Retraction

Retraction: Design and research of automatic fishing machine based on acoustic adjustment (J. Phys.: Conf. Ser. 1802 022052)

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This article has been retracted by IOP Publishing following an allegation that this article may contain verbatim overlap with other published work [1].

IOP Publishing has investigated in line with the COPE guidelines and have found the article contains significant similarities to the source without citation and agree this article should be retracted.

IOP Publishing wishes to credit the anonymous whistleblower for bringing the issue to our attention. The authors agree to this retraction.

[1] B Zion, A Barki, J Grinshpon, L Rosenfeld, I Karplus, 2011, An automatic fishing machine based on acoustic conditioning, Aquacultural Engineering, 45 2

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Design and research of automatic fishing machine based on acoustic adjustment

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Abstract. In this paper, an automatic fishing machine based on acoustic conditioning was developed and tested in a reservoir. The floating catcher is remotely and automatically controlled to operate underwater speakers, feeders and underwater cameras that monitor fish behavior in real time. The open net fence installed underneath the system can be automatically closed to catch captured fish. And in this paper, we monitor and discuss the dynamics of fish populations in the net box. With classic conditional reflexes, fish can associate sound signals with food. Also, in order to strengthen the conditioned behavior of fish swimming freely in the reservoir, we employ regular training. With the utility of an audible signal which is to attract fish around the catcher, the catcher can catch fish and automatically close the net fence around them: fish catches in this particular event are 2.5 times as much as ones in a controlled event. In controlled events, the net fence is automatically closed without summoning fish.

1. Introduction
The purpose of this book in marine fish farming is to increase its annual activities by controlling the location and behavior of fish [1]. In some cases, fish are raised in an incubator and put into the water. They come from natural food. Many times, the effectiveness of the released fish ceases immediately after release. The traditional method of using wild populations during the fishing season. This may be why marine animals do not have such a way of spreading today. In the lakes and hot springs of aquaculture and commercial fishing in the world, fishing is also a long-term activity. Many of the main hot springs are fish [3]. In most large fish ponds, fishing employs the method that labors confine fish to a small portion of the pond with hand-drawn nets and lift them out of the water. However, barriers and vegetation in fish farms hamper purse seining [4]. At the same time, traditional mechanical fishing can also cause damage to the fish themselves and the underwater ecosystem. Therefore, fishing for bottom-dwelling fish devastate seabed seriously. In order to facilitate fishing operations and improve fishing results, numerous scholars have made several attempts to improve mechanized harvesting methods.

The purpose of the project is to develop a metal hook fishing machine for fishing at sea and in fishing grounds and sea areas. The fishing system is suitable for moving seafood areas for fishing in an orderly and effective manner. In this study, fishermen tested the waters in the mid-term between laboratory research and modern seafood technology.
2. Experimental materials and methods

2.1. Fishing equipment

In this article an automatic fishing machine was built (Figure 1) and hung in a liquid (Figure 2). The high-speed fishing machine consists of two concentric polyethylene pipes (outer diameter 4.6 m, outer diameter 250 mm) connecting the metal frame. These tubes, used as a melt, cover 1.4 meters of air. The metal structure on the tube holds a stainless steel control box (0.7 m x 0.7 m x 0.7 m), which includes a PLC controller, audio power controller, IP frame, and wire router and modem. The car, mounted on a vertical rifle, is under a metal box. Two 210 watt solar panels are used to charge 12 watt deep cycle batteries containing electrical system components. Two underwater cameras with wide-angle lenses (with lengths of 6 mm and 8 mm) are inserted under the inner surface of the directed polyethylene pipe and attached to the IP camera of the box. The camera connects to the Internet via a mobile modem so that the project can be viewed instantly and sends the image to a remote sender and stored for retrieval. A net fence (5 mx 5 mx 3 m) was installed at the bottom of the vehicle, which was secured from a pole extending from the pipeline, leaving a gap of 0.7 m let the fish freely enter the fence and can be separated.

Figure 1. The float fisherman demonstrates a float (A) a metal design with two solar panels (B) and a control unit made of stainless steel (C), covered with blue and white shadow network, audio developer, video provider, router and modem, 30 liter battery pack and electric motor for vertical rotating roller (D) with two 12 volt batteries. The rope is wrapped around the drum to lift it up and down the side of the net (E).

Figure 2. A cistern used to test fishing machines.

The lower four ends of the steel fence are connected to a 5 x 5 m square metal frame, to maintain its square shape in all cases. The side of the chain link fence is connected to a vertical bar with a diameter 100mm cable and rods. Depending on the signal from the controller, the music can turn up to
60 rpm. This pulled the line up and lifted the side of the fence around the buoy above the water level, closing the open hole at the bottom of the boat and keeping the fish in the fence for 2 seconds. Turning the drum backwards lowers the brushes and opens the fence.

A 1.5 m deep bottom pole has been installed in the chain link fence under the push box, and it is connected to the signal generator and amplifier via the push board. The recommended signal for FISH training is a 1 second sequence of pure voice music at 400 Hz and 1 second interval between subsequent pulses. It was previously found that these symptom markers could regulate the effectiveness of stimulant behavior. The fishing machine is attached to the support anchor in the middle of the spring (point 1 in Figure 2) which is 15 meters away from the car, usually in the airway. The sound pressure level of the lower water column, measured with an adjustable hydrophone, is 171.8 dB (Re.1.Pa). The snails that live in certain parts of the water are selected to plant sound signals in the water. The measured sound pressure level is 123 dB (point 8 in Figure 2, the distance from point 1 of the speaker is 300 m). The fishing machine is used to train and correct the sound of fish in the cage during closing (training mode). The box is opened so that the fish can enter and exit as they please, and the response of the fish in the nest is re-trained and improved (forward mode) [8].

2.2. Fish farms
The experiment was carried out in a reservoir covering an area of 26 ha with a constant water level of 1.2m~3. 2). The reservoir is stocked annually with a variety of fish such as carp, grass carp, Chu and tilapia plants are used to control water quality. Other species, such as African seafood and red and red lizards, also reach the lake from which they are derived. The number and distribution of species are unknown. The water temperature is monitored, between 10 and 13 degrees Celsius between 28 February and 31 degrees Celsius in August.

2.3. Test specifications
The purpose of the test is to check the technical performance of the fishing machine and the local and free fish response to the fishing machine, as well as the sound signals emitted from the water. The small fish of Sarotherodon Galilaeus (n = 3600, mean weight ± SD = 23.3 ± 15.2 g) combined the sound signal with the laboratory food and approached the feeder automatically at the beginning of the signal. Fish that have passed hearing requirements are transferred to a well and raised in a narrow cage under a 12-day fishing machine. Use the same model for further training. On September 22, prisons will be opened and trained fish will be sent to the lake. The fishermen have moved to a more aggressive form, meaning they train two fish a day for the next two days without training for a few days (the “rest” part). On the day the fish is released, the reinforcement ends the next day for the release of the fish close to the car. After two days of strenuous activity, first a rest period of two days, then a rest period of 3 days, then a rest period of 7 days. During intensive training, 1 kg of fed pearls (a mixture of 2 mm and 4 mm of dissolved, submerged balls) (small per second) is simply sent to jail. During the experiment, two underwater cameras took pictures every ten minutes and photos These (Fig. 3) were sent to the storage provider to re-examine the fish in the open box before., In the post-event time.
A month and a half after the release (November 8), at the end of the eighth session ("catch") (i.e., the third day of training), the fish were taken into custody, the cage would only approach the fish. (Fig. 4). The discovery event will be compared to an administrative event if the room closes automatically on the seventh day of the rest period. These initiatives have shown that where fish are caught while swimming on fishing gear has nothing to do with fish production. Before the water temperature dropped another management operation was carried out and the management and administration of the great reserve of the valley were forced to stop. Count the fish caught in different cases, weigh them separately and release.

| day 1 | day 7 | day 8 | day 9 | day 10 |
|-------|-------|-------|-------|--------|
| no reinforcement trainings | reinf1 | reinf2 | reinf3 | reinf1 |

**Figure 4.** Graph presentation showing when the project was written and supervised

2.4. Experimental results

Based on still images taken every ten minutes by two bottom cameras, the species changed in the cage within 30 days of St. Little's release. Peter was appreciated. This dynamic process is characterized by image variations (all images per day) resulting in the formation of a species (regardless of the number of fish) (Fig. 5). After 7 days, 40-80% of the photos show that most of the 3,600 cents are fish. Peter still goes to open prisons, probably in his spare time. However, after 9 days their presence began to decrease, up to 2% on the twelfth day after birth. However, two days after the prison opened, the common fish and grasshoppers entered the cage (seen in 90% of the photos; their lists seemed hard to separate, so they count together), and with some differences the shape is stable. 90% -100%. Immediately after the prison opened, several fish appeared in the prison. Following the acoustics improvement conferences, their presence has increased significantly. St. replied. Peter for two-day training between 18-19 and 27-28 days, but very little attendance.
Figure 5. Changes in the relative presence of fish species in the net box are synchronized over a 30-day period after opening

During the occupation, 140 (70 + 70) tails, 82 (40 + 42) tails and 21 (10 + 11) tails were recorded. However, 63 (8 + 55), 33 (5 + 28) and 0 fish were caught during the two control periods. A small red-bellied tilapia (less than 30 grams) from the forest caught these two fishermen, but St. was not allowed to fish. Peter was released.

3. Results and discussions
According to the experimental findings, the fishing boat itself was also a type of bait, as the fish were caught in a controlled manner without any noise and no food was provided. Attracting fish to flat surfaces with fast shells and their eating areas is popular. However, due to the behavioral nature, many fish of these three species were caught by catch. At that time St.'s little dogs. Peter was in closed prisons, the system taught local fish to hear sound alarms and swallow food particles flying in the net.

The design of the fishing machine is to lift the surface of the chain link fence from the open area (the hole near the speed frame and close to the water surface) to a point above the water level, and the hole remains closed. It is fair to assume that some species do not want to swim near the water to enter the open fence. After all, mosquitoes are not yet known in the central canal. We can also assume that the more open the cage, the easier it will be to attract fish. However, the deeper the fish dive, the longer it takes to collect nets if caught and the fish run away. These results and design changes may be examined in future studies.

The power of the fishing machine below the level allows for a variety of effects. In particular, the fish should be of a high standard (not yet defined). Fish that are further away from the fishing machine will only notice a signal that the frequency will reach this level above the listening threshold. If the difference between the two sound levels is 100 dB, then in the optimal conditions (for size, area, disturbances, weather conditions, etc.) of a body of water, the signal reaches a distance of up to 10 km. The system works. In real situations this distance may be less, but it still covers a much larger area.

In general, the results of these works show that a remote-controlled fishing machine with voice control can be used for deep-sea fishing in lakes, springs and marine farms. Because the sound signal is properly transmitted to the water, this system can be used for control, collection and fishing at great distances. Compared to traditional fishing methods, it may provide energy-saving products and operating costs. Along with a computerized observation system, which enables the identification of species in real time (Zion et al., 2007b), they can be further developed as independent selection methods.
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