



## Education of Fish Detection Tools (Fish Finder) to Fishermen in Dusun XI Percut Sei Tuan Village, Deli Serdang Regency

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**Abstract.** Traditional fishermen in Dusun XI, Percut Village, Deli Serdang Regency, North Sumatra Province, using rawai fishing gear, nets, and hand line instead of other technological gear. Sea tides also influence fisherman's ability to get out of sea; when the river mouth reaches high tides, fishermen will go to sea; when the river mouth recedes, fishermen can not go to sea. Fishermen are frequently returned to sea with little results, especially in the absence of technological application. Education is important, and advances in fish finder technology can help fishermen catch more fish by making it easier to use. The implementation method is theoretical and practical, with the formation of an actually trying to implement committee team occurrence through educational methods with theoretical media attention, as well as practical activities such as fisherman group discussions and joint operation demonstration activities in the field. Fishermen in Dusun XI, Percut Village, Deli Serdang Regency benefit significantly from using a fishfinder tool and helping in increasing fish catches, according to data monitoring and assessment.

**Keyword:** Fish finder, Deli Serdang

**Abstrak.** Nelayan di Dusun XI Desa Percut Kabupaten Deli Serdang Provinsi Sumatera Utara tergolong tradisional masih yaitu menggunakan alat tangkap gillnet, jala dan pancing ulur tanpa bantuan alat teknologi lainnya, waktu melaut nelayan juga tergantung pada pasang air laut, ketika air laut mencapai pasang besar hingga muara sungai maka nelayan akan melaut dan sebaliknya apabila muara sungai surut nelayan tidak akan melaut. Kurangnya penerapan teknologi inilah yang mengakibatkan para nelayan terkadang sering pulang melaut tanpa mendapatkan hasil. Sehingga perlu mengedukasi nelayan melalui penerapan teknologi, agar dapat membantu para nelayan dalam upaya peningkatan hasil tangkapan nya pada saat melaut, Solusinya adalah edukasi dan pengenalan teknologi fish finder dapat menjadi sarana memudahkan nelayan untuk menangkap ikan dan meningkatkan hasil tangkapan nelayan. Metode Pelaksanaan melalui pendekatan teori dan praktik yaitu membentuk tim panitia pelaksana yang dilakukan melalui kegiatan metode edukasi dengan pemaparan teori, pada kegiatan praktik yaitu diskusi kelompok nelayan dan kegiatan demonstrasi pengoperasian bersama di lapangan. Hasil dari monitoring dan evaluasi yang didapatkan adalah bahwa nelayan di Dusun XI Desa Percut Kabupaten Deli Serdang

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*mendapatkan banyak manfaat menggunakan alat fishfinder dan membantu meningkatkan hasil tangkapan ikan.*

**Kata Kunci:** *Alat deteksi ikan, Deli Serdang*

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## 1. Introduction

Fishermen in Dusun XI, Percut Sei Tuan Village, are classified as traditional in terms of the fishing gear and boats used, such as those using with rawai, gillnet and hand line. When the sea water reaches high tide and reaches the river's mouth, fishermen will head out to sea. The condition of the estuary, which is becoming shallower owing to increased sedimentation, is one of the most prevalent problems faced by fishermen and residents of Percut Village. As a result, fishing boats are unable to operate and fishermen find it difficult to access the sea. Even though most of the people's livelihoods in Percut Village are fishermen, so the community is very dependent on fish catches.

Based on an interview with the Percut Village Head, the specific problem is that the obstacles for fishermen in Dusun XI Percut Village, the ability of Human Resources, particularly fishermen in Percut Village, is still relatively low, namely, the lack of technology application causes fishermen to frequently return to sea without catching fish, and they have not adopted fishfinder technology. The solution answer is to educate the community and fishing groups about the use of Fishfinder technology as a tool for detection and identification of schooling of fish. The fish detector detects the existence of fish and the depth of the sea, because it can determine the location of a schooling of fish, making it easier for fisherman to catch them [1]. The fish finder has a wide range of capabilities, including the ability to detect depth, temperature, substrate, and topographic contour of the water's bottom [2]. Technology application is a sensible move that should result in optimal and long-term benefits in order to overcome limited resources [3].

## 2. Methods

**Methods** The activities are implemented using a theoretical and practical approach, namely forming an implementing committee team through educational activities using educational methods with theoretical exposure, in practical activities, such as fisherman group discussions and joint operation demonstration activities in the field [4]. The speaker for this activity is a lecturer from the University of North Sumatra's Aquatic Resources Management Study Program, and the participants is fisherman from the Dusun XI in Percut Village, Deli Serdang Regency. Audio visual technologies and LCD are used in the theoretical approach teaching procedure. The materials are distributed in the form of a printout to each participant. During the discussion, a power point presentation and an introduction to the fish finder were seen, with each set of participants examining the tool unit. In addition, the use of fish finders on fishing boats is a

common practice [5]. The fishermen's organizations should be able to operate their own fish finder fishing tools. Percut Sei Tuan Village will be the site of this training exercise.

### 3. Result and Discussion

The service team made preparations after performing a survey and literature study, which included interviews with fisherman groups about their knowledge of fish finders, which can be seen in Table 1.

**Table 1.** Fish finder education and training preparation activities

No	Activities	Information
1	Preparation and Provision of tools and supporting materials operation of <i>fish finder</i>	Community Service Team
2	Preparation for adjusting implementation time with fisherman activities	Community Service Team and Mitra
3	Preparation of the location for the presentation of educational theory and practice	Mitra
4	Preparation of educational materials and percentage theory (LCD and stationary)	Community Service Team
5	Preparation of practical facilities and infrastructure (fishing boats, logistics and fishing support tools)	Community Service Team and Mitra

The preparations carried out by the service team are to prepare fish finders, namely Phiradar Fish Finder is 1 unit and Lucky Sonar is 2 units which will be given or inventoried to the fishing group. the following specifications fish finder Phiradar type:

1. The fish finder feature is supported by simple English that is easy to understand and apply.
2. 3.5 inch screen size, UV-resistant and waterproof LCD, has sensitivity settings
3. The depth sensor reaches 80 meters, a minimum range of 0.6 meters with a cable length of 7.5 meters
4. Sonar frequency 200/83 khz with operating temperature -200C to 700C
5. Detect large and small fish, temperature, water depth, fish location, bottom water depth (rock or grass) through icon display
6. Using a 12 Volt battery, with the addition of a wire cable as a connector

Here are the specifications for the Lucky Sonar fish finder

1. The fish finder feature is supported by simple English that is easy to understand and apply
2. Screen size 2 inch LCD anti-UV and waterproof, has sensitivity settings and fluorescent backlight can be used in dark environments
3. The depth sensor reaches 100 meters with a float cable length of 7.5 meters

4. Detect large and small fish, water depth, fish location, bottom water depth (rock or grass) through icon display
5. Sonar Frequency 200Khz
6. Using for 4 batteries AAA type



**Figure 1.** Fishfinder Phiradar type (a) dan fish finder Lucky Sonar type (b)

The theoretical presentation was carried out at the Village Office Hall of, Percut Sei Tuan, Deli Serdang Regency where materials on the introduction of the fish finder and how to use it were displayed, can be seen in Table 2.

**Table. 2** Fish finder introduction theory

No	Materi
1	Understanding fish finder (fish detection tool) and introduction to fish finder types
2	The history of the development of the use of fish finder in the world of fisheries
3	The advantages and disadvantages of using a fish finder
4	Fish finder parts and specifications
5	Introduction and operation of Phiradar and Lucky Sonar type fish finder unit

The fish finder practice simulation on a fishing boat, with the fishermen divided into three groups, each accompanied by a service team who will provide explanations and directions for the smooth operation of the fish finder tool. The goal of this activity is to introduce and practice directly about the fish finder arrangement and additional tools, as well as how to operate the equipment in accordance with the Standard Operating Procedure (SOP) issued by the instruction of tools.



**Figure 2.** Dissemination of Materials and How to Operate Fishfinder

The direct practice activities begin with the activation of the fish finder and the introduction of several important buttons that are used when fishermen detect the presence of fish, followed by the opportunity for fishermen to operate the fish finder and read the catch of waves reflected on the seabed and then displayed on the monitor.



**Figure 3.** Simulation of Fishfinder Operation for Fishermen on Boat

Monitoring and evaluation of fisherman interviews using fish finder tools to detect fish is considered effective, that fishermen in Dusun XI Percut Sei Tuan Village, Deli Serdang Regency get many benefits from using a fishfinder tool and help increase fish catches.

#### 4. Conclusion

The service team consists of 3 lecturers and is accompanied by 5 students as companions for the fishfinder simulation activity. The community service socialization activity was attended by the Village Head and 14 fishermen from Percut Village, then handed over the fishfinder tool to the fishing group. The fishfinder socialization and simulation activities were conducive, enthusiastic fishermen asking questions about the fishfinder and how to operate it.

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