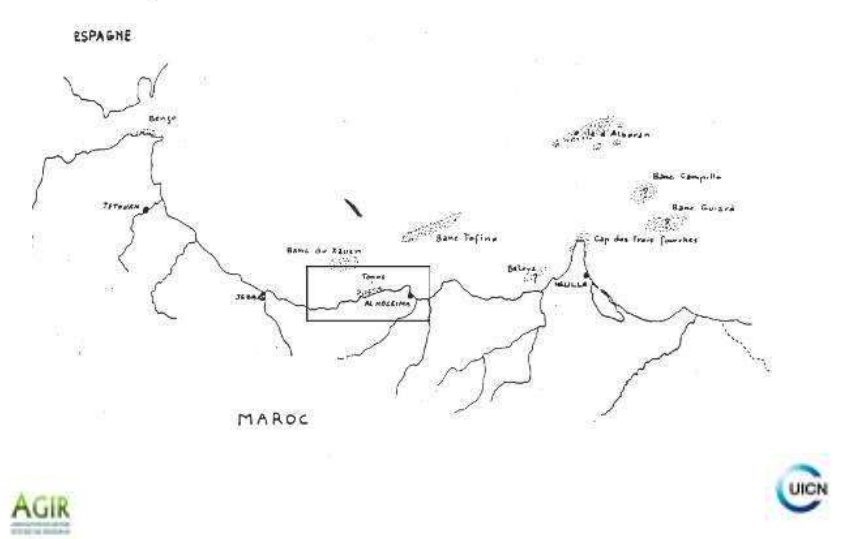


**Research and participatory planning in
the artisan fisheries sector
through the systemic and prospective
analysis for sustainability in the National
Park of Al Hoceima**

**Transversal Workshop on Spatial Based Approach to
Fishery Management
GFCM Headquarters, Rome (Italy) 6-8 February 2012
by NIBANI H « AGIR »**

Situation of the Park:

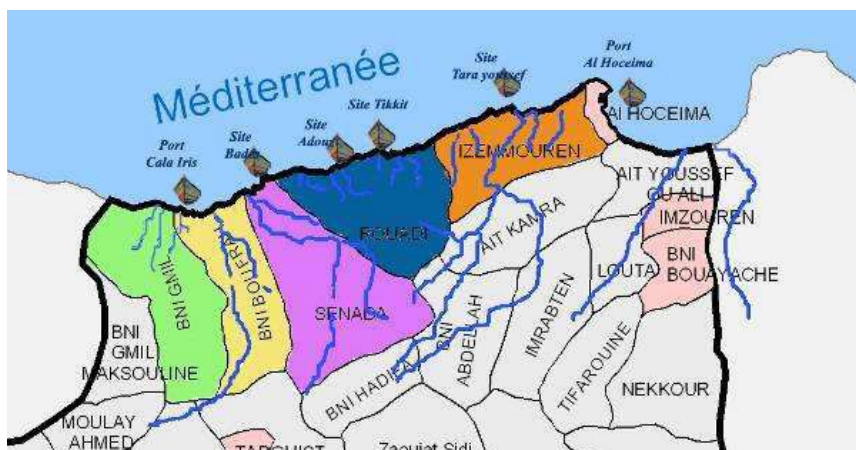


Presentation of the Park:

- The National Park of Al Hoceima "AHNP" presents a steep mountains and cliffs largely composed of a limestone massif
- The park is located on the Moroccan Mediterranean coast ,
- About 150 km east of the Strait of Gibraltar, near the city of Al-Hoceima.
- This costal park has 48,000 ha of surface , it is unique in the Mediterranean sea » Morocco » with a marine section of "19,600 ha."



Geomorphologic Context :



Research and Participatory Planning of the artisan fisheries sector through the systemic and prospective

Analysis for Durability in the National Park of AI Hoceima

Geomorphologic Context :

- Poor soil “Limestone”
- Narrow width of valleys



Socio economic context

- Low agricultural activity
- Poor access through the small and natural harbors for the 36 villages within the AHNP.
- Grand illiteracy rate
- Sudden increase young population
- Low level of qualification for the artisan fisheries activity



Consequences :

- Exercise of illegal fishing techniques in the marine protected area of the National Park of Al Hoceima (ZMPNAH). :
 1. dynamite
 2. Copper sulphate
 3. Illegal trawling.



Study objectives:

- Lead to changes in attitudes from the bottom to the top
- Focusing on the current state of conservation of natural resources,
- Enable the zoning of the marine part of the ZMPNAH
- Adjust the zoning to require the current situation
- Choose priority and strategic actions
- Implement a priority action plan
- Coordinate and ensure resource management,
- Evaluate through a maximum measurable results



METHODOLOGY OF THE STUDY

The Systemic Analysis and Prospective Sustainability

- local approach
- The systemic approach:
- Sustainability indicators
- key indicators
- Band of balance:
- Matrix structural analysis of indicators
- Amoeba and Radar diagram
- Scenario method



Participatory approach

Objective of the approach :

- To lead to changes in attitudes from the bottom to the top
- To implicate the fishermen in their own destiny



Stakeholder analysis of local and regional ZMPNAH

Analysis of the fishermen in the ZMPNAH

Contact Person:

features:

Interests and expectations:

Sensitivity and respect regarding the central aspects of the projects

Potentials and weaknesses

implications



Other Stakeholders From ZMPNAH:

Administrations

local Community

Local NGOs

Private sector

Research institutions

Media



RRA (Rapid Rural Appraisal)

1. Workshop participation (AT1): leadership training within artisan fishermen from the ZMPNAH



2. Techniques Investigation Training

Atelier 2 Recherche, Planification Participation et prospective du secteur de la pêche dans la zone marine de Parc National

d'Al Hoceima

Objective of the workshop AT2:

- Data retrieval done by the fishermen
- own Analysis
- Data validation
- Participative defining bands of balance.
- Problem of conservation of natural resources of the marine portion of ZMPNAH
- Initiation process of fishing activities zoning of the marine part of the ZMPNAH



Atelier 3 Recherche, Planification Participation et prospective du secteur de la pêche dans la zone Ras Kabdana:

Objective of the workshop AT3:

- Data retrieval done by the fishermen
- own Analysis
- Data validation
- Participative defining bands of balance.
- Problem of conservation of natural resources of the marine portion of ZMPNAH
- Discussion on the effect of the protected area of of Chaffarinas
- Discussion about a new process of fishing activities zoning of the marine part of the Zone Marine protected area of Chaffarinas



Workshop 4 AT4 Symposium Advisory involvement of artisanal fishermen in the co-management of resources of the Zone of Marine AHNP held in Al Hoceima

1. Identification of key indicators
2. Clarification and signification
3. Assessment of the sustainable value
4. sustainability indicators representation
5. Exploration and future developments in the scenario method,
6. Review of mini scenarios
7. Development of a global scenario.



Systemic approach and Participatory Diagnosis Indirect catch of the fleet of artisan

fishermen in the port of Al Hoceima in ZMPNAH:

- Distribution of fishing effort overall spatial scale in the ZMPNAH:
- Map projection and visualization of the spatial distribution of fishing effort on the ZMPNAH:
- Interpretation of the impact of fishing effort in the artisanal sector space within the ZMPNAH:

Activité	Désignation
A1	Nombre moyen de sortie par Barque par Trimestre
A2	nombre de sortie par Trimestre avec filets
A3	Nombre de sortie par Trimestre pour la pêche au poulpe

Tableau 15 : décrit la désignation des différentes activités de pêche légale au sein de la ZMPNAH



Systemic approach and Participatory Diagnosis

II. Return of the estimated results of the impact of dynamite fishing on the resources of the ZM AHNP:

1. Issue of Dynamite and copper sulfate in the ZMPNAH:
2. Role of artisanal fishers:
3. Map projection and visualization of the impact of dynamite fishing in the ZM AHNP:
4. Interpretation of the impact of Dynamite in ZMPNAH:
5. Estimate of the negative impacts of the use of Dynamite on the economic level of the ZMPNAH:
6. conclusions:

Activité	Désignation
A4	number of observations of trawlers operating at - 50 m by annual Quarter
A5	Number of illegal activities using So4Cu observed by Quarter
A6	Number of illegal activities using Dynamite observed output by Quarter

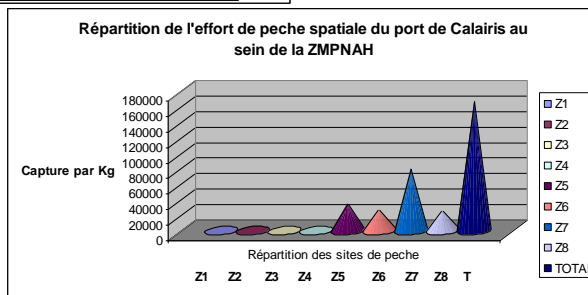
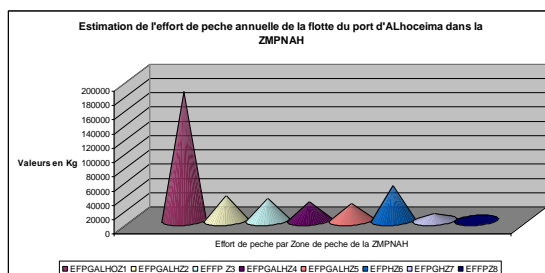
Tableau 16 : describes the designation of various illegal fishing activities within the ZMPNAH



Approche Systémique et Diagnostic Participatif

Zone 1	N. Pêcheurs	A1	A2	A3
Al Hoceima				
Tba1	6	82	15	82
Tba2	6	190	0	625
Tba3	6	100	0	119
Tba4	6	90	20	92
Tba5	6	182	0	625
Tba6	6	100	0	119
Total	36	744	35	1662
Nombre de sortie Moyenne /pêcheur		20,66666667	0,972222222	46,16666667
Total Global		266600	2480	116,6666667
Effort de Pêche Z1 « capture en kg »		37200	1750	83100

Tableau 17 : décrit comme exemple illustratif, le protocole de l'estimation indirecte l'effort de pêche du port d'Al Hoceima sur la Zone 1 pour le premier trimestre, en relation avec les activités « A1, A2, A3 ».



Indirect Results mesures and distribution of the global artisan fleet fishing effort in the ZMPNAH

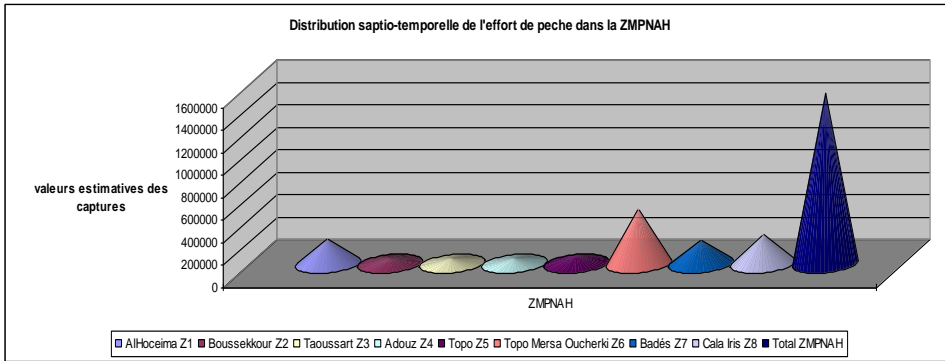
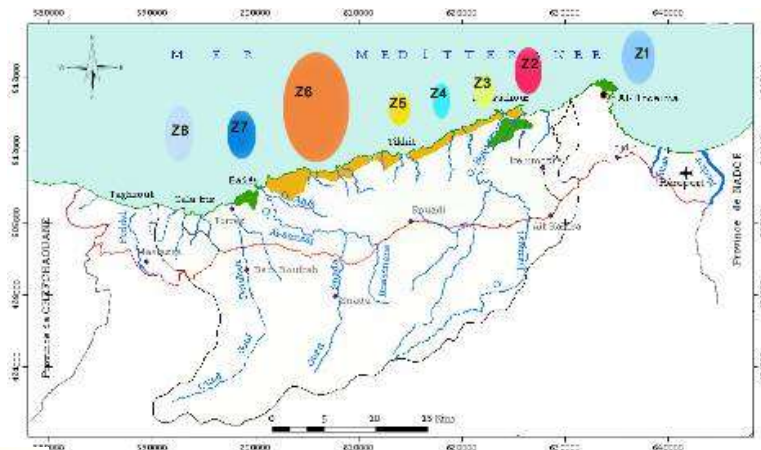


Figure 36 : Distribution of the global artisan fleet fishing effort in the ZMPNAH_



Representative map of the distribution of fishing effort overall fleet of traditional fishing in the ZMPNAH.



indirect estimation of fishing effort in illegal activities in the port of Al Hoceima

Zone 1 Al Hoceima	N. Pêcheurs	A4	A5	A6
Tba1	6	85	83	83
Tba2	6	96	94	94
Tba3	6	84	87	87
Tba4	6	95	95	95
Tba5	6	80	82	82
Tba6	6	90	90	90
Total	36	540	531	512
Nombre Moyenne d'observation par sortie /pêcheur		15	14,7	14,2
Total Global		5540	2544	3193,194
Effort de Peche Z1 « capture en kg »		55435	20436	25545

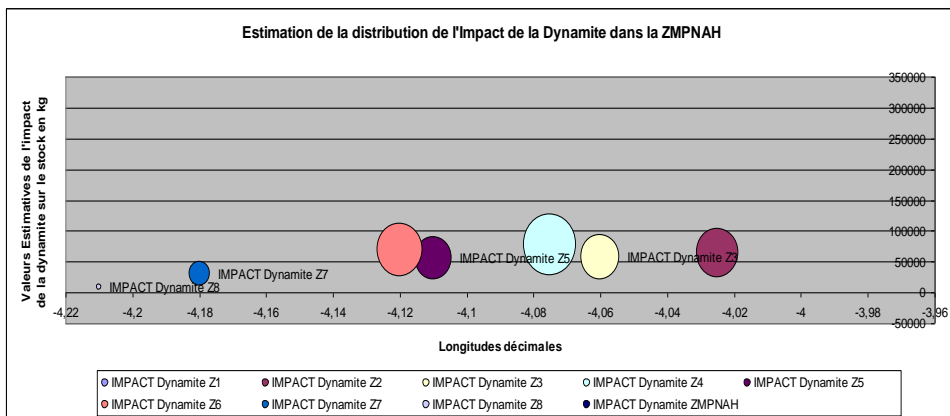
Tableau 18 : described as an illustrative example, the protocol for indirect estimation of fishing effort in illegal activities in the port of Al Hoceima on the Zone 1 for the first quarter, related activities "A4, A5, A6 , ".



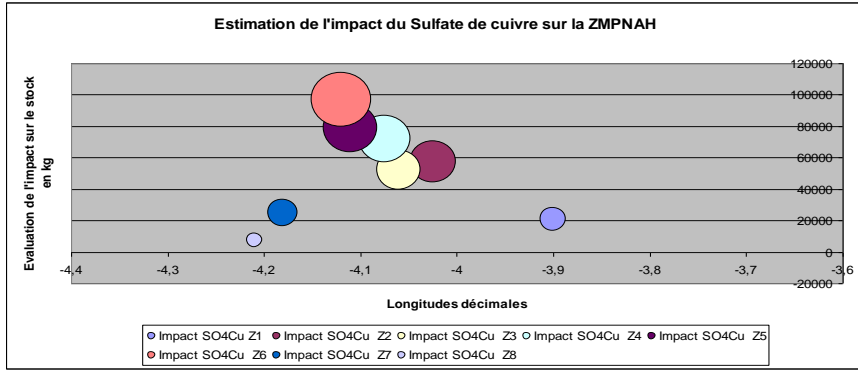
Systemic analysis and participatory research. Results of indirect measures of illegal fishing effort in the ZMPNAH



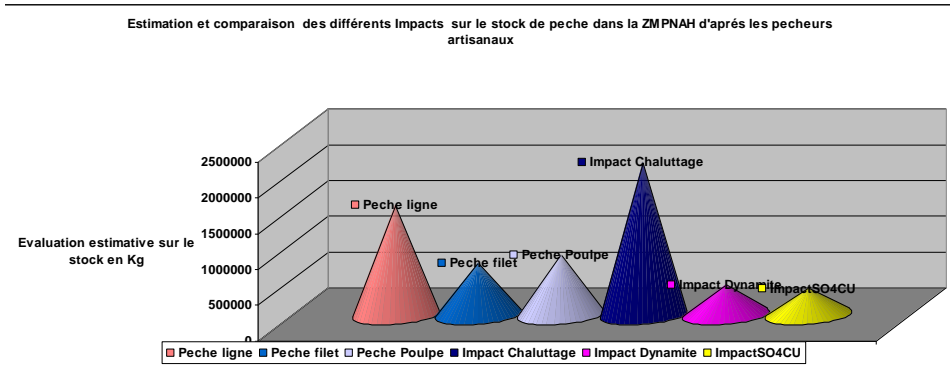
Distribution of the estimated Dynamite impact in the ZMPNAH



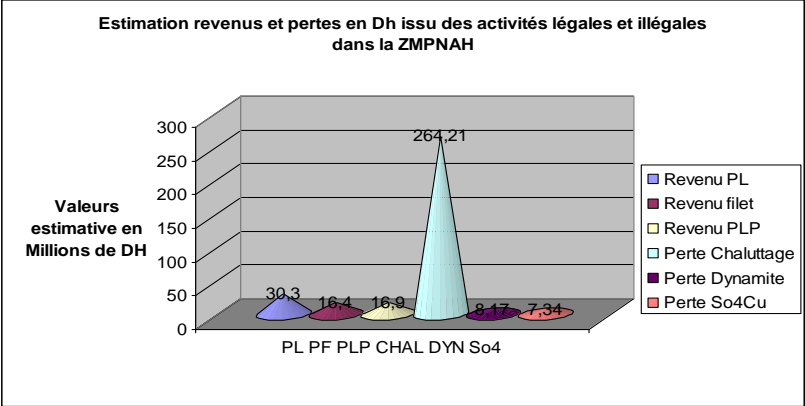
Distribution of the estimated SO4Cu impact in the ZMPNAH



Relationship between the effects of illegal trawling in the ZMPNAH compared to other activities



Economic estimate « MDH » of illegal trawling in the ZMPNAH next to other activities in the ZMPNAH:



RESEARCH PARTICIPATORY PLANNING AND PROSPECTS FOR SUSTAINABILITY IN ZMPNAH

I. Systemic approach to problems in the marine area of the ZMPNAH .

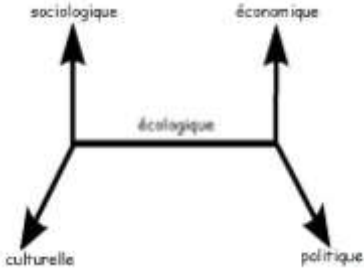
1. Approche systemic and sustainable development:

The systems approach used in this study served as a model integrating the three themes :
Environment, Economy, Society,

Support of a good technical and scientific basis:

indicators dynamically in the present, short and long term.

2. Systemic Analysis



Analysis of the structural Matrix : and Conclusions



Bande d'équilibre des indicateurs de durabilité I.D économique :

Indicateurs de durabilité économiques	Valeur en pourcentage	Minima durables	Maxima durables	Echelle de Durabilité	
1 Quantité moyenne de capture	7%	50%	70%	1	Très non durable par défaut
2 Amélioration des équipements de pêche	36%	50%	90%	2	non durable par défaut
3 Savoir faire sur les techniques de pêche	30%	50%	80%	2	non durable par défaut
4 Taux rentabilité des frais de roulement et d'entretien	40%	60%	90%	2	non durable par défaut
5 optimale de pêcheurs par Barque	60%	50%	80%	4	durable
6 Pourcentage du SMIG	36%	80%	100%	1	Très non durable par défaut

Tableau 26 : Bande d'équilibre des indicateurs de la thématique économique



Synthetic analysis and summary

A. Current situation in the Ecosociosystème
ZMPNAH

B. Situation of the global trend of
Ecosociosysteme ZMPNAH

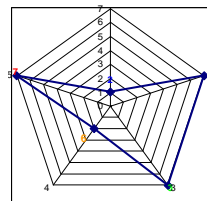
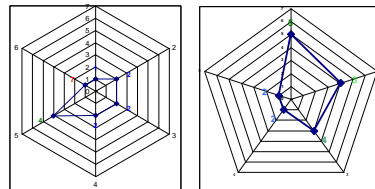
C. Situation of the global
alternative écosociosystème of ZMPNAH



Amoeba de Perception et évaluation de l'état de l'éco socio système actuelle de la ZMPNAH

presentation:

1. Perception and radar assessment of the state's current economic ZMPNAH:
2. Radar perception and evaluation of the socio-cultural status of the current ZMPNAH
3. Radar perception and evaluation of the ecological status of the current ZMPNAH:



Amoeba de Perception et évaluation de l'état de l'éco socio système actuelle de la ZMPNAH

- presentation:
1. Perception and radar assessment of the state's current economic ZMPNAH:
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 3. Radar perception and evaluation of the ecological status of the current ZMPNAH:

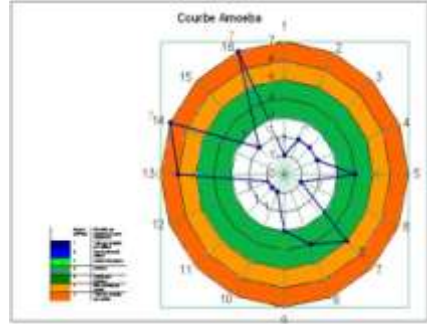


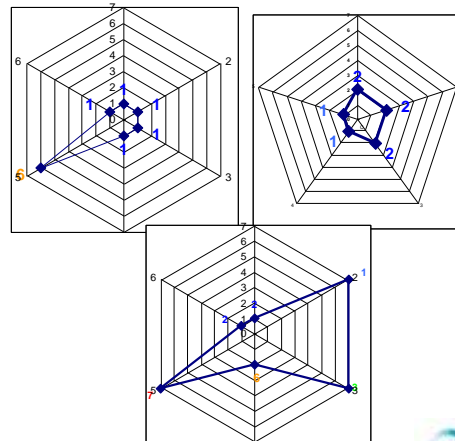
Fig 75 : Amoeba des indicateurs prioritaires actuels dans la ZMPNAH.



Trends scénarios : in the Eco socio système de la ZMPNAH

Présentation :

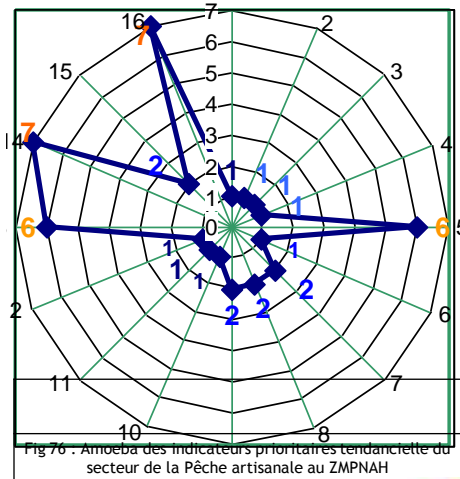
1. 1. Perception and radar assessment of the state's trend economic ZMPNAH:
2. Radar perception and evaluation of the socio-cultural status of the trend ZMPNAH:
3. Radar perception and evaluation of the ecological status of the trend ZMPNAH:



scénarios Tendanciel: de l'éco socio système de la ZMPNAH

Présentation :

1. 1. Perception and radar assessment of the state's trend economic ZMPNAH:
2. Radar perception and evaluation of the socio-cultural status of the trend ZMPNAH:
3. Radar perception and evaluation of the ecological status of the trend ZMPNAH:



RECHERCHE, PLANIFICATION PARTICIPATIVE ET PROSPECTIVE DE DURABILITE DANS LA ZMPNAH

Forecasting and scenario method :

C. Alternative Scénario : the relationship between key indicators and strategic actions of the Ecosociosystème in the ZMPNAH

1.1 Exposition of the contexte:

1.2 Level of filling

2. Interrelationship of sustainability indicators and prospective corrective actions concerning economic thematic in the bilace band :

a. Matrix structural analysis concerning the economic sustainable indicators for the firsmen community in the ZMPNAH

b. Matrix structural analysis concerning the corrective actions in the economic thematic

c Condition of futures changes in the economic theme

d Corrective action and reframing of the economic indicators inside the bad of balance .



**RECHERCHE, PLANIFICATION PARTICIPATIVE ET
PROSPECTIVE DE DURABILITE DANS LA ZMPNAH**

Forecasting and scenario method :

3. **Interrelationship of sustainability indicators and prospective corrective actions concerning socio cultural thematic in the bllace band :**
- 4 **Matrix structural analysis concerning the socio cultural thématic for the firsmen community in the ZMPNAH**
5. **b. Matrix structural analysis concerning the corrective actions in the sociocultura thematic**
6. **Condition of futures changes in the sociocultura thematic**

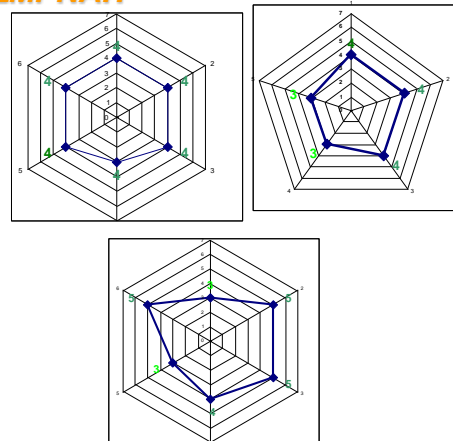


Scénario Alternatif : de l'éco socio système de la

ZMPNAH

Présentation :

2. **Perception radar et évaluation de l'état économique actuelle de la ZMPNAH:**
3. **Perception radar et évaluation de l'état socio-culturelle actuelle de la ZMPNAH :**
4. **Perception radar et évaluation de l'état écologique actuelle de la ZMPNAH :**



Scénario Alternatif : de l'éco socio système de la ZMPNAH

**Perception radar et
évaluation du
Scénario Alternatif
de l'état économique
, socio-culturelle et
écologique actuelle
de la ZMPNAH .**

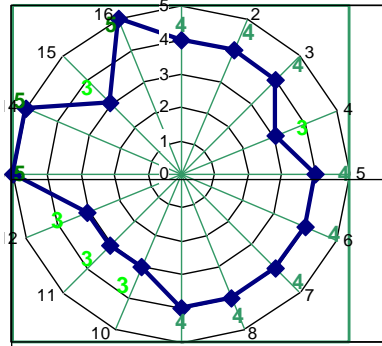


Figure 77 : Améba des indicateurs prioritaires traités par le plan d'action de Pêche artisanale au ZMPNAH



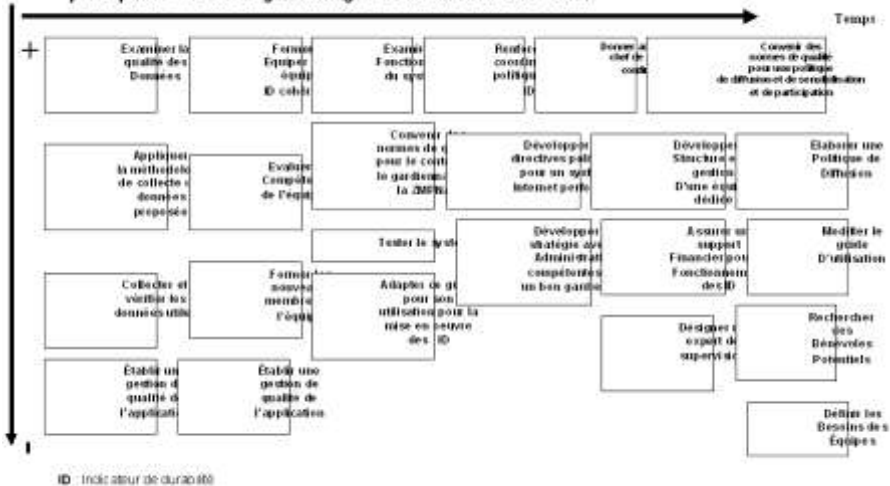
Zonage du PNAH et proposition d'aménagement des pêches تطبيق استنزاف ومقترح التهيئة للتصيد البحري



<p>التطبيق الجهوي البحري</p> <ul style="list-style-type: none"> ■ محمية طبيعية ذات شاطئ طبيعي ■ محمية لبحر ■ محمية لبحر طبيعي ■ منطقة القارية لتسيير الموارد الطبيعية 	<p>Zonage de la partie terrestre</p> <ul style="list-style-type: none"> ■ Réserve naturelle intégrale terrestre ■ Réserve des ressources naturelles ■ Sanctuaire naturel terrestre ■ Zone terrestre de gestion des ressources naturelles 	<p>● مركز قروي</p> <p>● أولاد س راجسية</p> <p>● Chief lieu</p> <p>● Principaux douars</p>
<p>التطبيق الجهوي البحري</p> <ul style="list-style-type: none"> ■ محمية طبيعية للتطبيق ■ محمية لبحر طبيعي ■ المنطقة القارية لتسيير 	<p>Zonage de la partie marine</p> <ul style="list-style-type: none"> ■ Réserve naturelle intégrale ■ Sanctuaire naturel ■ Zone marine de gestion des ressources naturelles 	<p>■ proposition de zone statore d'orientation d'activité</p> <p>■ محمية لبحر استنزاف الموارد البحرية</p>



Annexe 20 : Figure 79 . Relation des activités de gestion participative « suivi et gardiennage » de la ZMPNAH 2010- 2012.



Recommendation for the management plan of the MPA in the south of the Mediterranean :

1. Political and financial support to the actions led from the bottom to the Top in the south Mediterranean
2. To support the Action plan proposed by fishermen and AGIR as a pilote action in the South of the Mediterranean
3. To support specific project based permitting renew and updating the results of the studies based on the same methodology in the south Mediterranean "Demultiplication of AGIR Experience in the south"
4. Combat illegal trawling fishing in the MPA , by encouraging projects as the artificial reefs while studying their impact,
5. To Increase vigilance against dynamite and illegal fishing.
6. Support and enhance a Greater involvement of artisanal fishermen in the new management plans and zoning of MPA_, current and future management programs
7. Support, train and qualify the artisanal fishermen in their involvement in the self-management processu MPA_.



**Recommendation for the management plan of the MPA
in the south of the Mediterranean :**

8. Mobilize public support for greater involvement in marine environmental protection
9. Value and encourage attachment and maintenance of artisanal fishing
10. Guarantee of sustainability know-how, as a means of conserving resources.
11. Support gender mainstreaming within the fishing community
12. Support specific programs to improve their precarious family situation .
13. Reorganization of the fishermen in cooperatives in order to ensure better economic management of the resources.
14. To take the necessary measures to ensure the preservation of fisheries resources, From sensibilization to Dissuasive actions

