
FISH DISEASES SYMPTOMS AS OBSERVED BY FISH FARMERS IN OGBIA AND YENAGOA LOCAL GOVERNMENT AREAS OF BAYELSA STATE, NIGERIA

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ABSTRACT

Many fish diseases do not attract attention of many people dealing with fish, because in nature sick animals are quickly removed from the population by predation. Fish disease data are almost not available in most developing countries like Nigeria. It is therefore pertinent to start somewhere, since disease conditions in fish are of public health importance. A survey of this perception was carried out among fish farmers in Ogbia and Yenagoa Local Government Area of Bayelsa state, Nigeria. Questionnaires and individual interview were employed to gather the information. The statistical analysis was based on the sixty- six respondents acknowledged during the survey. Simple means and percentages were used to describe the responses. It was found that 89.39% of the respondents were aware of signs and disease symptoms in fish but 57.63 % did not consider the occurrence as serious problem to production while 42.37% felt fish diseases are impediment to production. The disease symptoms as observed among the respondents in percentages were: Grey colourings on the body of fish(9.71%), Short body(4.85%), Weak swimming (8.74%), Blindness (2.91%), Fin Lesions (16.50%), Big head (14.56%), Hole in the Body (4.85%), Blood spots/Haemorrhages on the body (18.44%), Swollen stomach(8.74%)and Stunted growth (4.85%). The Majority of the respondents (85%) are subsistence fish farmers while 15% were commercial fish farmers. The range of the years of experience was between 3-50years of working in the Freshwater environment. There is need to establish a data base for fish diseases, assess risk, provide information and training to public on how to deal with disease situations

Key words: Fish disease, Fish Farmers, Public health, Awareness

INTRODUCTION

Animal health should be of concern to everyone, most especially because of the public health concerns and food safety. Fish is an aquatic animal whose disease condition may not be noticed until it is chronic .In this case, there is need for better prevention, surveillance and crisis preparedness especially where there is a risk of transmitting disease to human.[7,9] Awareness among the stakeholders which are the producers, processors and marketers is necessary to ensure high level of public health and food safety. Data on fish disease indicators is almost unavailable in most developing aquaculture countries like Nigeria. In well developed aquaculture communities losses to disease is of great concern for instance losses due to epizootic ulcerative syndrome(EUS) in several Asian countries before 1994 exceeded US\$10million[2]. It is therefore imperative to create awareness of fish diseases among the unassuming stakeholders. Since, fish culture as a hobby or business is now being practiced with zeal in Nigeria. Increased interest in fish culture should also increased awareness of conditions that affect fish health, growth, and survival. Successful fish culturists learn through experience to

diagnose fish diseases. In spite of this, common mistake of misdiagnosing disease problems usually occur because diagnosing fish disease is often difficult and questionable. Most parasites are easily transmitted from tank to tank by nets, hoses, or caretakers' wet hands. When fish are crowded or stressed, and water quality deteriorates, the parasite multiplies rapidly and causes serious damage. [3, 6] Uncontrollable or recurrent infestations of parasites are indicative of a husbandry problem. Many of the parasites proliferate in organic debris and accumulate in the bottom of a pond or tank. Typically, heavily infested fish do not eat well and lose condition. Weakened fish become susceptible to opportunistic bacterial pathogens in the water. Parasites and bacteria may be of minimal significance under natural conditions, but can cause substantial problems when animals are crowded and stressed under culture conditions. Fish heal very quickly, and sores will disappear rapidly once the recovery process has begun. According to Reed and Fransis-Floyd [4] apprehension on whether it is safe to eat fish that have sores on them may not be founded. In most cases the sores are external only, and when the fish is cleaned, the damaged area is easily removed from edible tissue. Thorough cooking will eliminate any pathogens that might remain in tissue, thus resulting in a safe and wholesome product. Although the appearance of a fish with sores on it may be unappetizing, there is no reason to discard the fillets as long as they are thoroughly cleaned and cooked. This study, therefore, described fish disease symptoms perception and not necessarily meant to portray fish disease epidemics.

MATERIALS AND METHODS

A study on the Fish Disease symptoms as observed by fish farmers in Ogbia and Yenagoa local Government Areas of Bayelsa state. Bayelsa State is located between latitude 04⁰15" North, 05⁰23" North and longitude 05⁰22" West and 06⁰45" East; with an area of about 21,110 square kilometres, out of which more than three-quarter is occupied by water, with moderately low land [1] Questionnaires and individual interview were employed to gather the information from these two local Government area that are easily accessible by road. The analysis was based on the sixty- six respondents acknowledged during the survey. Descriptive statistics was used to determine the disease symptoms as observed by the Fish farmers.

RESULTS

Experienced fish farmers are not many as shown in Figure 1. Experience of 1-10years is the highest recorded during this study. It can be seen in Table 1 that the age range of 41-50 years old recorded the highest percentage with a wide gap from the other age groups. Male respondents were 80.30% and female were 19.70% in this survey, while majority of the fish farmers operated on a small scale, which are usually family ponds operated at subsistence level. Most of the farmers (89.39%) answered YES to whether they observe diseases symptoms on fish being cultured while 10.61% answered NO. Out of the number that answered yes, 57.63% answered yes to the fact that the symptoms impact fish production but 42.37 were not sure when interviewed and said No. Clarias species was observed to record 28 disease occurrence according to this study and Heterobranchus species had 25 occurrences as shown in Table 2. The observed fish disease symptoms are shown in Table 3, with haemorrhages on the fish body recording

the highest percentage of 18.44%, followed by caudal wounds/ lesions, the least observed symptom was blindness in this study. The haemorrhages on the fish body were observed on all the fish species except *Parachanna obsura*.

DISCUSSION

The study of fish disease is an interdisciplinary field involving the veterinarian, the aquaculturists, microbiologist, parasitologists, nutritionist and water quality expert. There are many diseases of fish which can be troublesome to commercial producers. Many disease outbreaks of captive fish stocks are associated with stressful conditions such as poor water quality, excessive crowding or inadequate nutrition. There are two broad categories of disease, Infectious diseases which are contagious diseases caused by parasites, bacteria, viruses, or fungi present in the environment or carried by other fish. These often require some type of medication to help the fish recover or control the disease outbreak. While the second category is the Non-infectious diseases which are broadly categorized as environmental, nutritional, or genetic anomalies; they are not contagious and usually cannot be cured by medications. These problems are often corrected by changing management practices.

The symptoms as observed by respondents are Grey colourings (9.71%) which may be as a result of malnutrition or poor water quality. The marks of white on fish bodies (4.85%) could be due to protozoan infection and most times due to the environmental factors especially water quality, Weak swimming (8.74%) may have resulted from several disease indications like bacteria infection, parasitic infection and environmental problems for instance low temperature. Because the body temperature of most fish conforms to the environment; no specific observation on body metabolism signifies abnormalities since metabolism is dependent on temperature changes. As temperature increases the level of spontaneous activity also increases and this is reflected in swimming performance and active metabolic rate which increased up to optimum temperature after which it then flatten out and eventually crash at the upper lethal temperature. The environment and the ability of fish to respond to temperature change are therefore the overriding significant factors especially in the tropical waters; dictating the chain of events following any pathological change such as microbial infection, traumatic change or nutritional deficiency.

Lesions (16.50%) are the obvious features readily observed on the skin due to polluted waters, osmo-regulatory distress and secondary bacterial infection. Swollen abdomen (8.74%) may be due to several causes with aetiological agent such as virus, bacteria, cestodes and platyhelminthes. Blindness (2.91%) may be natural occurrence either genetically abnormalities or ontogenic defaults. It could also be accidents or attack by predator which the fish eventually survived. Haemorrhages (18.44%) are signs of stress, poor handling and infections such as fungal or bacterial while stunted growth (4.85%) and big head (14.56%) are often signs of malnutrition which can be aided by environmental and genetic factors. Fish like any other food items may carry a variety of bacteria, viruses and parasites that are capable of causing disease in consumers [9]. And many microbes especially bacteria have been isolated from fish; these are also organisms

that can cause disease in normal healthy adults. Awareness of fish diseases may not be high among consumers but fishers and processors would have come across issues of concern but for lack of epidemiological studies to clearly define the risk of fish diseases. In a survey on impact of fish health problems on rural small scale fish farmers producing groupers in the Philippines, 88.3 % of the 60 farmers interviewed experienced reduction in income due to fish health and disease problems. Farmers incurred increased household debts, especially those who borrowed capital investment [8]

Most fish health problems occur because of environmental problems: poor water quality, crowding, dietary deficiencies, or "stress". Fish disease outbreaks are often complex, involving both infectious and non-infectious processes. The best cure for any fish health problem is prevention. Good water quality management and proper fish husbandry techniques will eliminate most parasites. Needless to say, appropriate therapy often involves medication and changes in husbandry practices. Wild fish, fish from other farms, and fish returned to the farm after being handled off-farm can carry diseases. Fish should be inspected for known diseases, at either the lot or farm level, by a fish health professional before they are brought onto the farm. Wild fishes in most surface waters act as reservoir of infectious diseases. Among other factors that cause abnormality in fish apart from disease pathogens are non-living factors such as poisoning, incorrect pH and shortage of Oxygen.[3,6]

CONCLUSION

The fish disease symptoms that fish farmers observed most in Ogbia and Yenagoa Local Government Areas was haemorrhages on the body of the fish. This calls for better handling practices especially during sorting and harvesting. Since the water environment is a reservoir for pathogens, secondary infection might take over after these operations and hence impact on fish health which may lead to loss of production. Good communication on risk of Fish disease to fish farmers and consumers is of utmost importance because fish diseases may pose a potential serious threat to human health and rural economy. A collective approach is necessary to achieve a disease free status in holdings and community by informing farmers on how to carry out bio-security measures, disease surveillance, animal welfare measures and veterinary control measures. A key factor in being able to manage an outbreak effectively is in knowing where the animals are and details of disease conditions. There is need to establish a data base for fish diseases, assess risk, provide information and training to public on how to deal with disease situations. This duty ought to be incorporated into our agricultural extension programmes in the country.

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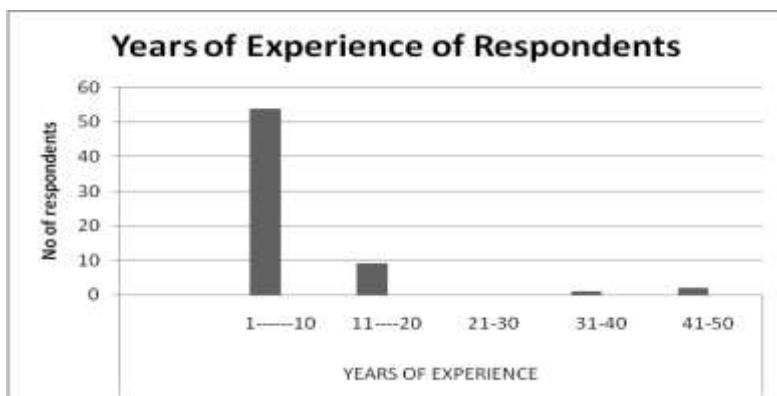


Figure 1: Yars of Experience of Fish Farmers

Table 1: Data on Fish Farmers that are Knowledgable about Fish Diseases Symptoms

Parameter		Frequency	Percentage
AGE			
	21- 30	9	13.63
	31-40	13	19.70
	41-50	34	51.52
	51-60	10	15.15
TOTAL		66	100

SEX			
	MALE	53	80.30
	FEMALE	13	19.70
TOTAL		66	100

LEVEL OF OPERATION			
	SMALL SCALE	60	90.91
	LARGE SCALE	6	9.09
TOTAL		66	100

DISEASE SYMPTOMS AWARENESS			
YES		59	89.39
NO		7	10.61
TOTAL		66	100

IMPACT ON PRODUCTION			
YES		34	57.63
NO		25	42.37
TOTAL		59	100

Table 2: Fish Disease Symptoms/Abnormality Observed by Fish farmers on different fish species

SYMPTOMS/ABNOMALITY					
	CS	HS	TS	HN	PO
Grey Colourings	*****	**			
Marks of White on Fish Bodies	**	***			
Short Body	*	***			
Weak Swimming	*	*	***	**	**
Blindness	*		**		
Caudal Wounds/ Lesions	*****	****	**** *		
Big Head	*****	**** *			*
Hole in the Body			*	**	**

Swollen Stomach	*	*	****		*
Haemorrhages on the Body	***	****	**	***	
		*		*	
Stunted Growth	*	*	***		
	28x	25x	19x	8x	6x

CS- Clarias species, HS- Heterobranchus species, TS- Tilapia species, HN- Heterotis niloticus, PO- Parachanna obscura

Table 3: Frequency occurrence of Disease Symptoms as Observed by Fish farmers

SYMPTOMS	Frequency	Percentage
Grey Colourings	10	9.71
Marks of White on Fish Bodies	5	4.85
Short Body	6	5.82
Weak Swimming	9	8.74
Blindness	3	2.91
Caudal Wounds/ Lesions	17	16.50
Big Head	15	14.56
Hole in the Body	5	4.85
Swollen Stomach	9	8.74
Haemorrhages on the Body	19	18.44
Stunted Growth	5	4.85
TOTAL	103	99.97