

QUALITY OF LIFE AND LIVING CONDITIONS IN SMALL-SCALE FISHERIES IN ITANHAÉM-SP

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ABSTRACT

New contributions to fisheries manager have been discussed from approaches about well-being and quality of life. In Brazil, quality of life (QOL) and quality of living conditions (QLC) were evaluated in rural and aquaculture producers, with objective results that could also to contribute in small-scale fisheries assessments. This study aimed to know the distance between looks from fishermen and technicians in the municipality Itanhaém/SP in fishing activity using four dimensions: social, environmental, economics and governance from a qualitative approach. The governance dimension was the most critical and unsatisfactory, resulting in lower quality of life (IQOL) and living conditions (IQLC) indicators, emphasizing the discussion of the need for further studies on the institutional processes interfere with the welfare of fishing community in the region.

Key words: wellbeing; indicators; subjective; satisfaction; fishing.

QUALIDADE DE VIDA E CONDIÇÕES PARA SE VIVER NA PESCA ARTESANAL EM ITANHAÉM-SP

RESUMO

Novas contribuições à gestão pesqueira vêm sendo discutidas a partir de abordagens sobre bem-estar e qualidade de vida. No Brasil, a qualidade de vida (QV) e condições para se viver (QCV) foram avaliadas para comunidades rurais e aquicultores, com resultados objetivos que poderiam contribuir também à avaliação da atividade pesqueira de pequena escala. O presente trabalho buscou conhecer o distanciamento entre os olhares de pescadores e técnicos do município de Itanhaém/SP sobre a atividade pesqueira em quatro dimensões: social, ambiental, econômica e governança, a partir de uma abordagem qualitativa. A dimensão governança foi a mais crítica e insatisfatória, implicando no menor indicador de qualidade de vida (IQV) e condições para se viver (IQLC), ressaltando a discussão sobre a necessidade de novos estudos sobre como os processos institucionais interferem no bem-estar da comunidade pesqueira da região.

Palavras-chave: bem-estar; indicadores; subjetividade; satisfação; pesca.

INTRODUCTION

Starting from a new look at the management of small-scale fishing activity (WEERATUNGE *et al.*, 2014), the debate arises about how the consequences experienced of socioeconomic and institutional processes and dynamics have had an effect on the well-being and quality of life of human groups dependent on fishery resources (COULTHARD *et al.*, 2011; COULTHARD *et al.*, 2015). Despite the history of predatory exploration and recurring claims about present and future critical ecological conditions of fishing (FAO, 2012, 2014), it is on land that the effects of this crisis are experienced by fishermen (CARDOSO, 2001) amid social conflicts highly influence by processes outside their control (BENÉ *et al.*, 2010; COULTHARD *et al.*, 2011). In this setting, the contexts of socio-environmental vulnerability, poverty, marginalization (ALLISON and HOREMANS, 2006) and inequality (BENÉ *et al.*, 2010; FABINYI *et al.*, 2013) are accentuated, becoming barriers to the sustainable development of the activity.

Studies on social welfare developed over the last two decades, show approaches that contribute to the construction of Public Policies and research related to communities with a high dependence on natural resources (MILNER-GULLAND *et al.*, 2014). Social well-being is a multidimensional concept and can be evaluated at different scales, from individual to large-scale socioecological systems (CAMFIELD, 2006; MCGREGOR, 2007), and is divided into three dimensions: material, relational and quality of life (subjective).

In the view of D'AGOSTINI and FANTINI (2008), in an evaluation of Quality of Life, it is necessary to differentiate the concepts of Quality of Life and Quality of Living Conditions. Quality of Life is the subjective result of experience regarding the satisfaction of living in certain conditions, while Quality of Living Conditions qualitatively evaluates the material and objective matter of the available institutional, social and economic structures.

For D'AGOSTINI and FANTINI (2008), it is possible to evaluate the quality of life from socio-environmental indicators, such as the Index of the Quality of Life (IQOL) and the Index of the Quality of Living Conditions (IQLC). These indicators use social, environmental, cultural and economic conditions, with an inseparable character, but distinguishable from the relevant conditions in human social organization, to achieve the purpose of satisfaction in living (ALVES *et al.*, 2013).

The IQOL Indicator refers to measuring satisfaction under the living conditions available or promoted in the regional context, while the IQLC evaluates the conditions under the eyes of managers and technicians, where the opportunity arises to separate the two concepts and differentiate between them in degrees. This approach allows the participants, together with project managers, to define the aspects they consider important for their satisfaction with life, increasing local participation and involvement in the construction of projects and management of the fishing activity. The socio-environmental indicators of the D'AGOSTINI and FANTINI method (2008) made it possible to identify behaviors, processes, trends and variations on marine farms in Florianópolis, SC, Brazil (SAIDY and D'AGOSTINI, 2011).

In Brazil, approaches such as this have not yet been used for evaluating fishing activity, requiring that research projects use and adapt the concepts, contributing to the methodological framework under construction. Such assessments need to meet and respect the ecological and economic factors of fishing in a comprehensive way, and also to include the social, cultural and institutional dimension; subjective aspects often neglected in assessments of fishing activity.

In this sense, based on the assumption that the conditions experienced affect the subjective satisfaction of fishermen in the exercise of fishing activity, these being able to be identified and evaluated in pre-established dimensions, and that productive inclusion programs affect the living conditions and, consequently, the quality of life in the fishery, the present work had the objective of evaluating, through indicators, the living conditions and

the quality of life of two groups of artisanal fishermen of the municipality of Itanhaém-SP, where one of the groups integrated institutional programs to improve the quality of life and is under a specific management context.

Secondly, knowing the distance between technicians/managers and fishermen's views regarding the quality of life of the fishing communities from a local scale perspective, and what would be the dimensions influenced by the institutional programs and the most relevant dimensions for the promotion of good living conditions.

METHODS

The research was carried out with small-scale fishermen, in the city of Itanhaém, São Paulo, Brazil (24°11'01"S; 46°47'22"W), in two fishing villages, Cibratel II and Gaivotas. Itanhaém is located on the central coast of the State of São Paulo, in the region of Baixada Santista, with approximately 23 km of coastline. There are protected marine areas in the region such as the Coastal-Marine Environmental Protection Area (APAMLC), created in 2008.

Interviewees were divided into two groups: Group 1 (G1) was composed of 9 out of 12 fishermen who participated in federal government institutional programs that promote opportunities for income increase and productive inclusion, such as the Food Acquisition Program (PAA) and Program Fairs (PF) in the municipality, and 10 fishermen of Group 2 (G2) that are not covered by these programs.

The study used the methodological framework proposed by D'AGOSTINI and FANTINI (2008), through two indicators of Quality of Life (IQOL) and of Living Conditions (IQLC). These indicators are results of different views concerning the same aspect, in a given context.

The research is part of the project "Study of small-scale fisheries through ethnoecological approaches and social development and quality of life" of the Fisheries Institute of São Paulo/SAA-SP.

A quantitative approach was used to contextualize fisheries and programs in the municipality, combining semi-structured interviews (VIERTLER, 2002), consulting secondary data, observation, and participatory analysis, as recommended by D'AGOSTINI and FANTINI (2008). Professionals that make up important institutions for the development of small-scale fishing in the municipality were consulted, as well as PAA and PF. Among them were the manager of the Municipal Food Bank (responsible for PAA and PF), a technician in fisheries and rural extension (CATI), the then manager of the Coastal-Marine Environmental Protection Area (APAMLC), and the president of the Z-13 Fishermen's Colony.

In this work, the aspects developed and tested by PICCOLO *et al.* (2015) for small-scale fisheries were used. Forty-three ($n = 43$) aspects were grouped into four dimensions: Social ($n=14$), Environmental ($n=9$), Economic ($n=9$) and Governance ($n=11$), as shown in Table 1. The indicators used for evaluation were:

IQOL - Index of the Quality of Life; IQLC - Index of the Quality of Living Conditions; the partial indicators for technicians, IEnC - Index of the Environmental Conditions; ISoC - Index of the Social Conditions; IEcC - Index of the Economic Conditions; IGvC - Index of the Governance Conditions; and the partial indicators for fishermen, IEnS - Index of the Environmental Satisfaction; ISoS - Index of the Social Satisfaction; IEcS - Index of the Economic Satisfaction ; IGvS - Index of the Governance Satisfaction.

Each aspect was scored from 1 to 10 and the qualitative classification of satisfaction status or quality related to the aspect was made according to the type of questionnaire used. For the fishermen, the questionnaire to evaluate Quality of Life (QOL) was used, while for managers and technicians, the Quality of Living Conditions (QLC) questionnaire was used as represented in Table 2.

After obtaining the interview scores, we calculated the distance of the aspects (δ deviations, defined as $1-Z$, where Z is the score attributed to each aspect divided by 10) and the partial indicators of each dimension. The reference values described below, as used by D'AGOSTINI and FANTINI, (2008), were considered. The number of aspects with large deviations from ideal conditions (n), distances ≥ 0.7 in each dimension, and no difference of importance (weight, w) between the evaluated

aspects was considered, considering r equal to 2, based on the equation of D'AGOSTINI and FANTINI (2008):

$$ICi, ISi = 1 - \left(\sqrt[r]{\sum_{i=1}^n (d_i)^r \cdot w_i} \right)^{1-n/N} \tag{1}$$

From the partial indicators it was possible to calculate the Index of the Quality of Life (IQOL) and the Quality of Living Conditions Indicator (IQLC):

$$IQOL = ISoS^{0.25} \times IEnS^{0.25} \times IEcS^{0.25} \times IGvS^{0.25} \quad IQLC = ISoC^{0.25} \times IEnC^{0.25} \times IEcC^{0.25} \times IGvC^{0.25} \tag{2}$$

Partial indicators were discussed from the point of view of the studied dimensions and the final indicators were compared to each other as well as to the municipal human development (IDHm) and social inequality (GINI Coefficient) indexes.

RESULTS

The PAA is a program to reduce food insecurity in the country, which allows artisanal fishermen to access the public purchasing market to commercialize their products. In Itanhaém, according to the rules of the PAA, registered fishermen can supply up to 500 kg of fish per year, of species selected by the manager,

Table 1. Matrix of the aspects grouped by dimension.

Dimensions	Aspects
Social	a) access to health care; b) exposure to drugs and alcoholism; c) painful work; d) access to formal education; e) access to vocational training in fisheries; f) housing conditions; (g) community infrastructure; h) security and fear of violence; j) social connections, leisure and use of time; k) religious practice; l) identification with the lifestyle; m) gender relations; n) freedom.
Environmental	(a) pollution (water quality); b) fishery production; c) illegal and predatory practices; d) fishing rejection; (e) accidental catch; f) fishing waste; g) fishing material waste; h) biological diversity; i) basic sanitation.
Economic	a) purchasing power and wealth generation; b) income alternative; c) access to supplies; d) autonomy in marketing; e) logistics; f) aggregation of value; g) access to credit; h) access to social programs; i) access to closed insurance.
Governance	a) society's perception of the fisherman; b) expectation of the activity's future; c) participation in representative entities; d) knowledge and participation in Fisheries Management; e) Fishing Territories and Conservation Units; f) Conflicts over territory; g) Local institutions; (h) fishing laws; (i) fishing inspection; j) fishing extension; k) access to information.

Table 2. Quali-quantitative classification of the state of well-being of one aspect.

(Inquiry Aspects)	Degree of satisfaction of the professionals and participants consulted regarding the aspect in question									
QOL	Very Unsatisfied		Unsatisfied		Indifferent		Satisfied		Very Satisfied	
QLC	Unsustentáveis		Tolerable		Regular		Good		Great	
Score	1	2	3	4	5	6	7	8	9	10

corresponding to R\$ 5,500.00 per year. In this specific case, the local PAA receives hake (*Sciaenidae*), which is intended for people in situations of social vulnerability. The PF involves the revitalization and equipping of fish marketing points on the beach. The activities of the PAA began in 2008, with a low adhesion of the fishing community, due to conflicts with the management of the Fishermen's Colony; the representative entity of fishermen in the municipality. The PF started activities in 2011, covering fishermen who were already participating in the PAA.

In the fishermen's view, the social, environmental and economic dimensions presented approximate values, from regular to satisfactory, and the behavior of the partial indicators (Table 3 and Figure 1) for G1, IECs > IEnS > ISoS > IGvS (assigned values of 0.64; 0.63; 0.49; 0.14, respectively), while for G2, IEnS > IECs > ISoS > IGvS (0.75, 0.55, 0.49, 0.05, respectively), where governance had a negative evaluation in both groups, when compared to the other dimensions. Although the results of ISoS, IEnS, IECs partial indicators are higher than their corresponding IQOL, the IGvS negatively affects the final indicator and makes the development of the other dimensions less efficient for a desirable state (Figures 1 and 2).

For the fishermen, the aspects with scores farthest from the ideal, despite being in different dimensions of evaluation, showed in the discourse a high relation to each other. According to ALVES *et al.* (2013), the classification and construction of indicators passes through the first order aspects (determined by a single dimension), which are explained by the second order aspects (which may be present in more than one dimension), and are related to the respective aspects which compose the questionnaire, concluding that the context determines their relative importance more than the very nature of the aspects.

Among fishermen, G1 presented a higher IQOL (0.40) than G2 (0.31). While the technicians presented a higher IQLC value (0.45) than the IQOL for both groups. All the indicators studied were smaller than the IDHm and approximated the Gini Coefficient for the municipality of Itanhaém in 2010 (PNUD, 2010) (Figure 3).

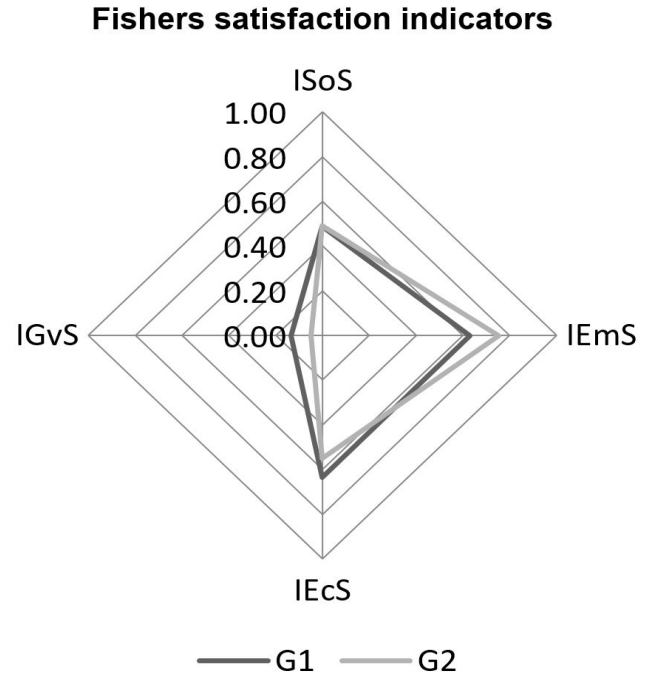


Figure 1. Values of Partial Indicators of Satisfaction by Dimension of G1 and G2.

Table 3. Partial Indicators of Satisfaction by fishermen group (G1) and (G2), Technicians, Index of the Quality of Life (IQOL) and Living Conditions Indicator (IQLC).

Fisher	G1					G2					Technicians				
	ISoS	IEnS	IEcS	IGvS	IQOL	ISoS	IEnS	IEcS	IGvS	IQOL	ISoC	IEnC	IEcC	IGvC	IQLC*
1	0.47	0.63	0.65	0.23	0.46	0.60	0.86	0.70	0.13	0.47	0.64	0.76	0.61	0.23	0.51
2	0.48	0.79	0.54	0.19	0.44	0.51	0.64	0.65	0.14	0.41	0.39	0.75	0.46	0.05	0.29
3	0.45	0.79	0.54	0.19	0.44	0.41	0.72	0.46	0.02	0.23	0.43	0.69	0.46	0.18	0.40
4	0.48	0.89	0.69	0.07	0.38	0.59	0.66	0.63	0.04	0.31	0.45	0.82	0.32	0.50	0.49
5	0.43	0.89	0.69	0.07	0.37	0.47	0.70	0.64	0.04	0.30					
6	0.52	0.89	0.69	0.07	0.39	0.51	0.75	0.60	0.05	0.32					
7	0.51	0.64	0.65	0.09	0.38	0.55	0.80	0.58	0.04	0.32					
8	0.51	0.64	0.65	0.09	0.38	0.41	0.89	0.47	0.02	0.23					
9	0.60	0.86	0.70	0.13	0.47	0.46	0.79	0.41	0.02	0.23					
10						0.44	0.70	0.51	0.02	0.24					
11						0.44	0.77	0.39	0.02	0.23					
AVERAGE	0.49	0.63	0.64	0.14		0.49	0.75	0.55	0.05		0.48	0.76	0.46	0.24	
POTENCIAL	0.84	0.89	0.89	0.61		0.84	0.93	0.86	0.47		0.83	0.93	0.82	0.70	
IQOL	0.40					0.31					0.45				

*IQLC Technicians: (1) Manager PAA/PF; (2) CATI Extensionist; (3) APAMLC Manager; (4) Fishing Colony President.

Partial indicators of Technical satisfaction

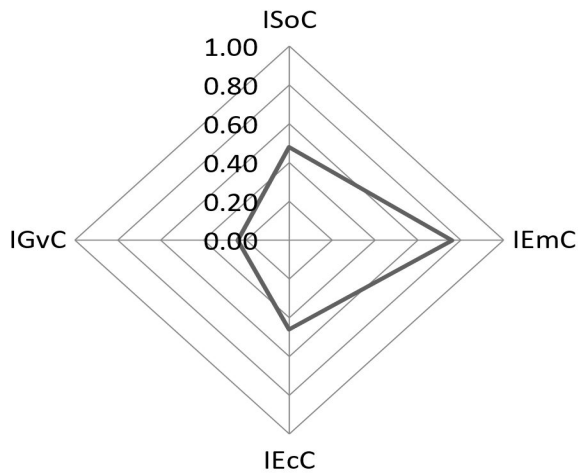


Figure 2. Values of Partial Indicators of Technician Satisfaction.

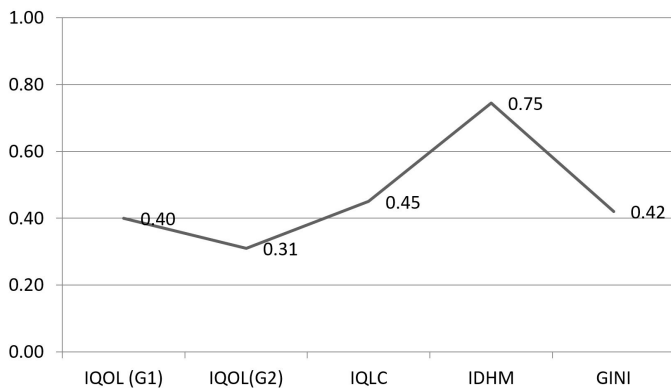


Figure 3. Indicators of quality of life, living conditions, development, and social inequality in the city of Itanhaém, São Paulo, Brazil.

DISCUSSION

For D’AGOSTINI and FANTINI (2008) and ALVES *et al.* (2013), quality of life depends not only on living under good conditions, but also on the fact that dimensions are balanced as long as there are aspects that make it difficult to achieve good states of satisfaction, others, that may be well evaluated cannot be fully enjoyed, since the manifestation of this good quality is impacted by what is bad.

This dynamic of the satisfactory or good being impacted by the unsatisfactory or bad is emphasized by the adopted methodology itself, since the applied conceptual and mathematical model fully considers the occurrence and regularity of the greater distances of the ideal condition when carrying out the consideration of the aspects that result in the individual or collective partial indicators, even if different weights are not assigned.

The difference in fishery and technician gaps was also observed in the assessments by D’AGOSTINI and FANTINI (2008), and

SAIDY and D’AGOSTINI (2011) on the highest value of IQLC, and even without discrepant differences between the IQOL and IQLC, the authors suggest that the living conditions proposed by the technicians were not directly translated as an improvement of the quality of life of the evaluated rural producers and maricultures.

The detection of differences in the same dimensions and the same aspects between fishermen and technicians is fundamental for the discussion of the quality of life. According to D’AGOSTINI and FANTINI (2008), it is in the distance from the state perceived as ideal that the possibilities for building plans that increase the quality of life emerge. This result goes beyond the final evaluation of quality of life, and enhances the importance of the choice of aspects.

The technicians and producers do not need to present the same opinions on the aspects, however, the promoters of change and their institutions, in order to have coherence in their actions, need to recognize in one another a similar condition and yet, subjectively different in the evaluation of the distinction of meanings in a system of interests (D’AGOSTINI and FANTINI, 2008, SAIDY and D’AGOSTINI, 2011).

Even among the technicians, there were differences in the individual partial indicators (Table 3). Although they had a good general knowledge of the available conditions, this difference in evaluation was related to the management scale of each professional. The technicians who developed actions within a regional scope, such as the CATI extension officer (IQLC 0.29) and the APAMLC manager (IQLC 0.40), carried out a more careful evaluation in all dimensions. They recognized the origin of local conflicts in problems common to fishing activity in all municipalities, especially in the shortcomings of governance, which corroborates with D’AGOSTINI and FANTINI, 2008; who expect a more judicious view of the technicians on the available living conditions due to their capacity to recognize the demands.

However, the program manager and the President of the Fishing Colony, acting at a local level, presented more positive opinions on the social and governance dimensions respectively; showing that they believe that there are direct consequences on the fishermen’s quality of life as part of the results of their work, and these distances determined the highest IQLC value in relation to the IQOL of the two groups of fishermen studied.

The partial economic indicator (Index of the Economic Satisfaction - IEcS) indicated satisfactory consequences of the material increase and access to the social benefits of institutional programs in the fishermen’s quality of life, obtaining the best value for the G1 IEcS. The same was observed among the municipalities evaluated by PICCOLO *et al.* (2015), which is a relevant result especially for moments of recession. It was verified that the aspects related to the direct and indirect benefits of participation in the programs are relevant. Significant opportunities were only obtained from the validation of the professional, such as access to closed insurance and social programs, the existence of income alternatives (where the PAA was considered as such for local fishermen although it is not characterized as a pluriactive practice), access to credit, aggregation of value, and purchasing power. BELTON and THILSTED (2014) indicated the same benefits of program participation as relevant to rural producers

for times of economic instability, and SEN (2000) considers that only the already-focused support has the capacity to change the behavior and economic situation of the individual institutional programs. The other aspects of this dimension, evaluated as unsatisfactory, require their improvement from technical assistance, construction of networks, and social organization for the productive inclusion of fish in other markets of the municipality or region.

The environmental dimension was the best score for both technicians and fishermen while the social satisfaction partial indicator (Index of the Social Satisfaction - ISoS) had the same score for both groups of fishermen evaluated, showing that by the adopted approach, income increase programs do not influence the aspects currently considered most unsatisfactory in this dimension.

In the social and environmental dimensions, some aspects considered satisfactory by the fishermen did not necessarily correspond to a good quality of living conditions. The lack of access to certain public services in the community has led fishermen to develop local strategies to fill the gap where necessary, even if the practices adopted do not correspond to good environmental practices; such as burning unrecycled fishing waste, or fishing waste that were returned to the sea by fishermen. The unsatisfactory aspects of low productivity and predatory systems have already been described for the municipality and region (BEGOSSO, 2001; GRAÇA-LOPES *et al.*, 2002, MENDONÇA and MIRANDA, 2008; NAMORA *et al.*, 2009).

On the other hand, when the poor condition of the aspect cannot be overcome by the community, especially in the social dimension, the supposed state of satisfaction was derived from the suppression of aspirations and needs, which can weaken its social capital. A similar phenomenon was described by QIZILBASH (2006) as the adaptation to the problem. This was evident for education, where the low level of schooling in the past was a problem to the community, but fishermen learned to live with this deficiency to the point of not observing the need to improve the aspect. The same for housing conditions and community infrastructure. Education and health, which are the most unsatisfactory aspects for fishermen, show the best accuracy of IQOL analysis when compared to the IDHm, which has a good evaluation for the municipality (PNUD, 2010), but does not meet the needs of this human group.

The social dimension in the fishermen's discourse was influenced by the weak (transverse) governing skills between fishermen and institutions, where their life could be better related to health and professional qualification; for example, if there were diagnoses and programs that identified and supplied their needs. Governance was the limiting dimension for the development of quality of life and living conditions for fishermen, clearly reflecting the conflicts between fishing management scales and users, proven by the large distance from the ideal state in this dimension.

In the comparison with management indicators commonly used in Brazil, the IQOL (G1; G2) and IQLC were lower than the IDHm indicator and close to the Gini coefficient, the latter indicating the income inequality, distancing itself from the meaning of the satisfaction assessment (Figure 3). The best IQOL (G1) achieved in this analysis, equivalent to 0.40, was below an average value and was close to the IQOL found by PICCOLO *et al.*, (2015) in

fishing communities of the city of Praia Grande (0.41); which also had governance as the worst scoring dimension.

In the classification of human development, the municipality of Itanhaém is classified as high development (IDHm 0.700 - 0.799), and occupies the 648th position among Brazilian cities in this classification. The IDHm is a synthetic index that takes only three areas into account: education, health (having only longevity as a parameter), and income. It elevates the focus to the people and the difference of the Gross Domestic Product (GDP); a productive evaluation for income-based development (PNUD, 2010).

The artisanal fishing communities in Brazil developed in a historical context of deficiency and instability of representation in public policies (DIAS-NETO, 2003). In fisheries, conflict resolution and the identification of territoriality are often reported informally, where geographical boundaries are flexible, and decisions are made on an individual, family or community scale, in the absence of formal institutions (BEGOSSO, 2001, 2004; MOURA, 2012).

In this discussion, the satisfaction of each institution varied according to the fisherman's experience in having access to services or knowledge about the function of the Institutions. The PAA/PF manager is recognized as the main representative of the G1 professionals; since these programs, on a local scale, have made this exchange possible due to their proximity between the institution and fishermen.

Satisfaction over a certain aspect is culturally variable, and it has an intrinsic relationship with trade-offs and the fisherman's ability to live as he deems fit. The trade-off reflects the relational state of well-being considering their social relationships that emerge in interconnections, between fishermen, institutions and forms of action, like agents; especially in the construction of strategies (COULTHARD, 2012). According to SEN (2000), the agent is all that is involved in causing a change with its free and rational action. In COULTHARD (2012) the different configurations of the agent may have the ability to connect resilience to different levels of the system in times of negotiation between participants.

COULTHARD and BRITTON (2013) observed in Northern Ireland fishing communities a higher influence of the State on fishing activity and discussed how the top-down process was frustrating, to which fishermen are subjected. Meanwhile JOHNSON and PÁLSSON (2015) described the same dynamics for Lake Winnipeg, Canada, on the hierarchical decision-making process; however, there the fishermen also recognize the importance of the State in regulating activities, distancing themselves from the fishermen's view in Itanhaém, with a critical IGvS; where the state is taken as the enemy of the professional fisherman.

The results permit the observation that the definition of priorities of the institutional programs and the processes of fishing management for the municipality are still, in a little intersectoral and participative way, effective (considering that when it is still an experimental one). Thus, resulting in the long-term in socioeconomic dependence of institutions under an unstable political context.

The fishermen recognize threats to the activity in the possibility of extinction of programs such as the PAA/PF in the near future, the deficiencies in the process of regulating the profession in the

country, which since 2014 suffers from a lack of standardization and renewal of their professional licenses, along with the dismantling of institutions specialized in fishing for construction and revision of laws and socioeconomic programs. Those that survive similar processes become, from the point of view of SEN and RAAKJAER (1996), even more awkward to manage in times of rapid changes.

The accumulation of vulnerabilities in this system causes fishing communities in Brazil to live under constant restriction of basic human rights; food, health, education and effective representation. Concerning this instability intrinsic to all domains of the subject, MARANDOLA and HOGAN (2006) argue that in contemporary society an “alteration” occurred in the socio-spatial arrangements, where the risk of space is displaced to act as a mechanism of social reproduction, with uncertainty (based also on insecurity about living conditions) as a promising concept for understanding the new dynamics.

This state of deprivation experienced is antagonistic to the SEN (2000) theory where progress for human development must be evaluated by expanding their freedom, having both objective and subjective responses on satisfaction, encompassing autonomy, power, and self-determination of the agent. For MCGREGOR (2007), this limiting context compromises the necessary conditions to reach a state of well-being, because the needs are not met in different scales and dimensions, by the reduced capacity to act to reach its objectives and by the decreased ability to experience a satisfactory quality of life.

It is then evident that there is a need for plans that stimulate the capacity for action, generate opportunities for the professional to choose the future of the activity, and promote their autonomy, in addition to local programs for the maturing of dimensions at a time when complex institutional relationships are being developed that influence fishing in the region. This scenario favors the situation of dependence on social programs and also, on a personal scale, on the representatives of the institutions and their users. Power relationships according to MCGREGOR (2012) have the potential to manipulate behavior through unilateral mechanisms in these structures, which distribute benefits or opportunities, reducing or often excluding democratic and autonomic guidelines to access policies and rights.

In the view of D’AGOSTINI and FANTINI (2005), in a hypothetical situation, where one is interested in management (technicians) and the other the users (fishermen); when management uses appropriate methodologies for the recognition of priorities, even in a situation of maximum disagreement between the parties, it is possible to reach degrees of satisfaction in the discussion on the same subject, if both favor the state of satisfaction in the light of the collective point of view (managers and fishermen in this case) on the individual (or the view of whoever becomes more influential on the group, in the top-down case of decision, the manager). However, if disagreements reach more than one theme at the same time, conflict resolution in this system can be compromised.

For COULTHARD *et al.* (2011) although artisanal fishermen often appear to be decentralized and unorganized, personal interests and satisfactions, when attained in a given group, become collective benefits. Yet D’AGOSTINI and FANTINI (2005) recall that shared

demands are ordered from priorities that emerge from individual reflections among different participants; where this whole is considered as sustainability in a system of interests. In this idea, sustainability makes a state for the promotion and operation of a complex system possible, with the intention of guaranteeing in a participatory process the manifestation and representativeness of the user; regardless of the occurrence of rearranging priorities, and mainly canceling the influence of the eloquence of one over another (observed or observer).

When considering the distances in the IGvS, it was verified that factors that could contribute to the quality of life of the fishermen, such as the construction of resilience in a socioecological system (SES), are still not fully covered in the efforts to promote change aimed at the well-being in the municipality and in the regional management of the activity. In the general sense, resilience refers to the resistance of aspects to changes and disturbances toward an indeterminate system (RESILIENCE ALLIANCE, 2009). Many disturbances may reduce their ability to cope with changes in socio-ecological systems (FOLKE *et al.*, 2003).

As a consequence, the fishing community tends to be less able to deal with unpredictability, especially those that demand knowledge about formal processes between fishing institutions and communities and that produce gaps and make learning processes unfeasible. The low structural flexibility can be noticed by the preference of individualized access rather than the collective organization in income-increasing programs and the lack of use of local ecological knowledge (CEL) to design adaptive management projects of natural resources in fisheries management.

Resilience in a SES is built from the use of practices based on the combination of CEL and other knowledge, in addition to the expansion of social mechanisms such as promoting opportunities for self-organization and institutional learning; using adaptive management and diversity for reorganization and renewal (FOLKE *et al.*, 2003). For OSTROM (2010), institutions play a key role in resilience if polycentric governance is perfected. Resilience management aims to ensure that the socio-ecological system under consideration will remain within a set of ecologically and socially desirable configurations (CARPENTER *et al.*, 2001), and the construction process depends on the adaptive capacity based on sustainable management practices resources in the fishing communities.

Therefore, limiting the governance dimension of IQOL in this municipality requires overcoming fishing problems by building a favorable environment that is influenced by people’s response to situations and promotes institutional adaptation; with an unconventional management that use approaches that promote skill building, integrated with a long-term vision for social change that promotes the sustainability of the activity.

This work opens the possibility of new discussions about the complexity of the negotiation processes in the fisheries regional governance, similar to the fishing systems surveyed in other continents (MCGREGOR, 2004; JOHNSON and PÁLSSON, 2015). These discussions would shed light on how and how much such processes can be determinants of quality of life (COULTHARD *et al.*, 2011), answering questions about how to enable people involved in the processes to balance, between

maintaining resilience and promoting well-being, their own choices, in a manner favorable to their condition and objective (COULTHARD, 2012), in addition to promoting healthy conditions for the maintenance of a SES in a small-scale regional fishing activity.

CONCLUSIONS

Despite the subjectivity contained in the evaluation of satisfaction of the aspects, satisfaction indicators (ISi) showed objective results that can subsidize the management to increase the quality of life of the fishing communities. Experience has also shown that the difference of perspectives on quality and satisfaction between dimensions underscores the importance of the convergence of methods, assessments, and subjects to achieve sustainable management of the activity and the well-being of fishermen in the region.

The social programs of productive inclusion when applied to fishing have the potential to raise the quality of life, especially for satisfaction in aspects determined by the material increase, as long as the governance dimension accompanies the changes in fishermen's needs.

Fishery governance in the region has been recognized as weak and responsible for conflicts and structural problems, not yet promoting the factors of building resilience in the SES as facilitators in management processes. This dimension should be considered as a priority in actions aimed at the sector in the region, in order to promote a structure that guarantees collective participation in the decision processes, coupled with strategies that strengthen the learning capacity of fishing communities to achieve their effective representation, as well as positively contribute to the development of the capacity of everyone.

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