



RISK MANAGEMENT IN AQUACULTURE BUSINESS

RMQS®

F. Tapia





INTERCOVER®



Insurance Underwriting Department

Risk Management Department

Claims Department



José de Lara - Expert

OCEANIC RESOURCE ENGINEERING

Research & Development

Claims Evaluations

Inspections

Risk Evaluation – Software (D)

Material Testing



UNIVERSIDAD POLITÉCNICA DE MADRID
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS NAVALES



OCEANIC RESOURCE ENGINEERING

José de Lara

Research & Development: Instrumental Equipment

Claims Evaluations: Agroseguro, Adsa,...

Inspections

Risk Evaluation – Software (D):

Parametric Mooring System

Risk Evaluation System

Material Testing: CRAB PROJET

Study mechanical properties + condition of net + rope materials treated

ETSIN Model Basin:

Study, testing and research of hydrodynamic aspects of cages & shipbuilding





AREAS AND DEPARTMENTS

- UNDERWRITING**
- RISK MANAGEMENT**
- CLAIMS MANAGEMENT**
- RESEARCH & DEVELOPMENT**



MANAGEMENT OF RISKS

Objective: Minimize the adverse effects of the catastrophes that affect to the good march of the business, with the smallest possible cost.



INTRODUCTION AND FUNCTIONS

PERMANENT OBJECTIVES	INFORMATION SYSTEM	INSURANCE	ENTERPRISE OBJECTIVE
<p>To KNOW: 1) the RISKS 2) the COSTS and the FREQUENCY of the CATASTROPHES</p> <p>-----</p> <p>IMPROVE THE INSURANCE PROGRAM</p>	<p>REPORTS: 1) INSPECTION 2) TECHNICIANS ----- REPORT INCIDENT ----- ANUAL INSURANCE ACCOUNTS</p>	<p>EVALUATE THE RISKS KNOWLEDGE CLAIMS RECORD BORDERAU KOWN THE COST (INTERNAL/EXTERNAL) ADAPT THE COVERINGS</p>	<p>STRATEGIES: - INSURANCE - INVESTMENT - QUALITY SERVICES</p>
<p>ECONOMICAL INSURANCE PROTECTION</p>	<p>ANUAL SECURITY ACCOUNTS</p>	<p>CONTROL QUALITY/PRICE OF INSURANCE PROGRAM</p>	<p>RMQS®</p>



KEEP THE ACCOUNT RESULTS OF THE SECURITY

EXPENSES

Insurance premium (Tax included)

Costs non insured

- File of accidents
- File closed
- File evaluated

Expenses of prevention

Administration expenses

(Earnings on the evaluations informed)

Subtotal Economy of the Exercise

TOTAL

BUDGET

Insurance premium (Tax included)

Foreseen costs

inform of evaluations of the

Exercise

- Previous
- Presupposed
- Final

Expenses of prevention

Administration (Losses on the informed evaluations)

Subtotal Loss of the Exercise

TOTAL



APPLICABLE TOOLS

CONTROL OF THE POTENTIAL LOSSES

- Elimination of risks
- Prevention
- Reduction of losses
- Segregation of the exhibitions to them
- Separation or diversification
- Transfer over contractual to control the potential losses

INVESTMENT STRATEGY “Captive”

- Retention: financing them as ordinary losses, with reservations, loans or insurance companies “captive”
- Transfer: to the insurance or by means of contracts for the financing of losses



TYPES OF RISKS

Goods
Net yields
Responsibilities
Personals

METHODS FOR THE IDENTIFICATION

Interviews and questionnaires
Financial States
Flows of circulation of products
Visit the different risk
Know the risk



ANALYSIS OF RISKS

OBJECTIVE OF THE COMPANY:

- Benefit
- Continuity
- Stable results
- High Growth
- Human considerations
- Legal obligations

QUANTIFICATION:

- Frequency of losses
- Importance of the same ones



PREVENTION

PREVENTION

Objective: attack the risk to avoid it or to attenuate, at least, their consequences



PURPOSE

Ethics: Defense of the human life and their quality (this way in Spain LPRL)

Economic: Profitability, control of the risk (security) and management of the risk

Sociological: I respect to the goods and rights of the other ones, quality

Ecological: Protection of the nature and ecological balance



MANAGEMENT OF RISK AND PREVENTION

How the Management it looks for to identify the potential causes of loss and to put remedy, it requires a study of the risk that spreads to:

- to eliminate it (prevention)
- to compensate it or to reabsorb
- to minimize it or to reduce it
- to transfer it to the insurance



PREVENTION, PROTECTION AND MEASURES OF SECURITY.

It is convenient to specify that he/she must understand each other for:

PREVENTION: The group of activities, instruments and performance methods to avoid or to diminish damages (catastrophes) that can suffer people and the goods, with means economic technicians and legal.

PROTECTION: The group of material means that attack the risk to make it to disappear or to reduce to the maximum their consequences.

MEASURES OF SECURITY: The technical instruments in that the protection activity is summed up.



MEANS AND PREVENTIVE INSTRUMENTS

Direct or material, such as the technical measures that attack the risk (of the nonskid footwear, helmets, belts of security, gloves, or masks, until those used in the nuclear or petrochemical industry).

Indirect or immaterial for stimulating the prevention, such as:

- Economic incentives (you exempt or fiscal reductions, credits, it reduces of you prevail, etc.)
- Psychological (popularization, publicity and propaganda)
- Educational at all the levels (campaigns PRL)
- Juridical (contractual dispositions—in policies of sure - or legal—

Agreement has more than enough Plans of Answer in the event of Marine Contamination, LPRL, etc. -



INTERCOVER® PRACTICAL CASE



AQUACULTURE:

FACILITIES: BOATS & PLATFORMS, FISHFARMS & STOCK PRODUCTION

- Develop & Control the process with the farmers
- Integrated Risk Management Services

Risk Management Quality System

DESIGNED TWO PROTOCOLS:

INSTALLATION'S INSPECTION PROTOCOL. SURFACE AND DEPTH INSPECTION

**INSTALLATION'S INSPECTION PROTOCOL. INSPECTION OF SHIPS AND AUXILIARY EQUIPMENT.
HUMAN RESOURCES AND PROCESSES.**



RISK MANAGEMENT: methodology

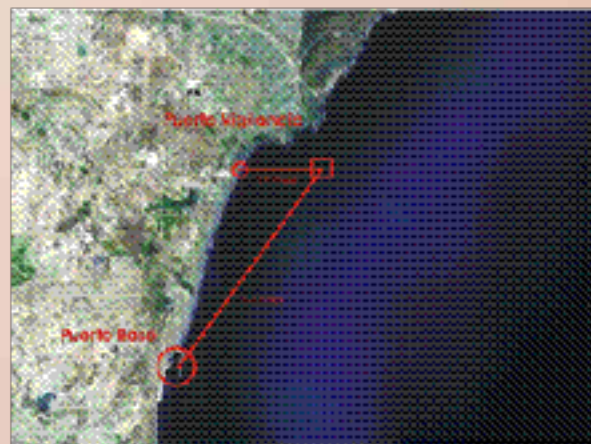
- 1. Analysis of the documentation provided by Farmers. Definition of general characteristics.**
- 2. Study and analysis of the potential risks of aquaculture.**
- 3. Realization of a protocol of inspection and audit.**
- 4. Analysis of the environment.**
- 5. Analysis and identification of the conditioning parameters of the environment.**
- 6. Identification of particular potential risks that can affect the farmers. Identification of dangers and critical points of control.**

RISK MANAGEMENT: methodology

- 7. Forecast of the Stock. Analysis and determination of the maximum density.**
- 8. Realization & Supervision of the inspections of the facilities. Realization of a photographic report.**
- 9. Detail of description the elements that compose the installation**
- 10. Evaluation of the installation. Diagnosis of the maintenance.**
- 11. Identification of deficiencies: technical, process, quality, etc.**
- 12. Evaluation of the operation plan, inspection, maintenance and security. Diagnosis of deficiencies. Economical Analysis. Annual cost of Security.**
- 13. Recommendations to palliate the deficiencies.**

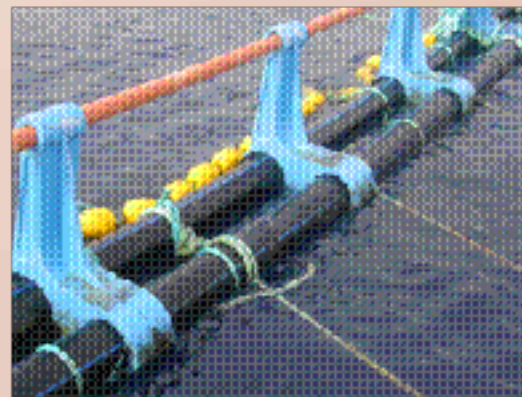
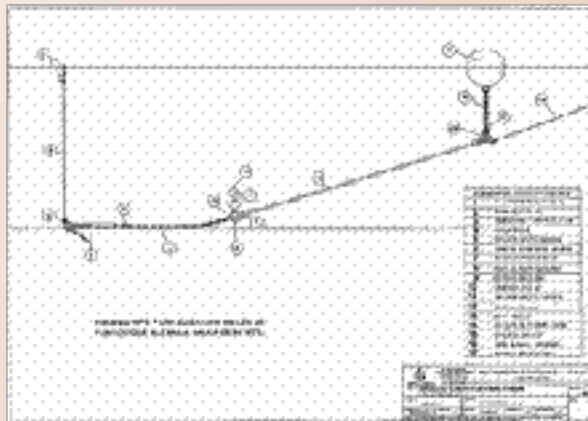
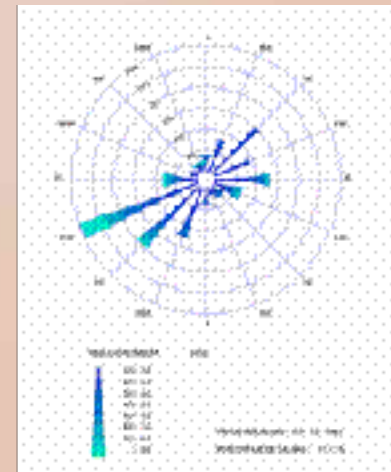
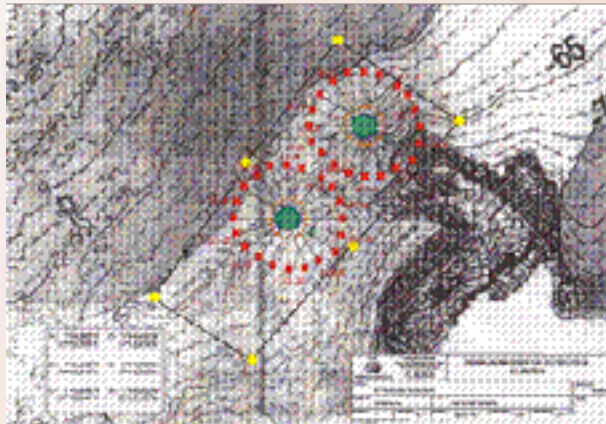


AQUACULTURE

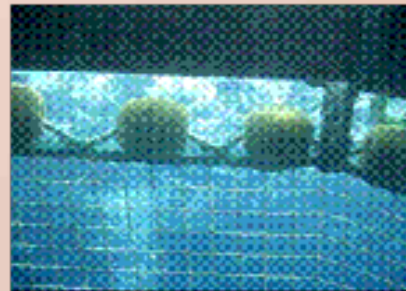
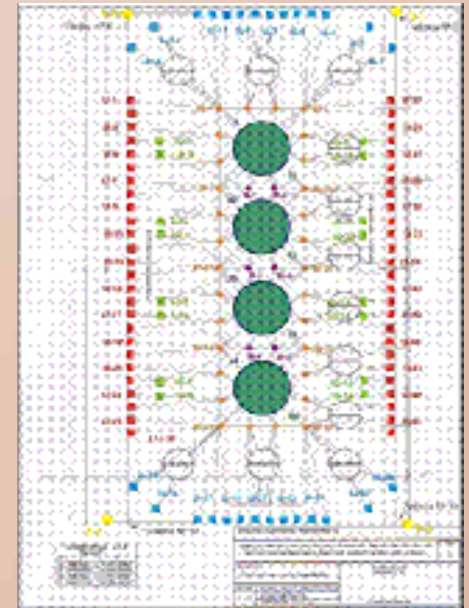
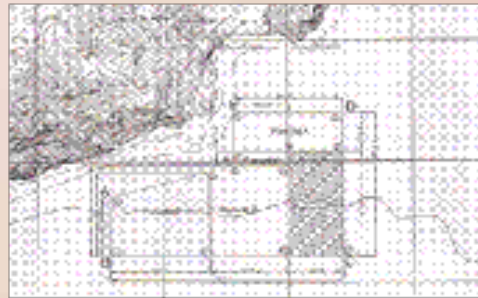


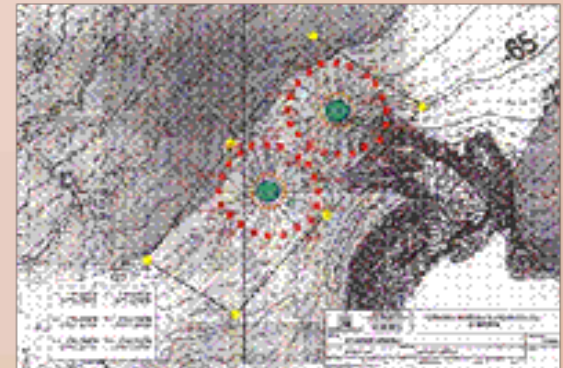


RISK MANAGEMENT



Identificarea	Tipul	Loc	Activ	Stadiul	Responsabilitate
1. Construcția fundațiilor și a zidurilor de susținere a structurilor de beton armat.	Arhitectură	Cluj	Execuție	Cluj	Cluj
2. Montajul și instalarea echipamentelor electrice și de încălzire.	Arhitectură	Cluj	Execuție	Cluj	Cluj
3. Montajul și instalarea echipamentelor de aer condiționat.	Arhitectură	Cluj	Execuție	Cluj	Cluj
4. Montajul și instalarea echipamentelor de iluminat.	Arhitectură	Cluj	Execuție	Cluj	Cluj
5. Montajul și instalarea echipamentelor de ventilație și condiționare a aerului condiționat.	Arhitectură	Cluj	Execuție	Cluj	Cluj
6. Montajul și instalarea echipamentelor de protecție împotriva incendiilor.	Arhitectură	Cluj	Execuție	Cluj	Cluj
7. Montajul și instalarea echipamentelor de protecție împotriva furtunilor.	Arhitectură	Cluj	Execuție	Cluj	Cluj
8. Montajul și instalarea echipamentelor de protecție împotriva furtunilor.	Arhitectură	Cluj	Execuție	Cluj	Cluj
9. Montajul și instalarea echipamentelor de protecție împotriva furtunilor.	Arhitectură	Cluj	Execuție	Cluj	Cluj
10. Montajul și instalarea echipamentelor de protecție împotriva furtunilor.	Arhitectură	Cluj	Execuție	Cluj	Cluj







CLAIMS DEPARTMENT

IDENTIFICATION OF THE CAUSES OF THE DAMAGES

EVALUATION OF THE DAMAGES

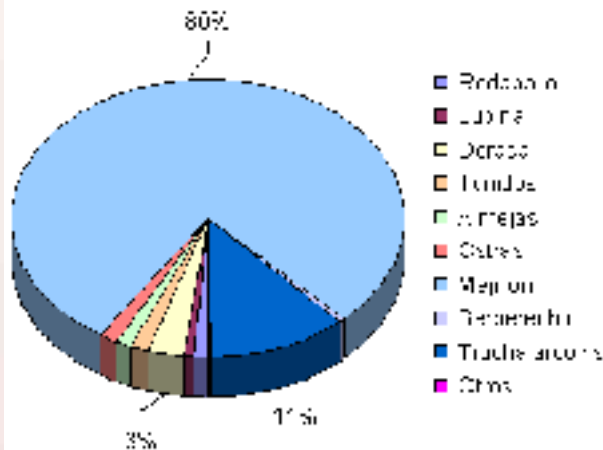
SUPPORT TO UNDERWRITERS





AQUACULTURE SPANISH MARKET

PRODUCCIÓN EN ESPAÑA EN EL 2001 POR ESPECIE (Toneladas)



SEA BREAM

TURBOT
SEA BASS

TUNA

PECES	2000	2001	2002	2003	2004
DORADA	9.241,9	9.920,7	11.628,2	12.083,9	12.848,2
RODABALLO	3.378,2	3.832,1	3.924,3	3.821,7	4.364,4
LIBINA	1.837,7	2.263,2	3.421,9	4.117,1	4.503,7
SALMÓNIDOS DEL MAR	225,5	321,2	310,0	50,0	30,2
MOLUSCOS	122,7	111,7	126,8	182,2	154,7
LENGUADO	3,1	4,7	41,8	38,7	57,2
TRUCHA	7.682,7	4.445,7	4.845,9	3.587,0	6.422,4
ANGUILA	301,2	251,9	254,9	291,5	362,2
LURRYNA	0,0	0,0	5,0	3,3	27,1
TELAPIA	0,2	2,0	16,5	127,4	31,2
RESIDUO	0,7	7,0	0,0	0,0	48,7
TOTAL	17.792,2	20.924,0	24.719,4	25.113,35	29.618,50

MILLONES

	2000	2001	2002	2003	2004
MERLUZNA	647.720,0	647.705,5	650.177,0	647.126,5	664.126,7
ALMEJAS	1.558,6	1.158,3	1.128,5	1.711,5	3.229,0
OSTRAS	4.004,5	4.365,0	4.917,8	5.116,7	4.049,6
TRUCHA	0,0	0,0	1,0	1,0	1,5
PECTÍNIDOS	9,4	109,8	2,2	0,0	0,0
BERBERECHO	7.104,2	1.167,6	9.270,9	349,7	1.162,2
QUYUNA	166,8	102,3	29,7	0,0	0,0
CHORLA	118,9	14,3	22,9	0,0	0,0
RESIDUO	27,6	14,6	16,7	10,2	12,6
TOTAL	260.722,4	258.518,2	268.985,7	251.064,77	263.275,4
TOTAL*	12.982,7	10.732,7	0.980,7	5.348,25	7.940,2

TROUT

PECES	2000	2001	2002	2003	
TRUCHA ARCOIRIS	35.000,0	38.133,7	35.381,0	31.801,3	33.113,95
TRUCHA	1.600,0	152,4	12,8	107,7	55,0
AMUILLA	145,0	100,0	80,0	1,0	0,0
ESTURIÓN	100,0	142,0	140,0	225,0	225,0
TOTAL	36.845,0	38.528,1	35.613,8	32.135,0	33.394,0





AQUACULTURE SPANISH MARKET

IRIDIÑA ARTECIERRO (DIPLOLEPIS BARKERI)



Sistemática
 Nomenclatura
 Biología
 Sistema de cultivo
 Áreas de Producción



ÁREAS DE PRODUCCIÓN



RODABALLO (PSETTA MAXIMA)



Sistemática
 Nomenclatura
 Biología
 Sistema de cultivo
 Áreas de Producción



ÁREAS DE PRODUCCIÓN



ATÓN, BIELO (CHIKARA / MYXINUS)



Sistemática
 Nomenclatura
 Biología
 Sistema de cultivo
 Áreas de Producción



ÁREAS DE PRODUCCIÓN



LIRIÑA (DIPLOLEPIS LABRAX)



Sistemática
 Nomenclatura
 Biología
 Sistema de cultivo
 Áreas de Producción



ÁREAS DE PRODUCCIÓN



DORADA (SPARUS LATRATIS)



Sistemática
 Nomenclatura
 Biología
 Sistema de cultivo
 Áreas de Producción



ÁREAS DE PRODUCCIÓN





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Thanks you for your attention

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