

# Report

## Onsite training fish handling onboard fishing vessels



การฝึกอบรมนอกสถานที่  
เรื่อง

### การเก็บรักษาคุณภาพสัตว์น้ำบนเรือประมง

8 กรกฎาคม 2565 ณ ห้อง 114 อาคาร 32  
สาขาวิทยาศาสตร์การอาหารและโภชนาการ  
มหาวิทยาลัยสงขลานครินทร์  
วิทยาเขตปัตตานี  
ตั้งแต่เวลา 09:00-15:00 น.



มูลนิธิฯ 08:00-12:00 น.

8 July 2022

Prince of Songkhla University, Pattani Campus



## **ABSTRACT**

This report is a part of onsite training on fish handling onboard fishing vessels for fishers, fishery officers, key stakeholders, and students that conducted 1-day training on 8 July 2022 at 09:00–15:00 hrs. at the Prince of Songkhla University, Pattani Campus Thailand. The onsite training on fish handling onboard fishing vessels was granted by the Japanese Trust Fund 6, Phase II in the year 2022.

The onsite training of fish handling onboard fishing vessels aims to provide technical knowledge on fish handling techniques applicable to various fishing operations for the Thai fishing fleet through the training program, participants understood the importance of hygiene, cleanliness, and important key factors contributing to the reduction of post-harvest losses onboard. The subjects of the training program include a literature review and discussion of good practices for fish handling techniques onboard, fish storage, and ways to improve fresh quality at landing sites using simple techniques applied to various fisheries in Thailand. The appropriate and applicable methods for reducing post-harvest loss of coastal and offshore fishing vessels are vital in maintaining the catch's freshness, thereby minimizing post-harvest losses. Such methods include icing, ice seawater, and a refrigeration system onboard.

To cultivate an understanding of participants on fish handling tools, facilities, the current situation, and the problem of fish handling in Thailand, through literature reviews, presentations, and discussions provided in the training program, participants also can be learned and carried out their experience during this training program.

There were 2 sessions at the onsite training: (1) Technical information and knowledge for onboard fish handling and (2) Discussion/evaluation. This report summarizes the main points made during the presentation and discussions on 8 July 2022.

## **AUTHOR INFORMATION**

The Marine Engineering Section under the Training and Research Supporting Division, Southeast Asian Fisheries Development Center, Training Department, Samut Prakan province, Thailand.

## TABLE OF CONTENTS

Introduction	3
Objective	3
Expected outputs/outcomes	3
Training syllabus	4
Onsite training sessions	4
Discussions	6
Evaluation results	7
Acknowledgments	8
Appendix 1. List of participants	9
Appendix 2. Photo of activities	10
Appendix 3. Training documentation	12

## **I. INTRODUCTION**

Currently, the abundance of fishery resources decreasing. Including the rising cost of fuel and the fishing operations, causing fishers to suffer losses of income, causing the need to extend the period of fishing for a longer time. These problems are factors that directly affect the quality of catches served to consumers. Including the shortages of labor on the fishing vessels and the fishing fleet, because fishing is dangerous and hard work while the income of human well-being and living conditions are not as good as they should be, and had to be at sea for several days.

The major factor that directly affects the price of important fishery products is the quality of raw materials are fresh because fish as raw materials that are easily deteriorated. When the fish dies, there will be a rapid change in freshness quality. The problem of slowing spoilage and keeping it fresh for a long time is an important factor. The lack of knowledge and techniques of fishers or tools for maintaining the quality of fish, together with the cost burden of maintaining the quality of fish, especially the energy and labor costs onboard. Therefore, the care and storage of fish are insufficient to maintain freshness. Fish products cannot be exported at premium grade or served in international markets. Many fish caught cannot be consumed as food for human consumption, it must be developed as food for animals. In this situation, it is not worth the extravagant use of limited resources.

In this condition, the Southeast Asian Development Center, Therefore, a project was initiated to research technology and techniques for preserving the quality of fish and fish handling onboard fishing vessels, and labor-saving equipment for fisheries. Including the dissemination of information by providing training programs regarding fishery machinery and energy efficiency. It is also about developing sustainable fisheries and encouraging fishers to be concerned about the fishery resources

## **II. OBJECTIVE**

The main objective of the proposed project is to improve and secure the landing quality of fish and fishery products of pelagic species caught by purse seine fishing operations e.g., sardine, mackerel, small tuna, etc., thereby:

1. Promote and disseminate the knowledge on preserving the quality of fish to be fresh. To reduce the damage to the quality and price of fish caught. This is to increase income and encourage the use of sellable fish, which are resources for consumption in a worthwhile way. It is safe and highly nutritious.
2. Promote and disseminate the knowledge, vision, and techniques for using and developing labor-saving equipment for fishing vessel operation to enhance convenience and safety for fishing and reduce the impact of a shortage of labor on fisheries personnel.
3. To reduce the expenses and costs in long-term fishing for sustainable fisheries development and to be of interest or to add another alternative way of working for the new generation of personnel

## **III. EXPECTED OUTPUTS**

The onsite training course has expected output as follows:

1. 20 participants understand the technical knowledge of preserving the quality of fish to be fresh and reducing the damage to the quality and price of fish caught.

2. 20 participants understand techniques for using and developing labor-saving equipment for fishing vessel operation to enhance convenience and safety for fishing and reduce the impact of a shortage of labor on fisheries personnel.
3. Information communication and extension material e.g., training report, presentation, etc., produced for the training course to disseminate through the SEAFDEC website and other communication approaches.

#### **IV. EXPECTED OUTCOMES**

After the completion of the onsite training course, the successful participants are expected to obtain:

1. Enhanced technical knowledge and practical skills on the reduction of post-harvest losses which will help reinforce extension and promotion activities in Thailand.
2. Improved awareness of hygiene fish handling and good practices of fish handling on-board and fishing fleets in Thailand; and
3. Technical information has been disseminated for onboard fish handling for fishing vessels and at the landing site.

#### **V. TARGET PARTICIPANTS**

20 Persons (Fishers, Key Stakeholders, fishing vessel owners, and students)

#### **VI. DATE AND VENUE**

This onsite training course is provisionally scheduled for a 1-day training on 8 July 2022 at 09:00–15:00 hrs. at the Prince of Songkhla University, Pattani Campus, Thailand.

#### **VII. Training syllabus**

0830 – 0900	Registration
0900 – 0915	welcome and open Onsite training program on fish handling onboard fishing vessels
0915 – 1000	Importance of fish handling
1000 – 1030	Coffee break
1030 – 1200	Cold chain management
1200 – 1300	Luncheon
1300 – 1400	The applicable method and preservation techniques for improving fish handling onboard.
1400 – 1500	Discussion/Evaluation and Closing ceremony

#### **VIII. ONSITE TRAINING SESSIONS**

This onsite training was held under consideration of the COVID 19 situation because the epidemic of the disease has not disappeared. Therefore, all participants must be tested by ATK (Antigen Test Kit) before entering the meeting venue. which the results tested by ATK of all participants, No one has tested positive for COVID-19.

The participants in this onsite training include fishing vessel owners, the Head of Pattani Fisheries Association, crew members, Stakeholders, and students from Prince of Songkhla University, Pattani Campus. The onsite training started at 09:00 am with a very warm welcome by the SEAFDEC team and gave the introduction of SEAFDEC’s Role and mission.

The morning session is honored by a resource person from FSN (Food Science and Nutrition) Prince of Songkhla University, Pattani Campus, Thailand (Ms.Netnapit Ongsuwan) that consists of “Importance of fish handling” and “Cold chain management”

**Importance of fish handling:** She introduces why fish handling is important, what factors affect fish degradation, the change stage of fish freshness, and theories of fish spoilage. And she gave information on sanitation standards on Thai fishing vessels and slowing down the deterioration of fishery resources.

**Cold chain management:** She explained comprehensive details of cold chain management by maintaining low temperature and reducing loss of fishery products for the whole traveling route since fish is handled until in the hand of the consumer. And, addressing the guideline of cold chain management including good storage practices (GSP), good distribution practices (GDP), and good procedures for specific products.

**laboratory visit:** Ms.Netnapit Ongsuwan on behalf of the resource person from FSN (Food Science and Nutrition) Prince of Songkhla University, Pattani Campus, and as the place owner brought all participants to visit the Halal Food Processing Laboratory Building. The Halal Food Processing Laboratory/FSN (Food Science and Nutrition) Prince of Songkhla University, Pattani Campus is fully equipped with modern and advanced scientific devices. These are essential to detect and analyze any contamination that may be detrimental to Halal food manufacturing, such as animal fatty acids, animal proteins/DNA, gelatin, alcohol, and microbial contamination. And has a team of scientists in biochemistry, food, and nutrition, and pharmaceutical science, who are all professionals in handling laboratory analysis/research and giving consultations on Halal food standards. The Halal Food Processing Laboratory/FSN (Food Science and Nutrition) are, therefore, qualified to certify the Halal GMP/HACCP as well as Halal-QHS/ISO 22000 to the food manufacturers, restaurants, and other food service industries, as required.

The afternoon session is the responsibility of SEAFDEC with the topic “applicable method and preservation techniques for improving fish handling onboard” presented by Mr.Thaweesak Thimkrab (Marine Engineering Section Head/Training and research supporting division). This session presents the practical application of preservation techniques on fishing vessels using types of ice, sherbet ice, and assisted refrigeration system to maintain the low temperature of fishery products. Chilling fish by using seawater ice is a technique to reduce pre-cooling temperature sharply and maintain the storage at around 0 degrees Celsius. Using crushed ice is a simple cooling media to drop the temperature of storage fish by about 0 degrees Celsius to drop enzymatic and microorganism activities. Each fishing operation/gear and fishing ground zone use different preservation methods such as RSW and air blast freezer.

While the new technology applied for fish handling is the sherbet ice, system. A good preservation method by using sherbet ice is more efficient than block/crashed ice because of the lower cooling temperature of -3 degrees Celsius, faster cooling body core temperature of fish, and soft texture without any deterioration of the physical fish body. He addressed a project of a sherbet ice generator, that has been developed by

SEAFDEC/TD, which will be an attractive preservation technology for fishing boats, and planning to promote this sherbet ice system for a demonstrated fishing boat. Other refrigeration systems, that were installed and promoted on two demonstrated purse seine and trawl fishing boats, have been presented. The adopted refrigeration system is driven by both electric and diesel engines through combined driving gear. He recommended that these two developed refrigeration systems achieve effective fish handling preservation onboard.

## **IX. DISCUSSIONS**

This onsite training course was a great success with the sharing of ideas and experiences provided more insights on how to preserve and maintain the freshness of fish onboard. Especially, technique information for the knowledge and experience that all participants target species as the squid was the point of interest and discussed. The presentations of lecturers were useful in the fishery sectors for the future. which detail of discussion and sharing an experience such as the process of preservation of fish by utilized of cooling medium and pre-cooling technique e.g. ice, CSW, RSW, and sherbet ice. And pointed out an issue in the current situation of fish handling in the fisheries sector to strengthen Thai fishing fleet capacity and raise awareness of fish handling and preservation onboard and at the landing site.

This situation will directly affect the Ocean, fish, and marine resources and finally sustainable for Food Security. The participant's awareness would be helping to reduce the losses of fishery resources it's sure that can be extending the use of the marine fishery resources for the feature as long as possible.

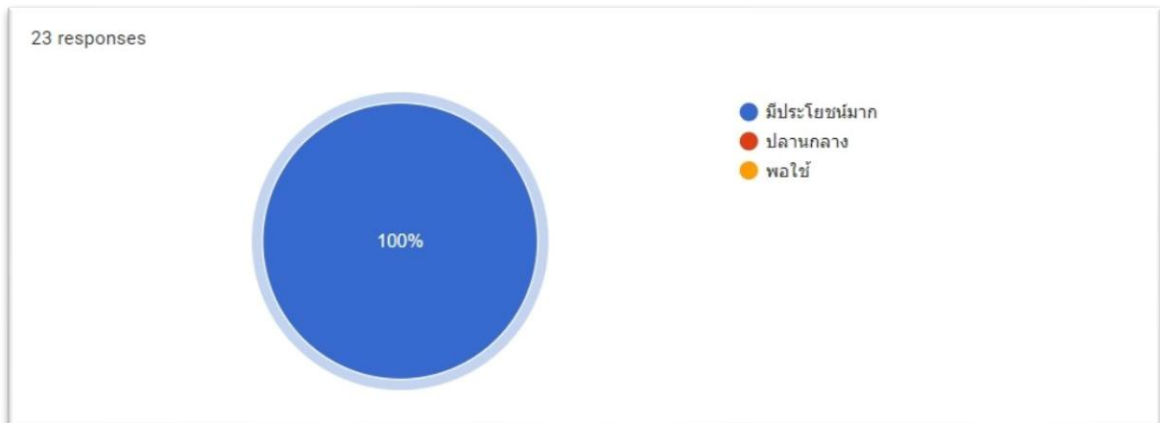
SEAFDEC/TD imparted technical knowledge by explaining and demonstrating the systematic fish preservation method; including introducing keys and methods of how to reduce fish losses through PowerPoint Presentation during the discussion session, the participants agreed and accept conceptual ways to improve fish preservation techniques. They will keep important to keep fish cool, clean, and careful to reduce fish losses including appropriate fish handling onboard.

SEAFDEC gives an important/recommendation that the fish storage hold/tank should be designed for adequate insulation installation. It is most likely that storage in ice will be adequate for the preservation of the catch on board, even if more distant waters are fishing,

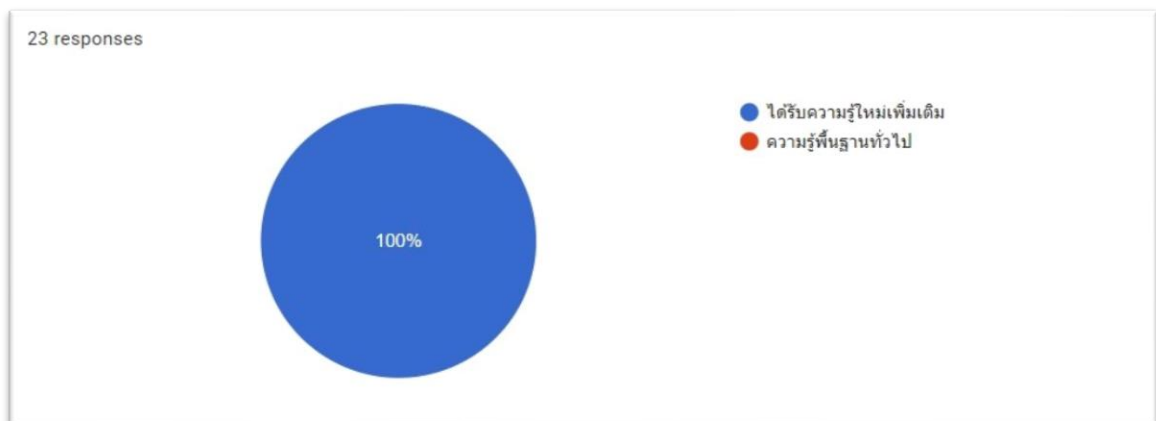
## X. EVALUATION RESULTS

This onsite training course was evaluated by 23 persons through the Google form application. The training participants cooperated in making an evaluation form after the training was completed which can be summarized as follows:

1. This onsite training course is useful or not?
  - a. very helpful
  - b. Moderately useful
  - c. Fairly

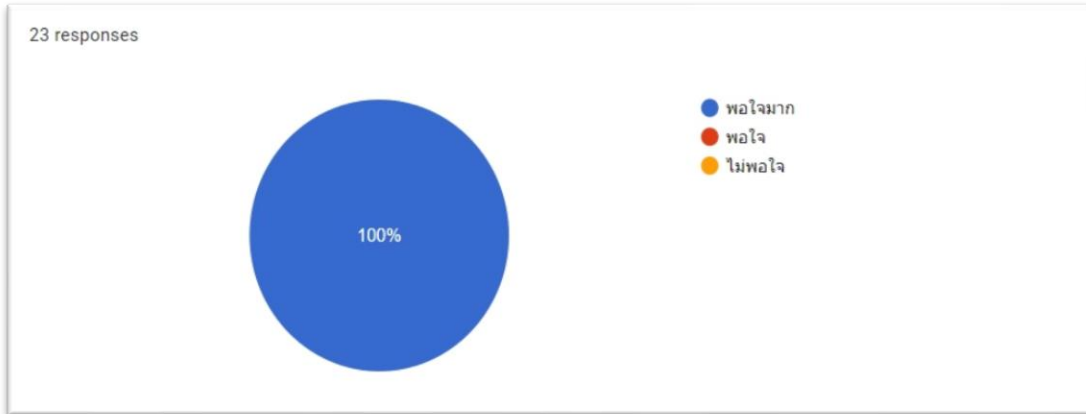


2. Did you gain additional knowledge from this training?
  - a. Gain more new knowledge
  - b. General knowledge



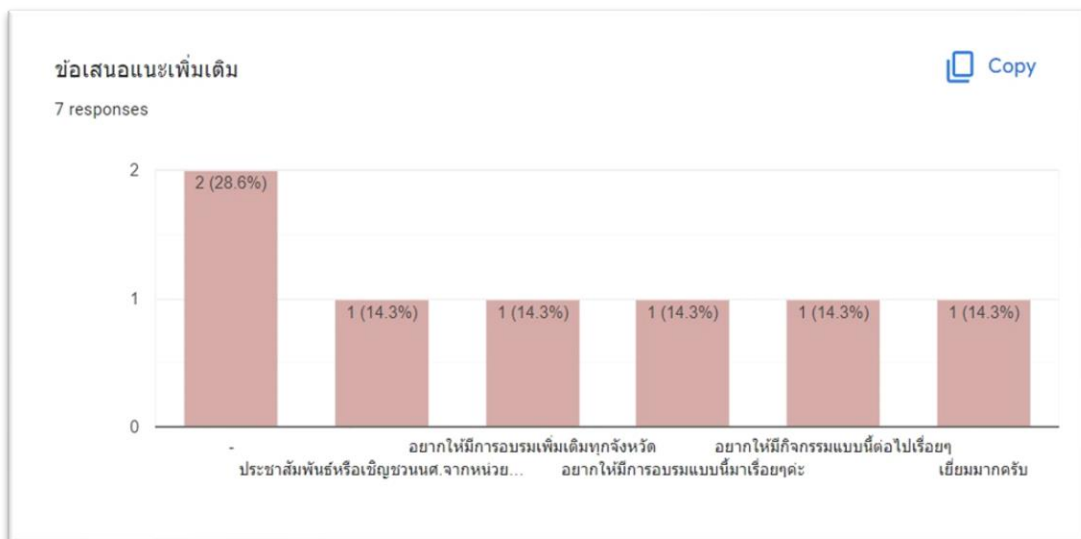
3. The overall satisfaction of onsite training activities?
  - a. Very satisfied
  - b. Satisfied
  - c. Dissatisfied





4. Additional suggestions.

The overall suggestions of the participants for this onsite training. They wish to request SEAFDEC/TD for the onsite training activities in other provinces because it is a very useful activity. The young generation of fishermen can be enhanced technical knowledge and practical skills in the reduction of post-harvest losses which will help reinforce extension and promotion activities in their respective areas. As well as to change the perspectives and attitudes of fishermen related to the fish preservation and technique ever practiced.



**XI. ACKNOWLEDGMENTS**

The on-site training on fish handling onboard fishing vessel organizers is grateful to all the participants for their positive engagement and active participation. Special thanks are due to the Prince of Songkhla University, Pattani Campus for their full support and contributions in preparation and participation and for the indispensable that is Dr. Tomoko Nakazato the Deputy Chief of the Training Department and Japanese Trust Fund Manager for kindly financial support under the Project Responsible Fishing Technology and Practice.

## Appendix 1. LIST OF PARTICIPANTS

Name	Status
1. Ms.Sakarma Saleah	Teacher
2. Ms.Chalissar Meneerat	Teacher
3. Ms. Nornggray Heang	Student
4. Mr.Basiorh A-ma	Student
5. Ms.Sophary Phat	Student
6. Ms.Husna Mamu	Student
7. Ms.Muslimah Madiyoh	Student
8. Ms.Rosnida Kaseng	Student
9. Ms.Tanatorn Suwanlo	Student
10. Ms.Zabina Benkoli	Student
11. Ms.Fatihah Dueramee	Student
12. Ms.Suwaibah Walohtae	Student
13. Ms.Tasneem Slaemae	Student
14. Ms.Atsama Khorma	Student
15. Ms.Suraiya Dobar	Fishermen
16. Ms.Nusila Tiye	Fishermen
17. Ms.Nisreen Jitrach	Fishermen
18. Mr.Itthichai Kanchananukul	Fishermen
19. Ms.Nurisan Duereh	Fishermen
20. Ms.Salwa Doloh	Fishermen
21. Mr.Sofron Kengloema	Fishermen
22. Mr.Samart Kaewcharean	Fishermen
23. Mr.Sawangpong Punakoh	Fishermen
24. Mr.Thongsa Sitima	Fishermen
25. Mr.Surat Rattanasithon	Fishermen
26. Ms.Ankate Lerapaiboon	Fishermen
27. Mr.Thanongsak Durrae	Fishermen
28. Mr.Sittichoke Suksawat	Fishermen
29. Mr.Muhammad Benso	Fishermen
30. Mrs.Pornphan Kaewcharoen	Fishermen
31. Mr.Chumphon Rattanasithorn	Fishermen
32. Mr.Bhinya Sinak	Fishermen
33. Mr.Suthep Jaroenphon	Fishermen
34. Mr.Phairot Dithan	Fishermen
35. Mr.Somchai Rattanasithorn	Fishermen
36. Mr.Phanom Phensawat	Fishermen

## Appendix 2. PHOTO OF ACTIVITIES





### Appendix 3. TRAINING DOCUMENTATION

<http://repository.seafdec.or.th/handle/20.500.12067/256>



ศูนย์พัฒนาการประมงแห่งเอเชียตะวันออกเฉียงใต้  
สำนักงานฝ้ายฝักอบรม ตู้ ป.ณ. 97 พระสมุทรเจดีย์  
สมุทรปราการ 10290

..... End of Report .....