fishing, which permitted staying underwater for longer hours. It resulted in the massive harvest of the Lampirong stock in tons to supply the demand for export of



**Figure 1.** A pail full of Lampirong sold at the public market. (Photo by MABBañez, 22 June 2016)

handicraft products made of capiz shells. In the long run, the *Lampirong* stock in Panay declined affecting the shell craft cottage industry in the late 1980s. Presently, the *Lampirong* stock is on resurgence—the outcome of the collective efforts of the local government, community participation, and, the successful intervention of the Aquaculture Department, Southeast Asian Fisheries Development Centre (SEAFDEC) marine research institute [12, 13].

#### Compressor Fishing Practices among Fisher-divers

Currently, the practical knowledge of compressor fishing was handed down from father to son. A fisher-diver breathes through a plastic hose pipe attached to an air compressor and dives to the bottom of the sea to capture fish or to handpick marine bivalves. A 'shallow dive' is estimated to be approximately 3.6576 meters to 5.4864 meters while a 'deep dive' using an air compressor is estimated at 12.8016 meters to 14.6304 meters below the surface. Since they live close to the sea, learning to dive was considered 'natural'. At the tender age of 10 years old, most of them already learned diving. "My father who is a diver himself has taught me how to dive... we live near the coast ...naturally, at ten years old I knew how to swim and dive (Si Tatay naga salum man, siya ang nagtudlo sa akon... Lapit lang amon balay sa baybay ti natural nagtuon kami langoy kag salum gamay pa ako mga dies anyos)."

The following are the clear-cut rules or tips that need to be followed by those who want to engage in compressor fishing, based on interviews with key informants:



#### (1) Approximately 3 Months Training for Compressor Fishing

In order to acclimatize the body to the strong pressure underwater, the fisher-diver needs to descend gradually while holding on to the rope attached to the anchor. He rehearses the descent underwater and the ascent to the surface sea level; and each time, dives deeper until he reaches the bottom of the seafloor. Ample time is required in learning to breathe comfortably underwater through a plastic tube hose attached to the air compressor, to bite the hose pipe between the teeth, and to inhale or suck air and exhale or blow air through the mouth. This takes approximately three months of practice diving.

#### (2) Technique to Release the Dull Pain in the Ears

One common experience among fisher-divers is the feeling of a dull pain in the ears. The fisher-diver ascends to the surface to ease the pain caused by the high pressure underwater. To equalize the pressure, he pinches his nose, then exhales or blows air through the nostrils, releasing pressure from the ears.

"My ears would start aching when I dive deeper, I would ascend to the surface to ease the pain. I would pinch my nose and blow air through my nostrils to release the pressure (Kung mabatyagan ko na nga masakit ang akon talinga naga butwa ako paibabaw kag gina-pusnga ko ang hangin pa-gwa sa ilong para makuha ang sakit sa talinga. Naga balik naman ako salum paidalum kung madula na ang sakit sa talinga)."

#### (3) Taking 5-10 Minutes Rest on the Surface

Most of the fisher-divers reported staying underwater for an estimated 30 minutes to handpick the *Lampirong* shells. After thirty minutes, lugging their heavy nets, they ascended to the surface sea level. The line-man drags the net full of *Lampirong*, hauling it on the motorboat. Normally, they rest for about 5-10 minutes. Jesus, 39 years old, started freediving at 15 years old. From then onwards he ventured into compressor fishing.

"I remained underwater from seven o'clock in the morning until three o'clock in the afternoon. In between, I ascend to the surface and taking 5-10 minutes break. The abundant *Lampirong* stock permitted tons of harvest that year. My air compressor supplied air efficiently, enabling me to stay underwater for longer hours (*Sang nagkaka ang Lampirong, daw banig lang sa idalum dagat, nagsugod ko salum mga alas siete nakabutwa kami mga alas tres na sang* 

hapon. Ang akon compressor ginpakumbinar ko kag mayo ang naga guwa nga hangin ti makatener ko salum dugay)."

To sum up, the three-month practice dive training for compressor fishing consists of the following: (1) practice how to breathe underwater using a plastic hose tube attached to an air compressor; (2) practice descend gradually while holding on to a rope attached to the anchor, and ascending to the surface; (3) ascending to the surface when the fisher-diver feels a dull pain in his ears, releasing the pressure from the ears by pinching the nose and blowing air through nostrils, and (4) staying underwater for approximately 30 minutes and 5-10 minutes rest on the surface.

There have been no fatalities reported due to compressor fishing in the area since the start of the practice in the 1970s. However, nose bleed, dull pain in the ears, blood or water oozing from the ears, and headache are common physical ailments experienced by fisher-divers.

Fisher-divers suffer from nose bleed or blood or water oozing from the ears due to the high pressure underwater. Throbbing pain in the forehead necessitates taking a dose of paracetamol or painkiller to relieve the pain. "I experienced nose bleed, sometimes, blood drained from my ears. I had headaches. I would take pain reliever (Kung mag-sikma ka naga-gwa ang dugo sa ilong, kung kaisa naga gwa ang dugo ukon tubig sa dalunggan. Masami nga nagasakit akon ulo, kapin pa sa agtang dampi. Ti inom ka lang paracetamol)."

Miguel, 28 years old, heard someone died due to compressor fishing in Negros Island. He related that the diver failed to comply with the prescribed three months practice dive training causing his demise. Miguel also shared watching, Bosero, a documentary showing the risks of compressor fishing on YouTube.

"The death of a diver in Negros was retold to me. They said he did not complete the three months compressor fishing practice. I saw a video on YouTube that shows the risks of compressor fishing (Nabatian ko sa istorya may napatay didto sa Negros nga manugsalum, wala pa kalambot tatlo ka bulan iya practice nag compressor na siya. Nakita ko paglantaw ko sa Youtube nga delikado kag pwede ka mapatay sa compressor).

## (4) Wearing the Diving Apparel/Gears

Lampirong fisher-divers' usual apparel consist of the following: long sleeves t-shirt, long pants or jogging pants,



bonnet, gloves, diving mask, and an improvised flipper (panyapak). The long sleeves t-shirt, long pants or jogging pants, and bonnet are worn to protect the body from the hot and cold temperature underwater as well as from the sting of the jellyfish. (Figure 3). The diving mask is a protective gear for the eyes and facilitates visibility underwater. The improvised flipper (fabricated from a flattened PVC plastic pipe) shaped like a slipper with rubber strap attached (made from the used interior of a rubber tire) is a protective gear worn on the feet. A variant of the improvised flipper is made from a flat wooden board shaped like a slipper with rubber strap attached (Figure 4). Gloves are worn to protect the hands from cuts due to the sharp edges of the *Lampirong* shells as well as from the venomous spiky lionfish (Pterois), known locally as Arimpurok.

There were cases of fisher-divers accidentally spiked by the lionfish due to low visibility in turbid waters. Their arms would swell and throb causing them to ascend on the surface to rest. Jesus related getting spiked by a lionfish where he sought medical treatment and got anti-tetanus shots from the local physician.

"My hand was pierced by a lionfish because they swim close to the *Lampirong* seabed. My hand swelled and throbbed. I couldn't bear the pain and ascended to the surface to rest for a while. But the pain was unbearable so I went to the town doctor to seek medical treatment (*Kaagi ko tunok sang arimpurok kay naga upod na sila sa Lampirong, naghabok akon kamot kag nagangutngot. Indi ko kaagwanta, nag -untat ko salum kag nagsaka...indi madala sa pahuway... pagpuli ko nagkadto ko sa doctor sa banwa gin-injectionan niya gid ko).* 

Fisher-divers consider it a must to wear the complete diving apparel and the diving gear consisting of the gloves, flippers and diving mask. Definitely, it does not have the protective features of a proper diving or wet suit. The diving apparel worn by the *Lampirong* fisher-divers actually exposes them to the hazards of the changes in temperature and pressure underwater. The gloves and flippers do not cover and completely protect their extremities from the cold temperature and high pressure underwater. Their diving apparel are made from light clothing material and are not suitable for deep-sea diving. Yet, they survive and even succeed diving with these bare essentials.

(5) Some Rituals and Regimen: Making the Sign of the Cross, Smoking a Stick of Cigarette Before Diving, Drinking Water to Hydrate, Taking Vitamins, Eating Vegetables, Sleeping Early



Figure 2. Diving apparel and gear (Photo by MABBANEZ, 3 April 2019)



Figure 3. Diving Mask and improvised flipper (panyapak) (Photo by MABBAŇEZ, 24 May 2019)



**Figure 4.** Gloves (gwantes) (Photo by MABBAŇEZ, 3 April 2019)



The divers make the sign of the cross before plunging into the waters. It is a ritual prayer for safety and to ask for God's grace, they said. All shared this belief of making the sign before diving. Some divers smoke a stick of cigarette before diving, to ward off the cold, to relax.

"I would make the sign of the cross before diving to ward off bad luck and to ask grace from God. I usually smoke to keep my body warm... (Nagapanguros ako antes magsalum para nga mapalayo ako sa disgrasya sa idalum kag para magpangayo sang grasya sa ibabaw... Naga- panigarilyo para indi ako malamigan sa idalum)."

They bring drinking water to hydrate and take a regular meal of boiled egg, rice, and fish before diving. Some take vitamins like Revicon Forte to energize the body for the duration of the *Lampirong* diving season. A Senior fisher-divers observe a vegetable diet and enough sleep regimen.

"I feel enervated after drinking Revicon Forte. I eat vegetables regularly and I would sleep early if I will dive the following morning (Nagapagsik ang pamatyag ko kung maginum sang Revicon Forte. Nagakaon ako utan pirmi, laswa kag wala ako nagapulaw kung may salum pagka aga)."

Fisher-divers observed the dos and don'ts of compressor fishing because the consequences could endanger their life and limb, stated Simon. "If we do not practice how to use a compressor, we might get into an accident. We need to practice diving first (Madisgrasya kami sa idalum kung indi namun pagsundon ang pag pag practice anay sang paggamit sang 'compressor'. Indi pwede nga diretso salum)." The rules appear clear-cut, simple, yet, have saved their lives all these years of compressor fishing.

Malfunctions of the air compressor motor usually happen at sea. The divers notice the decreasing supply of air through the plastic hose tube. Two fisher-divers related what to do when this occurs: (1) continue breathing through the plastic hose tube, and gradually ascend to the surface; (2) on the surface, signal the line-man to check and fix the air compressor. Routine check-up before every compressor fishing trip is ensured by fisher-divers. "Several times the air compressor motor stops working and the air supply becomes thin. We need to ascend and have the line-man check the motor (Kapila na kami mapatyan compressor, pirmi man na. Mabal-an mo man kay gamay na lang hangin naga-guwa sa hose. Pwede man nga butongon mo ang hose para ang line man ma check niya ang compressor kag mapa-andar liwat. Kung ma-alang alang ka gid ibilin mo ang net nga may Lampirong kag mag butwa paibabaw)."

Fisher-divers feel numbness in the lower leg when they stay too long underwater. Not resting regularly on the surface causes fatigue. My legs feel numb when diving for longer hours. I have to rest in between; diving is physically draining. (Kung dugay ka salum, daw nagabusog imo batiis. Kinahanglan mapahuway kay makapoy man magsalum)."

The dos and don'ts defined the risks of compressor fishing and are known to the fisher-divers. They are aware of the consequences of not following these practical, simple, and clear- cut rules. However, to eke out a living, compressor fishing persists as one of the fishing strategies adopted by artisanal *Lampirong* fisher-divers. Among several fishing strategies, compressor fishing is one of their livelihood activities. Said a fisher-diver, "Compressor fishing is necessary, so we could buy a kilo of rice, so we can feed our family. (*Kinahanglan kami mag- compressor para may ibakal kami isa ka kilo nga bugas kag para may sud-an amon pamilya*)."

#### **Discussion**

Compressor fishing is a strategy adopted by small-scale, artisanal fisher-divers of Lampirong which exposes them to injuries caused by decompression sickness or illness. Fisherdivers consider nose bleed, blood or water oozing from the ear, dull pain in the ear, headache, numbness in the lower leg, and fatigue as ordinary experience. The International Labor Organization (ILO) categorized compressor fishing as a hazardous fishing activity causing hypothermia underwater, exposure to extreme heat at the surface of the water, drowning, barotrauma (physical damage to body tissues), and nitrogen narcosis (increased nitrogen levels in the blood leading to altered perception) Moreover, long term exposure to pressure can cause dysbaric osteonecrosis (DON) or death of a portion of the bone. The sting of the jellyfish and the spiny lionfish experienced by Lampirong fisher- divers are forms of accident and biological hazards because of exposure to marine toxins. There are also chemical hazards caused by the exposure to carbon monoxide gas and diesel emissions in the divers' breathing. Thus, the Lampirong fisher-divers are prone to multiple hazards such as accident, physical, chemical, and biological hazards [14,15].

The do's and don'ts such as (1) the practice dive training for about three months, (2) the technique to release pressure in the ears, (3) the 30 minutes staying underwater limit, 5-10 minutes rest on the surface, (4) donning the diving apparel/gears, and (5) other regimen such as hydrating, taking in vitamins, healthy diet, and getting enough sleep are practical, simple, and clear-cut rules that



fisher-divers observe for survival underwater. These raw practices stem from traditional local knowledge built on experience and learned by trial and error.

Relative to universal standards of scuba diving, the *mano mano* or traditional diving is risky. The same observation was pointed out in the study of traditional diving practices among the indigenous peoples of Thailand [6]. Seemingly, the technique to release pressure in the ears adopted by *Lampirong* fisher-divers translates to the Valsalva method, likewise recommended in a related study of muro-ami fishing in Indonesia [5]. The study among divers in Tasmania also identified the inadequate dive training and inappropriateness of the diving gears worn by the fisher-divers exposing them to hazards and risks [7].

Prolonged exposure to risks of decompression illness and the other occupational hazards of compressor fishing have dire consequences on the health and well-being of *Lampirong* fisher- divers. Notwithstanding these do's and don'ts, the risks posed by compressor fishing needs to be responded to in order to uplift the health and well-being of fisher-divers. Ideally, a sound ecological public health policy addresses the well-being of humans finding the balance in natural ecosystems. It appears that the existing ban and or regulation of the practice of compressor fishing leans toward the conservation and protection of the coastal and marine ecosystems.

The Revised Fisheries Code (RA No. 10654) stipulate, "the use of compressor for fishing is prohibited, except when air compressor is used for feeding in the designated fish cages, subject to registration of compressors and the regulation of the use of compressors for fishing... the LGU may ban or regulate on the common practice in the area" [16]. Despite this law, its strict enforcement is weak with the persistence of compressor fishing across coastal communities in the country. The law stipulates that the local government unit (LGU) may ban or regulate compressor fishing as an adopted fishing strategy by fishers engaged in small-scale, artisanal fishery in the Philippines. This ambivalence weakens the implementation of the law. However, cases of arrests of fishers caught using air compressor for fishing were reported in the news. An exception applies to pa'aling, the compressor fishing practiced by fishers of Palawan in Western Philippines since it replaced an even more destructive fishing strategy that is muro-ami. Muro-ami, is a fishing strategy that literally destroys the coral reef, where fishes spawn [17].

Based on the narratives of *Lampirong* fisher-divers, compressor fishing is necessary for them to be able to feed

their families. Knowingly (and unknowingly), even risking their life and limb to sustain their lives and livelihood. The way forward is sustainable livelihood which does not encumber the fisher-divers health and well-being. What are ways to make diving safe for fisher-divers of *Lampirong*? An education campaign program making the fisher-divers aware of the risks of compressor fishing. The traditional diving practices should be scrutinized for its 'scientific' merits. Future researches can be carried out in order to determine the accident, physical, chemical, and biological hazards of compressor fishing.

Public health programs and policies related to the risks of compressor fishing are nonexistent in the Philippines. The ban or regulation prescribed by both national and local legislations rationalizes such inaction. The narratives of *Lampirong* fisher-divers are qualitative data which could be used as baseline to survey further the health risks posed by compressor fishing in coastal communities across the country. Perhaps in the near future, the Philippine government and other social development institutions can take concrete steps to address the well-being of fishing communities based on the ecological public health principles.

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#### References

- Morris G, Patrick S. (2017) The Environment in Health and Well-Being. Oxford Research Encyclopedia of Environmental Science. DOI: 10.1093/acrefore/9780199389414.013.101.
- Knudsen M. (2016) Poverty and beyond: small-scale fishing in overexploited marine environments. Human ecology, 44(3), 341
- Bacalso RTM, Wolff M, Rosales RM, Armada NB. (2016) Effort reallocation of illegal fishing operations: A profitable scenario for the municipal



- fisheries of Danajon Bank, Central Philippines. Ecological modelling, 331, 5-16.
- 4. Stacey N, Steenbergen DJ, Clifton J, Acciaioli G. (2018) Understanding social wellbeing and values of small-scale fisheries amongst the Sama Bajau of archipelagic Southeast Asia. In Social Wellbeing and the Values of Small-scale Fisheries, 97-123. Springer, Cham.
- Wahab C, Budiningsih Budiningsih S, Guritno, M. (2008) Decompression sickness among Moroami diving fishermen. Medical Journal of Indonesia 17(3):197. DOI: 10.13181/mji.v17i3.320.
- Gold D, Soomboon A, Somchai W, Geater A, Wilawan J, Gerth W. (2000) The Indigenous Fisherman Divers of Thailand: Diving Practices, International Journal of Occupational Safety and Ergonomics, 6:1, 89-112. DOI: 10.1080/10803548.2000.11076446.
- 7. Smart D, Peter M. (1990) High Risk Diving Tasmani'a Aquaculture Industry SPUMS Journal, 20(3):159-165.
- 8. Thalmann ED. (2004) Decompression Sickness: What Is It and What Is the Treatment?
- Castillo RCA. (2011) When fishing is no longer viable: environmental change, unfair market relations, and livelihood in a small fishing community in the philippines (COMCAD Working Papers, 105). Bielefeld: Universität Bielefeld, Fak. für Soziologie, Centre on Migration, Citizenship and Development (COMCAD).
- Yano T. (1994) The Characteristics of Fisherfolk Culture in Panay: From the Viewpoint of Fishing Ground Exploitation. In Ushijima Iwao and Cynthia Neri Zayas (Eds.), Fishers of the Visayas. A Study of Maritime Communities, 3-51. Quezon City: College of Social Sciences and Philosophy, University of the Philippines.
- 11. Jiratipayabood P. (2017) Windowpane Oyster Report An examination of windowpane oyster (*Placuna placenta*) populations in Siit Bay. Marine Conservation Philippines.

- 12. Floren A. (2003) The Philippine Shell Industry Focused on Mactan, Cebu published by the Department of Environment and Natural Resources.
- 13. Gallardo WG, Madrones-Ladja JA. (2000) Restocking of windowpane shell, *Placuna placenta* in a depleted bed off Tigbauan, Iloilo, the Philippines. In J. Hylleberg (Ed.), Proceedings of the 10th International Congress and Workshop of the Tropical Marine Mollusc Programme (TMMP), (Phuket Marine Biological Center Special Publication 21(1):171–174). Phuket, Thailand: Phuket Marine Biological Center.
- 14. "Compressor fishing" Retrieved from https://www.ilo.org/wcmsp5/groups/public/---ed\_protect/---protrav/---safework/documents/publication/wcms\_186122.pdf
- 15. Castillo, Rosa Cordillera and Ragragio, Andrea. (2001) Parabuso: Isang Silip sa Mapanganib na Trabaho ng Kompresor Diving sa Behia. Undergraduate paper, University of the Philippines Diliman Department of Anthropology Field School. Unpublished.
- 16. Revised Fisheries Code (Ra No. 10654) Republic Act No. 10654, entitled "An Act to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, Amending R.A. No. 8550, otherwise known as The Philippine Fisheries Code of 1998." Enacted by Philippine Congress on December 1, 2014 and lapsed into law on February 27, 2015 without the signature of the President, in accordance with Art. VI, Sec. 27(1), Constitution. The law took effect on March 23, 2015 after its publication.
- 17. "Pa'aling" (2019) Retrieved from http://thecoraltriangle.com/stories/these-men-dive-up-to 40-metre for fish-with-nothing-but-a-hosepipe-to-keep-them-alive