

## **Gleaning, Drying and Marketing Practices of Sea Cucumber in Davao Del Sur, PHILIPPINES**

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*Abstract* - Gleaning, drying and marketing practices of sea cucumber in Davao del Sur was conducted to document the local practices, common species gathered and to identify problems along with the adopted practices. Results disclosed that gleaning was done by skin diving with the use of air compressor or hand picking in intertidal reef flats during low tide. Species usually gathered includes *Stichopus horrens*, *Holothuria scabra*, *Stichopus hermani*, *Thelonota anax*, *Holothuria fuscogiva*, *Holothuria fuscopunctata*, *Bohadschia marmorata* and *Holothuria whitmaei*. Drying process for beche-de-mer production includes washing, evisceration, washing, boiling, soaking in brine solution, smoke drying and sun drying. However, soaking in brine solution was practiced only by processors in the 1st District of the province purposely to extend its shelf-life. Selling was done in "all-in" basis, cash upon delivery and

buyers were the one dictating the market price. Flows of dried sea cucumber from processors were through wholesalers coming from Digos City and Davao City and shipped to Manila and Korean markets. Problems identified along with the adopted practices were non-selection as to size utilized for consumption or for sale. Also, problems on poor drying practices, packaging materials used non-utilization of entrails and disposal of waste.

**Keywords** - Sea Cucumber, Gleaning, Drying, Marketing Practices

## INTRODUCTION

Sea cucumber is scientifically named *Holothuroidea*. Mostly, sea cucumber is utilized as a delicacy, an ideal tonic food; it is higher in protein (at 55%) and lower in fat other than most other food. According to traditional Chinese medicine, it nourishes the blood and vital essence, treats kidney disorder and reproductive organs. It has a salty quality and warming nurture. It can also treat weakness, impotence, debility of the aged, constipation due to intestinal dryness and frequent urination. There is also an emerging market for the use of sea cucumbers in pharmaceutical and cosmetic industries.

Philippines is a home of to 100 species of sea cucumber, of which, 31 are commercially important. Also, a second exported of beche-de-mer next to Indonesia as far as HongKong market is concerned (<http://www.allbusiness.com>). Currently, a technology on sea cucumber powder had been developed and applied for patent. Moreover, research had been conducted to developed its product line specifically the *holothuria* or sea cucumber powder sauce and the fermentation of the entrails such that it will not turn into waste.

Currently, because of the increasing demand, dried sea cucumber produced in the Philippines was wet, ill-shaped or half-cooked. Subsequent to processing were rejected or considered to be class "B" thus, earning local fisheries only 40% of the maximum price offered by marine product agents for a well processed product.

The above situation leads to evaluation of local practices on gleaning, drying and marketing of sea cucumber as an input in crafting interventions to improve the productivity of local processors and at the same a need to find ways in order to protect the depletion of this natural resource and for the protection of Davao Gulf as Marine Protected Areas (MPA) in the region.

## **OBJECTIVES**

The focus of this study was on the gleaning and drying practices of sea cucumber in Davao del Sur. Specifically, the objectives of this study were the following: (1) to determine the demographic profile of gleaners and processors of sea cucumber; (2) to document the gleaning, drying and marketing practices on sea cucumber in Davao del Sur; (3) to identify common species of sea cucumber harvested and utilized for drying; (4) to trace the geographic flow of dried sea cucumber produced from the province of Davao del Sur; and (5) to find out problems related to gleaning and drying practices of sea cucumber.

## **MATERIALS AND METHODS**

The study was conducted between November 2010 to January 2011 in the province of Davao del Sur particularly in Bato, Sta. Cruz, Brgy. Aplaya, Digos City, Piapi, Padada, Baybay, Malalag, Tanglad, Dalamo-an and Mamacao in Sta. Maria and Brgy. Lagawlawan and Tubalan in Malita. A total of 47 respondents were interviewed. Out of this number, 77% or 36 individuals were gleaners and 23% or 11 individuals were processors. Questionnaires were prepared and utilized during data gathering. For easy identification, pictures of sea cucumber pictures were shown to gleaners and local processors of dried sea cucumber. Data gathered were analyzed using relative frequency distribution. Below is the geographic location of areas included in this study.



Figure1. Sites visited in Davao del Sur for data collection

## RESULTS AND DISCUSSION

### *Socio-Demographic Profile*

Majority of the gleaners were at the age range of 31-40 years old (39%) while processors were mostly at the age range of 51 years old and above (36%). Mostly involved in gleaning and processing activities were males and married with having 3 dependents for gleaners (24%) while processors disclosed to have 5 and above number of dependent (36%).

Most of the gleaners and processors attained only elementary level of education. Also, most of the gleaners (53%) and processors (55%) were into gleaning and processing activity for less than ten years and considered their respective activity as their major source of livelihood. However, both gleaners and processors have other source of livelihood which most of them worked as laborer in their respective communities.

## Gleaning Practices of Sea Cucumber

Table 1. Gleaning practices on sea cucumber in Davao del Sur.

Variable	f	%
Method of Gathering Fresh Sea Cucumber		
Diving using air compressor		
Manual/ Hand picking during low tide	7	19
	29	81
Basis for conducting the activity		
Weather Condition		
Low Tide	21	72
	18	62
Time observed for the conduct of the activity		
Early Morning	5	14
Evening	31	86
Average number of persons involve per activity	25	86
2-3 **	12	34
4-6 **		

\*\*\* using air compressor \*\* hand picking

Sea cucumber is mainly harvested in two ways: diving using air compressor up to 20 meter deep or by hand picking in intertidal reef flats during low tide. Species usually gathered includes *Stichopus horrens*, *Holothuria scabra*, *Stichopus hermani*, *Thelonota anax*, *Holothuria fuscolgiva* *Holothuria fuscopunctata*, *Bohadschia marmorata* and *Holothuria whitmaei*. Oftentimes, gatherers usually pick all that is available regardless of its size and maximum of 25 kilos per harvest for those using motorized bancas while 10 kilos for those gathered through hand picking.

## *Drying Process of Sea Cucumber*

Figure1 illustrates the drying practices of sea cucumber in Davao del Sur. The process includes:

1. Washing - washing freshly gathered sea cucumber using either sea water or from deep well. This was done to remove foreign materials such as sand and other sea grasses that were included during the gleaning process.
2. Slicing – after washing freshly gathered sea cucumber, slicing was done to remove the entrails. Slicing was done using kitchen knife. Removal of entrails by slicing perpendicular through the median plane. Removed entrails were just thrown back to the sea or along the shoreline.
3. Washing – after entrails were removed, washing on was done using sea water from the deep well.
4. Boiling– this process was done purposely in order to cook lightly. The process will last up to the maximum of 30 minutes. Another indicator was until the color of sea cucumber turned into pale color. Blanching was done using big vat or locally known as “kawa”.
5. Soaking with salt – soaking in brine solution overnight. This was done to preserve dried sea cucumber for a longer period of time after drying. However, not all processors adopted this process.
6. Smoke drying – this process was done in order to avoid flesh of sea cucumber broken into pieces especially to *Stichopus Horrens* specie and to make the sun drying process faster. Duration period during this process depends on the volume of sea cucumber that was in dried. However, for 5-10 kilos sea cucumber, smoke drying lasted for half day. Smoke drying was done using improvised oven for drying.
7. Sun drying – sun drying was done to attain the desired dryness of sea cucumber. Drying process usually last for 3-4 days or depending on the sunlight. Sun drying was done using a bamboo table or other flat forms where in smoked sea cucumber were placed for sun drying.
8. Packing – packing was done after sun drying where in sea cucumber met its desired dryness or moisture content. Packing was done use plastic cellophane and placed in a recycled cartoons ready for delivery to buyers.

### ***Species Gathered and Utilized for Drying***

Common species gathered and dried taken from the province of Davao del Sur. Results showed that *Stichopus horrens*, *Holothuria scabra*, *Stichopus hermani*, *Thelonota anax*, *Holothuria fuscogiva*, *Holothuria fuscopunctata*, *Bohadschia marmorata* and *Holothuria whitmaei* were among the common species identified by respondents as the common species sold in dried form. These were also the species found to be abundant in Davao del Sur as identified in the study of Yobueno et al., 2007.

### ***Marketing Practices of Dried Sea Cucumber***

Marketing practices of dried sea cucumber in the province is being participated by market players particularly wholesalers from Digos City and Davao City. Wholesalers were the one that sets the price for the commodity. Grading was not observed thus, selling in "all in" basis. The product was delivered to the buyers and paid in cash upon delivery. Prices per kilo according ranged from P1,000.00 to P4,000.00



Figure 1. Drying process of sea cucumber in Davao del Sur.

***Geographic Flow of Dried Sea Cucumber***

Geographic flow of dried sea cucumber processed in Davao del Sur is divulged in Figure 2. Dried sea cucumber was sold to buyers from Davao City and Digos City in Davao del Sur. Buyers identified from Davao City, were shipper to Manila which were further sold to Chinese individuals and some were exporters to HongKong. Meanwhile, one buyer from Davao City is a Korean national which is an exporter of dried sea cucumber or beche-de-mer to Korea.

***Problems Identified in Gleaning and Drying Practices Adopted***

1. Non-selection as to size of sea cucumber gathered for consumption or for sale.
2. Exploitation eventually leads to depletion of the marine resource.
3. Poor drying practices that resulted to lower market price.
4. Poor packaging or storage materials used by local processors.



5. No proper disposal of waste such as sea cucumber entrails.
6. The practice of selling by “all-in” method and not by classification reduced income generated from drying sea cucumber.

## CONCLUSIONS

Gathering of sea cucumber in Davao del Sur is done by diving with the use of air compressor and hand picking in intertidal reef flats during low tide. Species gathered and dried were *Stichopus horrens*, *Holothuria scabra*, *Stichopus hermani*, *Thelonota anax*, *Holothuria fuscogiva*, *Holothuria fuscopunctata*, *Bohadschia marmorata* and *Holothuria whitmaei*. No selection was observed by gleaners and processors as to whether sea cucumber reach the marketable size or not during harvesting.

Drying process of sea cucumber includes washing, evisceration, washing, boiling, and soaking in brine solution, smoke drying and sun drying. However, the process of soaking in brine solution is practiced only by processors in the 1<sup>st</sup> district of the province purposely to extend the shelf-life of beche-de-mer.

Marketing of dried sea cucumber was participated by wholesalers as market player of the commodity. Prices were dictated by the buyers and payment on cash basis upon delivery of the product. Dried sea cucumber in the province were being forwarded to Davao City and further shipped to Manila and Korea Markets.

Problems identified on gleaning and drying practices of sea cucumber includes non-selection as to size of sea cucumber gathered for consumption or for sale; poor drying practices that resulted to lower market price; poor packaging or storage materials used by local processors; no proper disposal of waste such as sea cucumber entrails; the practice of selling by “all-in” method and not by classification reduced income generated from drying sea cucumber.

## RECOMMENDATION

Awareness through education among gleaners must be provided to avoid overfishing causing depletion of sea cucumber from its natural resource and for environment protection. Ways to add value to sea cucumber must be improve by developing a drying technology

for sea cucumber to be introduced to communities to increase revenue generation among coastal dwellers. Knowledge on sea ranching must be introduced to communities for sustainability of beche-de-mer production in the province of Davao del Sur.

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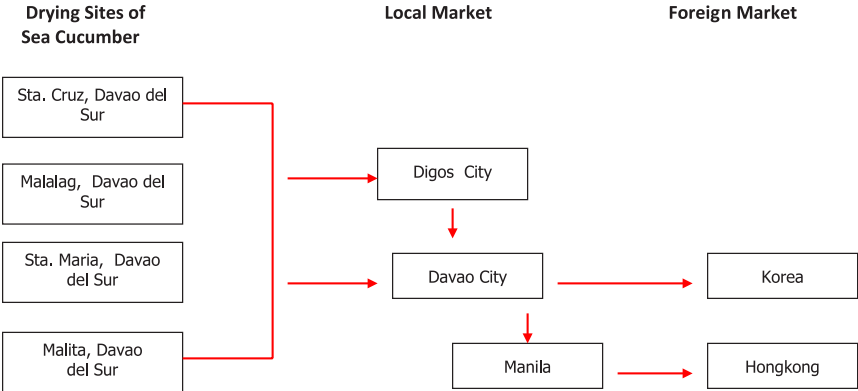


Figure 2. Geographic flow on marketing of dried sea cucumber in Davao del Sur.