Insurance requirements of the Greek mariculture industry during the period 1986-1994 (1st semester)

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SUMMARY - The Insurance requirements of the Greek Mariculture Industry have been collected and analysed in terms of causes and money value. Special attention has been paid on the evolution of each factor in relation with the time. The causes of damages become more specific in early 90's due to the increase of knowledge and experience of the cultured species. The present effort has shown that insurance records could be used as a useful tool in order to evaluate the status of the industry.

Key words: Insurance, Mediterranean, mariculture, diseases.

RESUME *- Les données des assurances de l'industrie grecque en mariculture sont collectées et analysées en termes de raison et de valeur. Une attention spéciale est accordée à l'évolution de chaque facteur en relation avec le temps. Les causes de dommages deviennent plus concrètes au début des années 90 grâce à l'augmentation des connaissances et expériences sur les espèces cultivées. Ce rapport montre que les enregistrements des assurances peuvent être utilisés comme un outil pour évaluer la situation de l'industrie.*

Mots-clés : *Assurance, Méditerranée, mariculture, maladies.*

Introduction

The Greek Mariculture Industry has been rapidly expanded in the last decade (Wray, 1992). The production is mainly based on the culture of seabass (*Dicentrarchus labrax)* and sea bream *(Sparus aurata)* (Stefanis 1993). Greece, is a suitable geographical area for the development of aquaculture, due to the excellent environmental and climatological conditions.

The rapid development of the production technology and the strong EU support leads the country to the top of the European producers (Stefanis, 1994). Today, there are 220 farm units in operation, while there are 65 more under construction (Theodorou & Protopapas, 1995). In 1993, the turnover of the industry was 12.87 billion drachmas (42.9 million Ecus) while the net profits are about 2 billion drachmas (6.66 million Ecus).

Aquaculture as a new born sector of the primary production in the 80's was a high risk activity due to the lack of knowledge and experience of the farming of

Mediterranean finfish species. Insurance coverage of mariculture enterprises against risks which were unknown at that time was necessary in order to protect the investors from disasters. Furthermore, insurance protection was also important in order to draw the interest of the banks for the financing of these new activities.

The aim of the present work is to demonstrate the insurance requirements of the Greek Mariculture Industry during the period 1986-1994 (1st semester).

Material and methods

Data for the present study was provided by Agrotiki Insurance S.A.. This company belongs to the group of Companies of Agricultural Bank of Greece, and has more than 90% of the local insurance market of aquaculture activities.

Records of the company demands for the period 1986-1994 were analysed monthly in terms of causes and money value. The frequency of each factor was also demonstrated.

A comparative study also has been carried out between insurance requirements and the industry development.

Data provided for 1994 are referred only to the first semester.

Results

Table 1 shows the evolution of the sea bass and sea bream production in Greece. During the period 1986-1994, there is an exponential growth of the industry. The limited production of 100 tons in 1986 (FGM, 1992) was increased up to 12,000 in 1994 (Stefanis, 1995). Similarly, the number of farms from a dozen increased up to 220. While until 1988 the sector's development was almost exclusively dependent on the import of fry, today production of fry was equally impressive in performance, increasing at an annual rate of approx. 30% during the period 1991-1993 (Stefanis, 1994).

Table 1. The development of Greek Mariculture Industry during the period 1986-1994 (Source: FGM, ABG)

Year	1986	1987	1988	1989	1990	1991	1992	1993	1994
Farms (No.)	12	32	50	75	100	110	121	160	220
Fry (mil.)	-	-	*3	3.4	14	23	32	45	70
Production (tons)	100	105	300	550	1600	2500	6000	9000	12000

* estimations

The total cost of the production damage during the period 1986-1994 (1st semester) was estimated 975.6 million drachmas (3,25 million Ecus).

A frequency analysis of the damages during the period 1986-1994 (Table 2), shows that the major part of losses are due to the adverse climate conditions (35.53%) and diseases (34.51%). The same is happenning in terms of cost (Table 2). Environmental conditions and illegal actions have the same percentage frequency. However the cost of the required compensations due to the environmental damages, was approximately double (11.64%) than that of illegal actions (6.41%).

Table 2. Insurance requirements of the Greek Mariculture Industry during the period 1986-1994 (1st semester)

Reason	Value (mil. drs)	Cases (No.)	Losses Value (%)	Cases freq. (%)
Adv. climatic conditions	470,428	70	48.21	35.53
Diseases	238,869	68	24.48	34.51
Environmental conditions	113,579	17	11.64	8.62
Illegal actions	62,592	16	6.41	8.12
Unknown reasons	31,668	4	3.24	2.03
Bad management	31,631	9	3.24	4.56
Aq. animals attacks	11,005	2	1.12	1.01
Transports	8,000	5	0.84	2.53
Other reasons	7,846	6	0.82	3.04
Total	975,618	197	100	100

The rest of insurance requirements referred to the stress during the fish transport (2.53%), attacks from aquatic animals (1.01%), bad husbandry and management (4.56%), other less important causes (3.04%) and unknown factors (2.03%).

The major problems of the industry are due to the adverse weather conditions. These has been recorded during the period 1986-1988 (Fig. 1) as a result of the inadequate technology and the lack of experience.

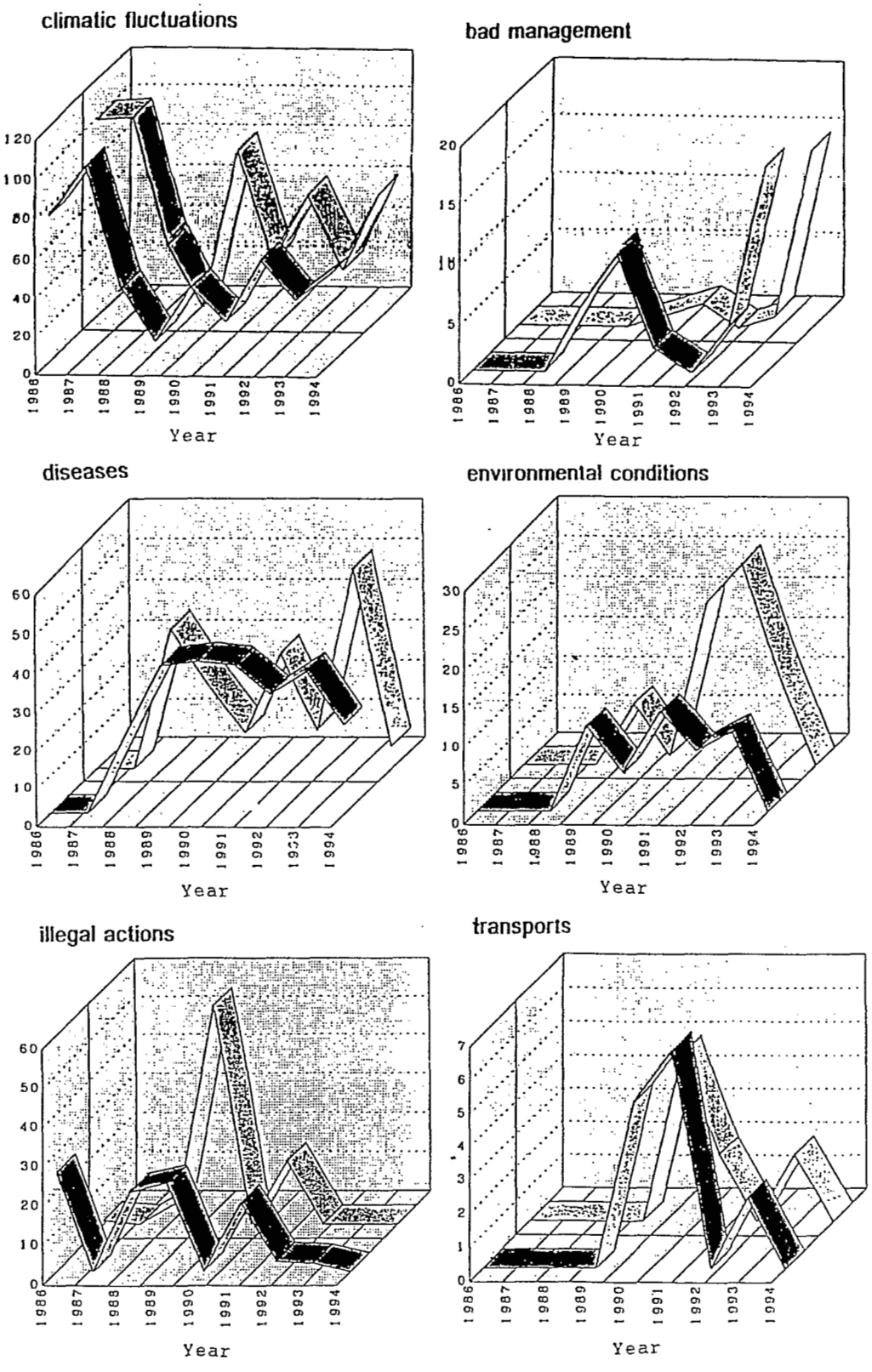

Fig. 1. The evolution of the losses in terms of cause (%) and value (%), during the period 1986-1994 (1st semester).

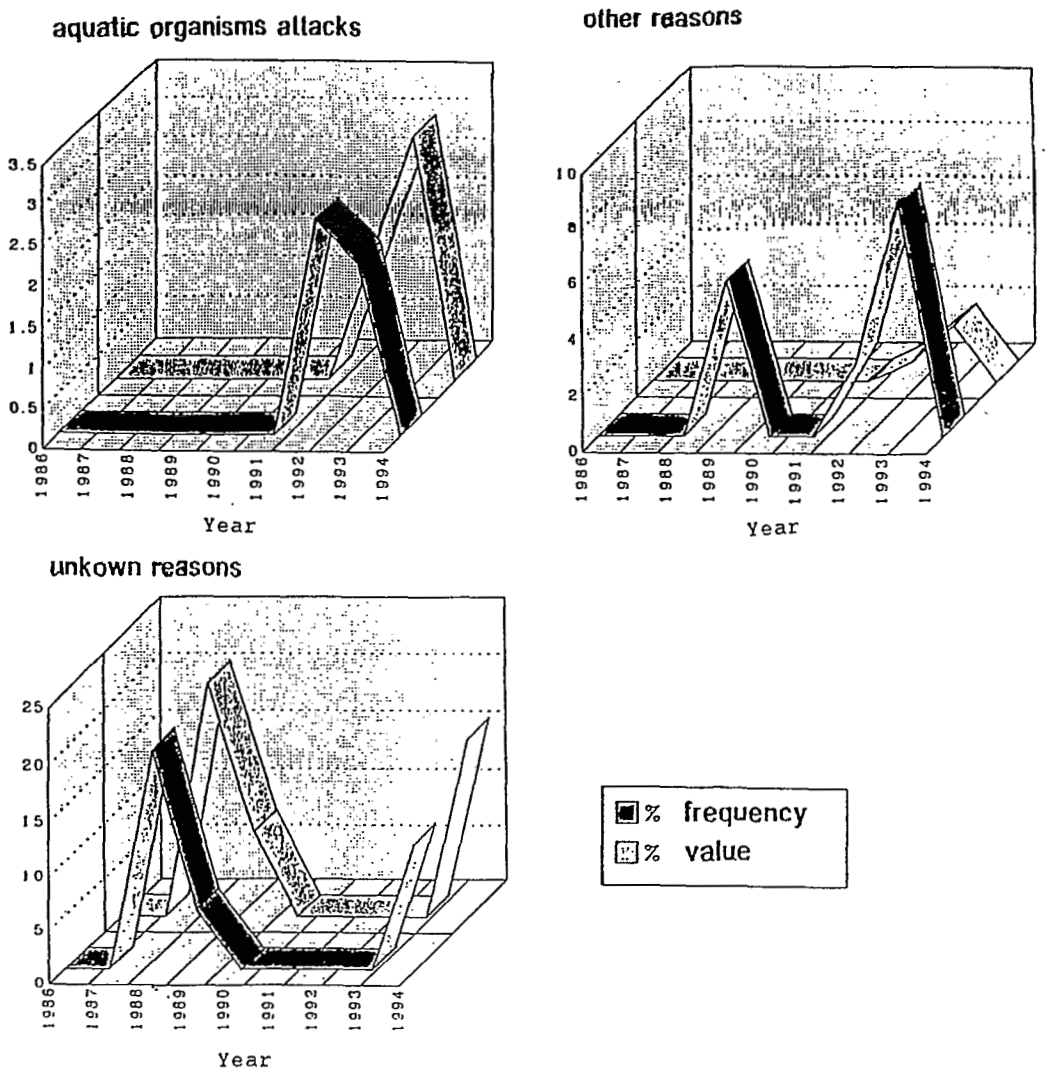

Fig. 1. (Continuation).The evolution of the losses in terms of cause (%) and value (%), during the period 1986-1994 (1st semester).

The spread of diseases has been recorded as the main aetiological factor of serious fish losses during the period 1987-1989 (Fig. 1). This was due to the intensification of the production and the increase of the number of farm units number (Table 1).

Improved monitoring and gradually increasing experience led to record more cases previously attributed to adverse weather conditions, as results of diseases outbreaks.

Insurance claims from illegal actions occured mainly during the initial expansion of the industry (1987-1990), due to losses from opposing local groups (i.e fishermen, etc), which coincides with the increase of the 32 initial farm sites to 100 (Table 1). The adverse and hostile activities decreased as the better understanding of the role of aquaculture to the national economy and to the development of the isolated coastal communities increased.

The role of the husbandry and management of mariculture operations becomes more important for production losses during the mature phase of the Industry (Fig. 1). The increase of knowledge as well as the experience about the mariculture give the opportunity to the experts for better understanding of the reasons of damages.

The frequency of losses due to the environmental conditions (i.e. algae bloom, lack of oxygen, etc) increased (Fig. 1) at the same time with the production growth and the expansion of the industry (Table 1).

Fish losses due to transport are usually referred to the transportation of fry from the hatchery into the cages. Most cases have been recorded during the boom period (1989-1992) of fry production in the Greek hatcheries (Table 1). This occured due to the limited experience of fry transportation and the large number of despatches.

Intensification of the production and the increase of the farm units had a result the spread of diseases which may have been recorded as main unknown factors of serious fish losses during the period 1987-1989 (Fig. 1).

Discussion

The present study shows the insuranse requirements of the Greek Maricultures during the period 1986-1994 (1st semester). Projections of factors affecting the production could be used in order to provide a picture of the industry development. Results from the data processing showed a diversification of the damages. Special attention is required in order to have a better approach of the factors that cause diseases. As mentioned before, due to lack of knowledge on disease diagnosis, a lot of cases have been recorded as “unknown”.

Damages could also be presented per geographical region. The frequency and the value of the damages due to the different factors, (i.e environment, diseases, aquatic animals attack, illegal actions, etc) could be used as indicators for monitoring the future evolution of the industry. A GIS mapping of these factors affecting at a local level could be used as a strategic management tool by the sectors decision makers. Similar approach could be carried out in the Mediterranean area. Insurance records also could be cross-checked with other data sources in order to have a better approach of the present status of the industry.

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