

## Ontology of Folk Knowledge Among Lake Fishermen in Suez Governorate. "The Village of Kabreet El Mafariq as a Modle"

Prof. Soad Osman Ahmed

Ain Shams University, Faculty of Women for Arts, Science and Education, Sociology

Dep. Anthropology & Folklore

[Soadosman50@hotmail.com](mailto:Soadosman50@hotmail.com)

### Abstract:

The importance of the study is the interest in the field of folk knowledge, an area that has not received sufficient attention. While scholars have often focused on other areas and themes of intangible cultural heritage such as customs, beliefs, and folk arts, interest of folk knowledge - at least at the local level - has diminished, despite its importance and usefulness to most human life activities. The study aims to draw attention to the importance of studying folk knowledge in all types of our Arab communities in order to benefit from it in achieving developmental goals. The study seeks to monitor, analyze and interpret the folk knowledge of some lake fishermen as a model that illustrates the important and depth of this knowledge and the importance of preserving it because of its meanings, values and skills that contribute to development. The problem of research is determined in the study of folk knowledge related to fishing activity in lakes in an Egyptian village, in the light of a conceptual relationship between the concepts of folk knowledge, ecology, ontology, and fishing. The research methodology is concerned with the ecological dimensions and the ontology of folk knowledge, and the use of the anthropological approach with its most important tools of observation, informants, and in-depth interviews to study cases of fishermen in one of our Egyptian communities. The research is divided into two parts, the first of which deals with the research methodology and includes the most important concepts, literature of folk knowledge in fishing, and the anthropological approach and tools. The second part deals with the results of the field study, divided into folk knowledge of fish species and their locations, and then knowledge of cosmic phenomena affecting fishing activity.

### Keywords:

folk knowledge, ontology, ecology, fishing.

### Methodological Introduction:

The **importance** of research lies in the field of study, which is the field of folk knowledge, which did not receive the same attention as other areas of intangible cultural heritage at the Arab and local levels. In contrast, a big international attention was given to folk knowledge, especially after UNESCO drew attention to its importance, devoted an independent field of study to it, and proclaimed the right of all States to protect the intellectual property of their peoples. Like all areas of folklore, folk knowledge carries the cultural content of a nation, which requires its study, preservation and protection of its intellectual property rights. The study **aims** to draw attention to the importance of the study of folk knowledge and analysis and interpretation of some meanings and skills of lakes fishermen as an attempt to take advantage of them for development goals.

The **problem of research** is crystallized in study of folk knowledge of lakes fishermen in one of the Egyptian villages, in the light of some theoretical concepts, especially, the concepts of

ecology and ontology in an attempt to answer the following questions: 1 - To what extent the ecological dimension, and observing the global assets play their role in formulation of folk knowledge concerning fishing? 2- What is the folk knowledge about the fishing activity of the fishermen in the study village? 3- How can the study of folk knowledge on fishing in lakes be useful in practice?

As for the **research community**, the village of "Kabreet El Mafariq", one of the villages of Janayen district, which is located on a strip of length of 40 km. parallel to the Suez Canal, which represents the borders of the eastern sector; while the district from the north is connected to the borders of the villages of Ismailia. The village is located on "Al-Bohayrat El-Morra" Lakes and has a longitudinal extension on the coast of the Suez Canal with its border with Jeneva. The village is bordered to the north by the Al-Bohayrat El-Morra and the canal, to the west by the village of Jeneva, and to the south by the village of Shandoura. The village is a mother village followed by five single manors. Perhaps the environment and location of the village, and its view on bodies of water - lakes and the canal - has played a large role in the acquisition of folk knowledge of the fishing community members of the fishing craft , and at the same time taking advantage of their observations of the ontology and ecology of the place, and to find relationships between the environment, natural phenomena and fishing activity, with their faith of the importance and vitality of the transmission of this knowledge to future generations.

The village has a population of 11,000 persons. The main activity of the village is agriculture (Gamal Mashal, 2009: 291: 292). This is followed by fishing, which is one of the old main economic activities that the people of Suez are famous for, being located on the Red Sea. Then comes the industry where the manufacture of ships, boats and fishing tools such as nets, yarns, ropes and hooks. Added to that, the industry of salting fish which is one of the industries that Suez city has known since past ages. (Rady Mohamed Gouda, 2006: 56:58), in addition to trade where the Red Sea has played a critical role as a shipping route between East and West throughout history. Moreover, the research area is still characterized by great commercial importance due to the multiplicity of commercial ports exist up there such as the ports of Port Tawfik, Al-Adabyia, and Al-Sokhna (Formal site of Suez Governorate).

It is worth mentioning that I have relied on this part of the field material in one of the chapters of a master thesis located in seven chapters entitled "Folk knowledge in agriculture and fishing. An anthropological study in one of the Egyptian villages," conducted by Hiba Sayed Mohamed under the joint supervision of Alia Shoukry and these lines' writer. It is an unpublished thesis approved by the Division of Anthropology and Folklore in the Department of Sociology, Faculty of Arts, Sciences and Education, Ain Shams University in 2018. This research will provide a re-reading of the field material - in the light of the concepts of ontology and ecology - for two of the seven parts are the components of Chapter VI entitled "folk knowledge in fishing". It is divided into two parts, the first of which deals with the research methodology, and the second part presents the results of the field study.

### **Part one: Research Methodology**

This section presents some of the theoretical concepts - folk knowledge, ontology, ecology, and Lakes' Fishing -, models of the literature of folk knowledge in fishin and research methodology - anthropological approach - and its most important tools.

## First: The Most Important Concepts of Research

**Folk Knowledge or Traditional Knowledge:** Historically, folk knowledge has been part of problem-solving for local people, using it to manage their resources on a sustainable basis. In the 1950s and 1960s, theorists of development philosophy saw indigenous and traditional knowledge as ineffective, less significant, and even an obstacle to development. By the early 1980s, for the first time, scientists drew attention to the study and integration of traditional peoples' knowledge in order to gain a greater understanding of the environment (Abdullah Almamun, 2007: 20). This is confirmed by Berkes, claiming that the broader use of the term came in the eighties, although the practice of this knowledge is as old as the cultures of the world. (Berkes, Fikret, 1999: 4).

Rushdy Saleh defines folk knowledge as the outcome of folk practical rules in medicine, agriculture and various crafts, and also in the rules of social behavior and ethical issues. It is an experimental custom towards nature and towards human society itself (Ahmed Rushdy Saleh, 2002: 129). Folk knowledge is also known as "it is what Indigenous people have of knowledge and understanding about their immediate environments and include plant classifications - sometimes called folk plant knowledge- and environmental relationships, and environmental change". A challenge for ecologists is to document such knowledge and then translate it into formats compatible with intellectual property rights (Noel Castree & Rob Kit chin, Alisdair Rorers: 2013). In another definition, folk knowledge is "an accumulated entity of knowledge, practice and belief about the relationship of organisms (including humans) with each other and with their environment, being developed and transmitted across generations, while appropriate processes and adaptations occur. Traditional knowledge is cumulative, active and interactive. It is built on experience, copes and adapts to changes. It is a characteristic of societies that is compatible with historical communication in the use of resources on the ground" "Fikret Berkes, 1999: 8). It is a set of skills and knowledge transmitted from one generation to another one within communities (Chris Park & Michael Allaby: 2013).

The favor for drawing attention to the importance of studying and monitoring the folklore of all indigenous peoples globally, goes back to what is presented by the UNESCO in 2003, concerning the Convention on the Proposed Classification of Intangible Cultural Heritage in five areas, the fourth being knowledge and practices relating to nature and the universe. It is also due to the interest of international bodies, including the WIPO document, which defined folk knowledge as "scientific know-how, skills, innovations, practices, teaching and learning activities, which are in the possession of indigenous peoples, local communities, a country or countries". In particular - areas such as agriculture, environment, health care, folk knowledge in engineering and building.etc (Mostafa Gad, 2016: 15).

### **A key characteristic of folk knowledge is that:**

- 1- It is not specific to a particular area, as it covers all areas of life.
- 2 - It arises as a result of the interaction of multiple factors with each other, the interaction of scientific knowledge with social history with art and religious beliefs.
- 3- It is characterized by arising and developing from the exerted efforts of the group that owns this property and passes on from one generation to another generation. It reflects the identity and subjectivity of the group that has created it.

4- It does not arise according to a specific system, but rather as a result of the interaction of individual or collective creations with the surrounding cultural environment, ([www.nizwa.com](http://www.nizwa.com)).

5- It is cumulative, active and interactive based on experience, coping and adapted to the changes, a characteristic of communities consistent with historical communication in the use of resources.

6- The folk knowledge study is concerned with the element of practice, the way people manage their own agriculture, hunting, fishing and other life activities, and how to manage biological systems and interact with natural processes.

7-Folk knowledge begins with local knowledge, where Kalland (1994) identified three levels starting with empirical or practical knowledge which is a local knowledge about animals, plants and soil types ... based on empirical observations, which have remarkably lasting value, and the second level is the typical knowledge or interpretation of empirical observations to put them in context; while the third is the customary knowledge concerning patterns of the group's behavior, (Berkes, Fikret, 1999: 6- 13).

Folk knowledge is procedurally known as folk science based on the practical or experimental observation of fishermen during their stay in the village, and their continuous practice of fishing activity in lakes, which developed their experiences and gained them a typical knowledge that link various natural phenomena to their work such as the movement of the moon and wind, tide and color of water. and others and between their work in fishing. So, they kept that knowledge, and transmitted to be inherited, it became folk knowledge of their own through which they can adapt to their environment and achieve optimal exploitation.

**Ontology:** or metaphysics, is a study of metaphysics that examines the nature of existence altogether. It raises the question of existence in the sense of the question of the circumstances that make the existence of any group of assets possible. (Andrew Edgar, 2009: 111) (Smith, Charlotte Seymour 1992: 181). Gordon Marshall explained that any method of understanding the world, or only a part of it, is based on some assumptions about the nature of things that already exist or that may exist in the field that ontology interprets, and the conditions of their existence, and relations of interdependence between them ... And so on. Such a list of types of objects and their relationships are ontology. That is, each ontology has its own (Gordon Marshall, 2000: 245).

Consequently, the ontology in the popular adage is to conceive of the creation of the universe, its elements, its material, its transformation, the creation of its fundamental axis, man, and its other factors, especially the world of spirits and the relationships between those universes, the post-life world, and natural phenomena, whether disturbing or dangerous, such as volcanoes, earthquakes, storms, thunder and lightning, or routine such as night, day, wind and rain. Popular ontology with this understanding is a kind of folk knowledge. (Mohammed El Gohary, 2011: 101: 102).

Ontology is procedurally defined as a concept that is concerned with explaining the relationships between cosmic phenomena such as the relationships between the signs that appear on planets and celestial bodies, the clouds and others and the phenomena of lakes such as the movement of waves and wind, and the weather, on which the fishermen are to decide to go out to the fishing trip, or searching for other suitable fishing places, identifying as well, the

types of fish available and others, which leads to the fishermen' acquisition of their folk knowledge.

**Ecology:** The ecological concept is a concept concerned with the physical characteristics of a particular environment in its influence on social behavior and its impact on this behavior, as well as the study of the relationship between man and the environment (Mohammed Al-Gohary & Abdullah Al-Khraihi, 2008: 148). A human being is part of his natural environment which provides him with many possibilities for social life, so, he is associated with it, as well as with other organisms that live with him in the same environment in repeated attempts to adapt, which represents the pivotal relationship in the ecological study (Andrew Edgar & Peter Sid Goic, 2009: (Ahmed Abu Zeid, 1996: 571: 572).

Ecology procedurally, means the impact of the natural environment on the activities of individuals in the research community, which has led them to engage in specific economic activities depending on the characteristics of the physical environment, including fishing activity (inland). On the other hand, man in this society was able to observe and contemplate the natural phenomena surrounding him in his environment such as lakes, sky, air... etc. in continuous attempts to interpret them - ontologically - and adapt to them, and in the meantime acquire his folk knowledge through which he becomes able to adapt and deal with his environment.

**Lakes' Fishing:** There has been some debate as to whether cultures based on the fishing system can represent a distinctive pattern in the sense of the cultures of pastoralists, horticulture and others. It is noted, however, that fishing methods and technology are diverse and range from simple traps, spears, arrows and other tools used by indigenous peoples, to the different sizes and types of boats and nets used in limited fishing or fishing industries. (Smith, Charlotte Seymour 1998: 692).

Fishing economy can be supported either by simple collecting or active fishing or both. It may be full-time or seasonal, may depend on stable or slow-moving fishes that are easily caught. Local residents may exploit marine fish that require more active techniques than trapping and stalking or may seek seasonal migrations of these fishes with a variety of technical means including boats (Byron, Reginald: 2009). Fishing is an activity in which nets, spears, or individuals' hands are used to catch crustaceans, shellfish and fish. Historically, these tools have been modified by fishermen practices. Fishing is also classified as a commercial activity where fish are sold, traded and bought (Kulczycki, Cory: 2008).

Fishing in this research is inland or traditional sea fishing practiced in lakes, and the fishermen rely on fishing tools manufactured locally.

## **Second: Literature of Folk knowledge in Fishing**

Intangible cultural heritage scholars have often been interested in some of its fields and themes such as customs, beliefs, handicrafts; while interest in folk knowledge - at least at the local level - has diminished. Most of the literature in this field, in Egypt in particular, has been on topics of traceability (the Suzan Said Study 2007), on folk knowledge associated with agriculture (Haitham Younis 2011, Aisha Shukr 2017), or on folk knowledge in a specific community such as Al-Wahat Al-Bahria (the Bahariya Oasis). Khatri Orabi 2013).

Folk knowledge of fishing has received little attention at the Arab level. Examples of these studies are Masters of Awatef Al-Harthy on "Fishing on the Saudi Arabian Red Sea Coast"

(1992). The objective of this study is to know the types of fish that live in the region, the geographical distribution of the fishing places, the factors affecting this distribution, the study of the followed methods in fishing, in addition to the most important laws regulating the fishing operations, and the problems facing the fisheries, in addition to knowing the role of The Ministry of Agriculture and Water in maintaining this resource. The study reached a number of results, the most important of which were the influence of natural factors and conditions in the formation of a suitable environment for fisheries in the territorial waters of the study area, such as high-water temperatures, salinity, and the presence of shallow areas.

In contrast to the dwindling number of Arab studies on folk cognitions of marine fishing, numerous foreign and non-Arabic studies, including a master's thesis by Abdullah al-Ma'mun, published (2007) aimed at identifying and documenting the current state of traditional environmental knowledge and practices on fish environments to help formulate sustainable management strategies for inland fisheries in Bangladesh. The study comes to several findings, the most important of which is the possibility of finding ways to assist communities in managing their fisheries with the knowledge of fishermen, which they consider more valuable than scientific knowledge, and that there is an urgent need to document, preserve and use that knowledge in fisheries development.

Gularte (2008) study of traditional knowledge of fishermen in the professional fishing areas of the Patos-Lagoon Estuary in Brazil, (124) geographically classified areas have been identified according to fishermen's traditional knowledge of environmental conditions and the depth and degree of water transparency. This study revealed the rich knowledge of the fishermen, and their close and direct relationship with the natural environment in which they live, which requires the preservation of traditional environmental knowledge of the fishermen and use them in the management of fishing operations. The study concluded with a number of results, the most important of which were to monitor the knowledge of fishermen on fishing areas according to the depth of the water, and their experience in the installation of networks, and to identify the degree of water transparency, and fishing in specific places, which are named according to the islands or their landmark or nearby. The importance of linking traditional knowledge with scientific knowledge is important to enhance the data used in the management of the fishing process.

Lekshmi (2009) study of indigenous traditional knowledge and ancient proverbs of Kerala coast fishermen drives at examining the traditional knowledge of original peoples in fishing villages; studying as well, the scientific logic behind their knowledge, and collect traditional cognitions and proverbs related to the fishermen community. The study has been conducted on 50 cases of fishermen, and concluded with some results, including the fact that indigenous people's experiences and experiments of the legacy reveal the causes and effects of the occurrence of natural phenomena related to the biological activity of living organisms.

Finally, the Mirera (2013) study on traditional knowledge of professional crab fishers in Kenya. This study aims to analyze the diversity of knowledge required to exploit fishing operations in clay areas, and how this relates to management practices based on science and study. They were conducted in four sites on the northern coast, using field studies, comprehensive surveys of fishing areas, interviews and direct observation. One of the most important findings of the study is that crab fishing in turbid waters is an activity dominated by male members of the study population and it is fulfilled in the low spring tide, with rare use of bait nets, and defining of

fishing areas that require expertise such as burrowing-fishing, and the need for individual and acquired skills to increase catch, improve quality and avoid damaged fishing, added to this, the knowledge of the specific circumstances of the place, and the behavior of crabs.

### **Third: The Anthropological Approach and Its Tools**

**The research relied on the following anthropological research tools:**

**Observation:** It is one of the most important tools of data collection in the research of almost any phenomenon. There are some types of social action that can only be truly understood by seeing them in a real sense, that is, the vision of an eye (Mohammed El-Gohary & Abdullah Al-Khraihi, 2008: 107). The observation is useful in collecting data related to the actual behavior of individuals in some realistic situations in life. So, it can be observed effortlessly, or can be repeated without effort, (Abdel Basit Mohammed Hassan, 1990: 308). Observation is used to identify the research community, and observing of the exit to fishing trips, and some of the signs indicated by the fishermen to the researcher as signs that predict the weather, and the whereabouts of fish ... and others. Observation was also used during in-depth interviews with fishermen.

**In-depth Interview:** It is called also intensive interview, is one of the common research methods among qualitative researchers to collect data. An in-depth interview takes individuals as a starting point for the research process and assumes that individuals have a unique and important knowledge of the social world that can be verified through verbal communication, i.e. discourse with respondents (Charlene Hess-Pepper, Patricia Levy, 2011: 211). In-depth interview has been relied upon as an essential tool in this research to identify the knowledge of fishermen on types of fish, their places, and the various natural phenomena such as the moon, stars., in addition to their knowledge about the various signs that predict climate change, and others. It was applied with five interviews for each of the seven cases of fishing workers belonging to older generations and young people.

### **Study cases**

Case No. (1): his name is denoted by the letters: S. Y, Age: 38, works as a fisherman and farmer, holds an industrial diploma, married with children.

Case No. (2): his name is denoted by the letters: A. H, Age: 56, works as a fisherman and farmer, dropped out of school from the fifth grade of primary school, married with children.

Case No. (3): his name is denoted by the letters: S. A, Age: 56, works as a fisherman and farmer, married and has children and grandchildren.

Case No. (4): his name is denoted by the letters: M.G, age: 23, fisherman, primary school, single.

Case No. (5): His name is denoted by the letters: M. A, Age: 70, fisherman, illiterate, married with children and grandchildren.

Case No. (6): his name is denoted by the letters: H. M, age: 50, fisherman, married with children.

Case No. (7): his name is denoted by the letters: S. M, age: 47, fisherman, dropped out of sixth grade, married with children.

**Informants:** They are a key source of field data collection. They can be used in some cases where there are no official records or other official data. The informant is a person who knows by virtue of his status in the community a certain amount of data useful to the research or can close between the researcher and the community that will be studied in any way, (Basit Abdul-

Mu'ti, 1985: 224). Therefore, two recruits were hired from the research community who had the advantage of supporting the research with information and introducing the researcher to the cases study from the fishermen.

**The Field Work Manual:** It is a work note to open the subject in the mind of the collector, and is not obliged to its text, nor is it a collector blocker, as the researcher has to add the processing of all new points that he thinks should be added and has not mentioned in the manual (Mohammed El Gohary and Hanaa El Gohary, 2013: 235). The idea of the manual is simply to divide each element, or compound elements into a number of points from which to ask successive questions or record them as topic-headers for reminders during the field collection, (Mohammed El Gohary, 2012, 209:210). A preliminary manual has been designed and used for the exploratory study, which was completed throughout the field study, using some important theoretical concepts.

## Part two: The Field Study Results

The results of the field study will be presented in two parts, the first part presents folk knowledge of the species and location of fish, while the second part deals with folk knowledge of cosmic phenomena affecting fishing.

### First: Knowledge of the Fish Species and Their Location

Folk knowledge fishers know varies about fish species-which are their livelihoods-and the slight differences that exist and distinguish each family, as they distinguish between poisonous and harmful fish. They know the places and settings in which they abound, the different species in each, and the signs that indicate their existence, which will be shown below:

### Knowledge of Useful and Harmful Fish Species

**Useful Fish Species:** Fishermen in the study population are aware of the types and sizes of fish found in the water bodies of their community, which is a source of their livelihood; and which varies between large size fish such as Drake, Lotte and Wakaar, which begin sizes from 1 kg and up to 15 kg per fish, They are followed by Lotte, Karous and Wakaar, each weighing up to 2 kg, and between small fish such as Hafara and Seegan, followed by Sehliia fish, and other marine organisms such as white and red Shrimp, Sobia and crab.

Fishermen distinguish the nuances between the aforementioned species, in which two elderly people mentioned: "The fish species are not known except for the fisher, as Sehail fish is a platoon with 4 types of Bori, Tobarra, grana and Sehliia and they are similar in shape and only the fisherman can distinguish them. There are fishermen sell Morgan fish as Denis, though Morgan is cheaper than Denis" (Informant: 1, S.Y) "Longevity in the sea, make me have a sense of fish of any kind, Sehliia, Tobarra and knowing it coming from which direction and how entered the spinning" (Informant:2, A.H). The experience of these cases due to the length of their work in fishing are due to their long work at an early age.

**Harmful Fish Species:** Fishermen confirmed their knowledge about poisonous fish and harmful fish species, which most important are carat or rabbit fish. For the first kind (poisonous), it has two types, red rabbit fish, which is less toxic and fit to eat after cleaning his guts, and remove his head, skinning, and the second is the blue rabbit fish, which is the most toxic and may lead to death, and the both two species are found in the Red Sea, and if the fisherman finds them, he un spin them from spinning and throw them into the lake or killing

them. Of the kind of fish that harms the human, there are three types: Al-Shoga, Hedaya, and Galkh, and these fish abound in the areas of Hoash -which are cement pillar beneath Suez Canal- and rocks. Some fishermen said: "In the type of fish called a snake-like Shoga, if it bites a human being, he can possibly die, and it is usually controlling the Hoash area -stone and rocky areas-"(Informant:1, S.Y). One fisherman added that there are two types of fish that are not poisonous but harmful. He claimed that: "there is a fish called Hedaya fish, its thorn is difficult to treat, however, its cure is in the same spine, this spine is rectangular with a small serrate spine from four sides. It penetrates the skin easily but comes out with difficulty and cuts skin. It stings and runs into the water and if it followed and grabbed, its liver is snatched and put on the fire to become oil painted by the place of stinging, rather than that, there will be severe pain, that makes a man screaming from pain and take pain relievers. There is another fish named Galkh, weighing a half kilo, and about 5 cm. looks like the Karmout, having two types, red in white or brown in white with 3 thorns exist in 3 fins, a thorn in the back, and two in both sides, but serrated in one direction, which is tingles human, easily and difficult when it comes out, but if it enters in his right leg or hand, it stops the right half of his body, and so the left part. It causes bones-pain which is severe pain and these fish are located around the "Hoash" and under the bricks in all water and professional fishermen know how to rid it and save it from the nets and throw it into the water"( Informant:2, A.H).

### **Knowledge of the Whereabouts of Fish, and Markings**

All the study cases agreed that the fish prefer to live in calm water and therefore are abundant in the places near the canal-and far from the places of fishermen-where the water is calm, deep and warm. A case of young fishermen has mentioned that "the fish prefer calm places and noisy places cause the run out of fish to more quiet ones, since fish floats out of the knock and loud sounds" (Informant:4, M.G). However, the location of fish varies depending on the type of fish, each fish type has its preferred environment. Thus, fishers know the preferred places or environment for each type of fish, as well as the signs that indicate their existence, which will be addressed in the following paragraphs:

#### **Favorite Places and Environments for Fish Species**

Fishermen know that each type of fish has its favorite environment, as mentioned by one of the older fishermen claims that: "Denis and karous are the most expensive fish and are found around the canal, while Lotte is cheaper and exists on the edge of the canal, and Bori exists in the whole lake. Bori fish, when it is in the canal and when the atmosphere is good, it comes out of the canal to the beaches, also, Shrimp can exist in the canal and outside it, while Tobar fish walk in the canal and lakes, and the Sehlia fish walk in the canal when there are few and not so many but when there is much fish, it comes out of the canal" (Informant:3, S.A)

#### **Fishermen know other areas rich in specific types of fish, including:**

**Rocky Areas:** "Fish anywhere in the world in coldness draw into deep water and hide among rocks. Some species bury themselves in sands" (Informant: 2, A.H).. Therefore, the rock areas are areas rich in Seegan, Sobait and calamari, and often fish changes in color depending on the color of the rock, as red rocks have fish around the same color.

**Areas of Reefs or Hoash:** The field study showed that coral reefs and Hoash are one of the richest-fish places, especially Wakar, Shoor, Karous, Denis, Bori, and Tobar. Due to claims of the cases study "reef is a tree grows in the sea that has spines look like blades, the fish that grow

near these reefs are Wakar, Shoor, Denis and small sharks which the one fish weight reaches 15 kilograms, added to ornamental fish. The Hoash is a group of stones side by side or a solid mass worked around algae, and live around them Bori, Kraous, Tobar, and Hafara". He also mentioned: "The canal is surrounded by lots of Hoashes –which is the cement surface that borders the canal - and the fish exist around them are a lot" (Informant: 1, S.Y). The case study confirms that: "Fish exist abundantly around these reefs and Hoash, especially Bory fish which is abundant in Hoash"(Informant: 7, S.M).

**Sand and Mud Land:** Fishermen in the research community know that the types of fish also vary depending on the nature of the bottom of the lake, on the white sandy land there are Shrimp, Gandolfi and Karos fish, while the clay land has Shrimp, Tobar, Sehlia and Bori, one of the fishermen said: "They are Hafara, Karos, crab and Shrimp holding sand and mud"(Informant:3, S.A)

**Marks Indicating Types and Location of Fish:** In addition to the knowledge gained by fishers about the types and locations of fish, they have acquired other knowledge about the signs through which they infer the existence of these fish, their kinds and availability. One of the most important of these marks is the color and depth of water. The field study confirmed that the color difference of water means the different kind of fish that graze underneath - grazing here means that the fish dig up in the lake and feeds on smaller fish or grass or other. The water is originally clear and transparent, and when the fish eat, clay sediments appear in the form of spots varying colors depending on the type of grazing. The color of the greenish water means the presence of Sehlia fish and the color of the spot is either in the form of a circle or square or in the form of a spiral whose size varies depending on the amount of fish. When the water is red, this indicates the presence of Barboni or Shokhrom fish. One of the fishermen expressed this by saying: "The color of the fish changes water just like the sunrise and sunset change the color of the sky" (Informant: 2, A.H). Fishers assert that the different types of fish, depend on their movement on the surface or in the depths of water, one of them said: "The fish exist on the water surface is Tobar, Shrimp, and Khorman, while Sehlia exist in both the shallow and deep water" (Informant:4, M.G).

It is worth mentioning that the young fishermen who are the most eager to go to new places for fishing, have acquired the previous signs, and use them and identify the whereabouts of fish; they monitor the emergence of turbidity that changes the color of the water, and search for the places of reefs and rocks; they rely on experiment. One of them expressed that: "I have to try firstly, I mean, if there is reef I enter to them, and if it is land in the lake, I try it and the lake is not all possible drowning, meaning that we can walk for eons to reach acres - I mean a land where we can walk – where there remains fish, and are also gaps or holes in the water where it will be drowning or deep, I try it somewhat to acclimate and I know where the fish is in this new place"(Informant:1, S.Y). Another added: "We know where the fish is in the new place if we get a burrow in the ground" (Informant:2, A.H).

## **Second: Knowledge of the Cosmic Phenomena Affecting the Fishing Process**

For a long time, weather has been the preoccupation of man, through which, he can determine his activities, and charts his way of life. Weather prediction and control has been an important aspiration of primitive and civilized man. At present, weather forecasting plays a key role in some professions, including seafarers, who need accurate weather information to protect their

equipment and facilitate their performance. Predicting the weather correctly means a difference between life and death. For that purpose, they are interested in forecasting storms, rain, wind, fog, snow, and the lake conditions, and accurately determining wind direction and speed (Horace Beck, 2003: 143: 144).

However, the field study cases confirmed that they do not follow the meteorology, explaining that they believe that what meteorology says is not true, and they are fishing from small lakes, relying on nature to predict the weather; so, they are keen to look at the moon at night, and look at the clouds during the day, and follow the movement of wind and waves, which will be illustrated in the following paragraphs dealing with the knowledge of natural phenomena affecting the fishing process, in which the prediction of weather comes in common in all topics, namely: moon, stars, clouds, the movement of waves, winds, nucleus, temperature and coldness of weather.

**The Moon:** One of the two luminous elements, man has relied since ancient ages to measure the change in time according to change in the faces of the moon. The new moon appears in the form of a crescent every twenty-eight days and part of the day, and then increases to become full moon, and then diminish until it disappears completely, and then reappears. The Islamic Hijri calendar is calculated in lunar months. (Abdul Hamid Younis, 2009: 290).

The field study confirmed the importance of dependence on the moon in determining the weather, fishing times, and places where the movement of the moon and the timing of its appearance and phases. As for determining the weather, all the cases of study agreed that if a halo appears around the moon - a white circle on the moon - this is evidence of intense air (wind) coming. Some cases have expressed this by saying: "When there is a white circle around the moon, we know that the air is coming in two or three hours, I take a cautious and stay not far from the beach, because if the weather turns over I can go back and this expectation is always correct"(Informant:4, M.G). "And if look to the air and find it is calm, means no air and the moon is evident and seen, if we have a rigid circle or as an itch around the moon, we know that the air is coming from any side, and we cannot determine its direction only when the moon comes enlarged in the atmosphere, meaning full but not skylight, we feel it is suffocated and try to see any beach quickly before the wind blows or not going down for fishing from the beginning" (Informant:3, S.A).

As for determining the fishing times and places, the field reality confirmed that fishing is done according to the Arab month calendar and the development of the moon's growth, where the moon starts small and during its emergence, the sea takes increasing which is called "tide" and the increase lasts for 6 hours, which is the period in which you prefer fulfilling the process of fishing. Then the moon begins to disappear, and the sea begins to descend or the so-called "islands" and continue for another 6 hours where less fishing, and thus throughout the Arab month. Consequently, the fisherman moves with the movement of the moon's growth and increasing water from one place to another. Some of them expressed this by saying: "Fishing is done by relying on the Arab month, since according to the shape of the moon, we determine the tide of the sea (six and six) 6 hours rising - the increase of the sea or the tide - and 6 hours descent - the islands - In the six hours of descending, water is heading to the city of Suez and the six hours of rising, water heads to Ismailia. This is the form of movement of water, which is affected by the appearance and disappearance of the moon, because if the water stands still, it will become rotten. Water moves and the fish move together and we walk after it, and see in

one third of an hour, water stops in the middle-so we say “the sea is sleeping” – because if the water keeps moving to and from... with no comfort, the sea will come to us and eat us and cause flood. in the beginning of the month, the moon will be a small crescent that comes from the West, if it appears in the dusk time, the sea takes more water with it, and water goes towards Ismailia and the sea increases until we reach the Suez, then water level decrease once more to increase hereafter in other places-while during the existence of the crescent, the sea is as in the six hours of the rising-while during the decline and disappearance of the crescent, the sea begins to descend an hour but a quarter and the water goes instead of being directed to Ismailia, it goes to Suez. Of course, the crescent grows up during the month every day from the day before, it will be delayed an hour but a quarter to go down and rises, for example, today, the moon is missed at 11 o'clock, and tomorrow at night, it will be absent at 12 o'clock but a quarter and then 1.5 o'clock at night until the end of the month” (Informant:1, S.Y). “When the moon is full and begins to reflect its direction, there is something happens calls "reflection of Rabiah”, means a defect in the sea possible not to come to full increase or come down full or one case increases and this when the moon isfull and in its rotation. At that time, it changes its direction and the sea can possibly increase but not decrease and may decrease but does not increase. At that time, fishing is spoiled totally, as this lets the fish stand just like the sea, and becomes as if paralyzed unable to walk, as it walks opposite the current of water and water becomes disturbed because of the moon and therefore the fish is unable to know the direction” (Informant:2, A.H). As for fishing on non-lunar nights, the fisherman depends on fishing during the day. One of them said: "The days without the presence of the moon, fishing becomes in the daytime; there is work of fishing when the moon is present, and there is some kind of fishing when it is dark, and when the moon disappears, we use searchlights around the water, so the fish gather around, and when the moon completes in the days from 13 to 15,it illuminates water - Hallelujah if you bang anything in the water, the water lights-the fish sees its shade and the spinning, so, it sticks to the bottom and moves slowly, as the sea becomes static, but when the fish is to be moving quickly we know how to catch it and we can fishing, but if parked place, it will not enter the spinning and thus spoil fishing” (Informant:4, M.G). It was clear from the field study that there are three timings, and places of fishing are determined by the appearance and movement of the moon. The first sea rises (tide) where fishing is near the canal, half of the rising, the fishing becomes away from the canal where the fish begin to distribute. By the first descent of the sea (islands), fishing is on land where fish is abundant at the time of the islands. One of them expressed it saying: "There are three fishing times: the first is the sea rises, half the rises, and the first take to the sea; at all these times, working at sea changes from a place to another. The first take to the sea, becomes near the canal, so, we can catch fish before it distributes in several directions, as it senses the movement of the sea. In half of the sea rise, we step away from the canal to approximately from 150 to 200 meters according to the water’s movement, because the fish will be moved. Nevertheless, in the take to the sea, fishing will be on the nearest beaches; because after taking to the sea water, it will return back towards the sea and there will be some amount of fish still on the shore and have not overrun or moved by water and this is a week after the emergence of the crescent” (Informant:1, S.Y).

**Stars:** The study Cases agreed on the importance of stars-dependence in weather forecasting and differed in their importance in determining time and direction of travel. As regard for the prediction of the weather conditions, they confirmed that when the stars are clear and have

neither clouds nor dust, this is evidence of good weather, but if they disappear behind the clouds, this is evidence of wind and rain. As one of the fishermen expressed that saying: "Through the stars, we know the atmosphere if it is a cloudiness - that is, cloud and dust - and be deluded, we know that the weather will be turned up and the wind will be coming." (Informant:2, A.H)

Some study cases from older people stressed the importance of using stars to know the timing and direction of travel, especially in the past. One of them expressed this by saying: "When I am contemplating at night looking at the East Star, seeing it from the east near dawn, it knows me that the daylight is close, so, I come out to the shore to sell fish"(Informant:3, S.A). And for identifying the trends, mentioned another: "Dependence on the stars used to be the thinking of the old people, in old time when my father used to teach me fishing, people used to search for six stars that compose the form of a triangle and this was in the period of the absence of the moon-the end of the Arab month - they are different from all the stars, they are brightly lighted with large size, so, we can recognize directions through these stars, a star denoting the north and the other denoting the south and they are close to each other and so conform and shape the directions. Exactly, this is what people were following on, because the vision was clear" (Informant:1, S.Y). Some justify and due their disagreement and difference in the importance of the stars at present to the impact of environmental pollution, which has led to the blurred vision of the stars at night, confirming that the change in environment and pollution is one of the factors changing the folk knowledge of the fishermen.

**The Clouds:** The field study shows the importance of the role of the cloud in the knowledge of weather conditions and weather forecasting and has an impact in knowing the appropriate timing of fishing. As for the role of the cloud in the prediction of the weather, the movement of the cloud quickly indicates the arrival of air and turning the color into a dark color indicates the rainfall. "The clouds, if they are fast, we know the wind is blowing," (Informant:4, M.G) and "if they are in a dark black color, we know that there will be rain, but if the sky is clear, then there will be no rain," (Informant:5, M.A).

As for the effect of clouds and dark clouds on choosing the right timing for fishing, the cases of the study claimed: "Clouds indicate that the wind is coming and fish are the first to feel the air –instinct from God –so, they hide in the reefs that will be difficult to catch." (Informant:4, M.G) "Clouds affect even the human being instead of getting up active, he becomes lazy; fogs is a monster affects everybody, even fish, as fog makes the atmosphere almost night, the fish does not know where to go, right or left, (a reversing effect on fish), so, they remains in their place, motionless, in turn, the fisherman can catch them, however, the sun and warmth leave the fish coming up and refreshing" (Informant:2, A.H).

**Movement of Waves and Wind:** The movement of waves is remarkably related to the movement of wind, both of which predict the necessity to stop fishing. "The wave movement is basically moving fish, but if it increases, it would be the same of the cloud system, fishing should stop, because waves can reach a height of 3 to 4 meters" (Informant:1, S.Y). Regarding the signs of the speed of wind and high waves, the most important of which is the static air for a while then its movement starts increasing gradually until the waves intensify and increase wind. "When the wind increases, the wave also highs up, since wave is only becomes higher when accompanying with near gale or increase of the wind, the waves don't change their direction suddenly, there should be indications for that, air stops suddenly and comes gradually and make the wave revolve around itself. I can identify the air, it is heavy when it comes strong

and suddenly, I figure out then that it will go one or two hours later, and if it comes in a dust storm suddenly, I become sure it will go quickly. If the air comes suddenly loaded and increases gradually, it is a sign of remaining for one day or more" (Informant: 4, M.G). The field study also confirmed that the orientation of the eastern and the out shore winds does not hinder the continuation of fishing while the southern wind prevents fishing. "The wind movement is affected by the height of the waves, the eastern wind and the northern wind are sweet winds that refresh the sea, but the wind that comes from the mountain - the buzz- will remain very strong to prevent fishing." (Informant: 2, A.H)

If the wind movement intensifies, and the wave rises during the trip, the fishermen take shelter in certain places they call "Kaval". They expressed this by saying, "I give myself to the closest place, even if it is the army (military site), and there must be lifejackets in the boat, even in an area of Mountains, there is even a land of triangle uniforms in the belly of the mountain in which the air clashes with the mountain, consequently, the lake becomes calm in this area which we call "Kaval" (Informant: 1, S.Y). This is consistent with the geo-morphological studies of the bitter lakes, where they reported that it is a sandy clay sediments characterized by being low and the presence of a longitudinal interference parallel or vertical to the coastline that may extend in the form of triangles heads in the waters of the lakes. These areas protect at-risk members of society. This confirms that the fishermen use their folk knowledge to protect themselves in danger.

The field study showed that if the air movement subsides, and the lake calms, it is difficult - also - to go out fishing as most of the fishing occurs when the sea is moderate in which air and water move naturally; while when the sea is calm and air is absent, the fisherman cannot see or distinguish the color of water, fishing is suspended. One of fishermen said: "The breath of the air shows the turbid and the non-turbid land but when the sea is white, means there is no air -it is called the wind of white -that we can't see anything in the sea, and the air breath creates a wave shows the color of water "Red water, green water, or there exists a Hoash before you in high ground, but whiteness is a possible danger. One can miss a Hoash, air is beneficial" (Informant:7, S.M). However, some stress the significance of serenity of the lake in two cases are fishing of Sehlia fish in November and in the case of fish fry. Some of them expressed this saying: "The lake is calm in November, the Sehlia fish have roe and gathered close to the sandy lands, in shallow water about half a meter in reef water, because roe causes itching to fish and so they search for sand because it is rough, so, fish can itch its belly, it exists in shallow water not to slip which is the stage before laying eggs and have fry; and if the soil muddy, the fish leaves the water and thus become easily caught. They walk in large groups for immigration towards the gulf where water is calm and mountains are high, so, they can lay their eggs and bring fry fish" (Informant:1, S.Y). "During travel, fish can be caught easily, and roe is sold separately, because the fry fish is very small just head and tail in a worm size that needs to be preserved like a child who is still born. On the way, fry fish should be undertaken by changing water and to be salty to protect the little fish from suffocation" (Informant: 2, A.H).

With regard to determining the direction of the wind, the field study showed that this is done through the interest of the fisherman-during the fishing trip-in sources of sounds of things such as a train or animal sounds, it is the place of the strongest sound from which the wind will come. They said this: "We determine the direction of the wind from sounds like the sound of the train horn we hear from the place where the strongest sound come to know that the wind is coming

from, and also from the sounds of animals like dogs sound, this comes from Geneva and that from Kabreet, the strongest sound we recognize is the way from which wind blows; someday, we were trapped in the sea because of heavy fogs at night and we were unable to see anything neither right nor left, we followed the sound of dogs as soon as we heard, as it helped us determining the direction” (Informant:2, A.H).

**The Nucleus (Core):** It is considered one of the most important obstacles that prevent the fisherman from fishing, and the study cases defined the nucleus as the strong winds that are accompanied by the high waves. It has different names, as it is called a nucleus or severe air, wind or storm, and they are considered one of the most important fishing barriers for the fisherman. Some cases expressed this: “The nucleus is an intense air that keeps the atmosphere unstable, carrying rain, lightning and thunder” (Informant:4, M.G). “It is intense air coming from me or from the west.” (Informant:3, S.A) “Nucleus means severe wind and high wave.” “Nucleus is the storm, we call “maltm”, heavy air, and strong wind” (Informant:7, S.M).

As for how the fisherman knows the dates of the nuclei, all the study cases agreed that they have determined and fixed dates in the winter season from November to March, but they do not preserve them often, but infer their arrival through their experiences. Some cases have expressed this by saying: "Alnawat" or nuclei have dates known in the month of December and January; and they have different names, including, nucleus of the broom, the smallest nucleus of the sun and the largest nucleus of the sun, but I do not keep their dates, they are about 12 nuclei come in winter and possible remain for two or three days" (Informant:4, M.G). The field reality has shown some signs that predict the occurrence of the nucleus: the stillness of the air, the presence of a circle or aura around the moon, the sudden movement of birds, jumping of fish on the surface of the water, the absence of the sun, and frequent clouds overwhelming the atmosphere, besides rising up of the sea abnormally where waves suddenly rises, and finally the remarkable speed of the cloud. The cases have expressed this by saying: "When the atmosphere is silent and there is no certain direction of air, this indicates the arrival of the nucleus, and when the moon is seen at night and it is clear, we know that there is no nucleus, but when it is about half a circle or a full circle, this is a pedal on the nucleus; since air passes quickly and veil the moon around. This ring is formed in the color of the dust, and the air that keeps passing over the sky will not remain high, it should go down, so, we know the nucleus is coming and we don't go to the sea" (Informant:1, S.Y). “We know the nucleus from the movement of birds, if the birds migrate suddenly and the atmosphere is sweet, we know that the wind is coming. We also know when the fish jumps in the lake, especially Bory, we know that the nucleus will begin, because fish and animals feel changing of weather before meteorology and humans. Nuclei (nawat) are known in the books, but we know them from the air” (Informant:2, A.H). "The nucleus comes when the clouds look dark and the sun is veiled, and when the sea has a sudden breath and it suddenly stops, we call it “The sea is whitening”. "then we know that there will be change in the direction of the wind from north to south days before, as the sea increases abnormally about 2 meters higher before the nucleus, and when it higher up abnormally, we know it is coming". “Also, when the clouds move quickly, we know that there is a nucleus” (Informant: 4, M.G).

As for the impact of the nuclei on the fishing process, the field reality confirmed the effect of the bad nucleus, and the study cases have expressed this by saying: “The nucleus disrupts fishing, spoils the spinning, destroys small boats, and prevent swimming, as waves rise up from

2 to 3 meters and may be 4 meters" (Informant:3, S.A). "The fish walk against the current because of the wind, taking an - opposite the direction of the wind - when the wind is very strong, fish stand still in place and hide into reefs and therefore difficult to catch." (Informant: 6, H.M)

**Hot and Cold Weather:** The field study confirmed that the temperature of the air, either hotness or coldness affects the decision of the fishermen to make a successful fishing trip. When the weather is cold, there is no catch where the fish are located on bottom of the sea and therefore difficult to catch. When it is hot, the fish float on the surface and escape from the fisherman's nets. Therefore, the best seasons for fishing are Spring and Autumn, where the weather is mild. One of the study cases expressed it by saying: "The coldness prevents fishing because the lake is cold, so, the fish go to a place where the water is warm, and fishing in Spring and Autumn is most preferred because the weather is mild. In winter and summer, fishing is disrupted, particularly in saltwater, as it heats water and fish comes to the surface, seeing spinning and net and run away from it." (Informant: 5, M.A)

**Discussion of the Research Results**

1. When looking at the relationship between the research concepts, and let's start it with the concept of ecology, it turns out that the natural environment has a clear impact on the human livings, and among these effects is the experiencing of various economic activities, including - in our case - fishing activity due to the presence of bitter lakes, and the Canal. During the practice of this activity - and in the light of the daily observation of their natural environment - fishermen have become capable to acquire some folk knowledge; the most important of which is the types of fish available in the lakes and the canal. Then, by reflecting on the relationships between cosmic phenomena such as the moon, stars, clouds, waves and winds, they have gained other knowledge that enabled them to predict the weather to decide whether to go fishing or not, and to know the whereabouts of fish, and the signs associated with them. This resulted in the acquisition of the proceeds of folk knowledge transmitted, inherited, and reproduced then added to and deleted from them to remain alive through which they can adapt to their environment. This will be shown in the following figure:

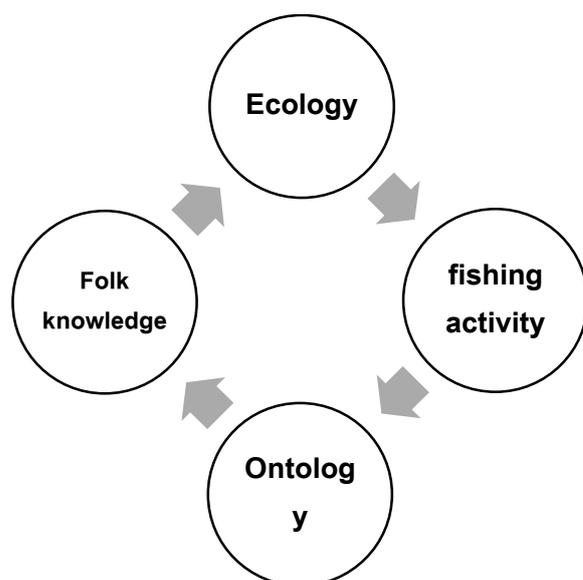


Figure illustrates the relationship between theoretical concepts of research

2. Folk knowledge of the study cases from fishermen have varied in general to include the times and seasons where fish are abundant, the preferred times of fishing during the day, and knowledge concerning kinds of useful fish and harmful fish, their nature, behavior, and signs of their existence, in addition to the most appropriate ways to catch them, and the conditions of the most abundant places in fish, and signs indicating of the arrival of nucleus (Nawa) or as fishers call, wind direction, protection zones at risk time ... Folk knowledge of older fishermen cases was richer in topics such as knowing the nuances of fish species, determining directions during a fishing trip using stars ... On the other hand, the situations of study cases of young people were characterized by love of adventure, and the attempts to discover new and different places for fishing.

3. The research has detected the use of the fishermen of the changing signs that appear on the cosmic assets to predict the weather and determine the appropriate times for decision-making concerning a fishing trip and determine its location. The forefront of these assets is crystallized in the moon, the stars, the clouds, the movement of waves, the wind, the nucleus, the heat or the cooler climate. As fishermen used for forecasting of the weather the moon, stars and clouds and to find out the right fishing times, they used the moon and the clouds; relying on the stars to know the timing (time) and direction of travel. They knew the signs denoting change of the movement of winds and waves and took indications from to get out on the fishing trip. They also knew how to define the wind direction and signs of prediction of the coming nuclei in addition to the impact of heat and coldness on the decision- making of a successful fishing trip.

4. With rareness of number of Arab studies on folk knowledge in fishing, we find a clear interest in foreign studies, where this knowledge has been studied in depth, and as an independent field. These studies have often relied on qualitative approaches and field studies, using observation and interviews with fishermen (Al-Mamoun 2007), (Gularti 2008) and (Mereira 2013). Added to that, a group discussion (Lakshmi 2009) have been fulfilled which underline the importance of qualitative study and use the anthropological approach with its tools for deeper results. Some of the results of the previous studies agreed with some of the results of the current research, such as emphasizing the richness and importance of folk knowledge of fishermen, and the need to benefit from them in improving the management of fishing operations in these communities, such as the results of the Gularte study, which pointed to the different types of fish depending on the different locations, and the nature of the lake bottom. The results of the Lekshmi study emphasized that fishermen rely on signs of the whereabouts of fish, and their abundance as the presence of dark spots or mud on the water. This supports the similarity of folk knowledge in fishing among communities, although they are different and far apart, which can be seen as global cultural counterparts. This draws attention to the importance of studying and preserving folk knowledge and utilizing it in the formulation of strategies for development and management of various local environments in our Arab communities.

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