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The Co-Production in Marine Protected Areas for Sustainable Management

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ABSTRACT: Nowadays The co-production is the management method that relies on consumer responsibility for the service, becoming the recipient of the service and not its beneficiary. Decline of co-production in marine protected areas is to give a different interpretation to the already tested public-private partnership, as it becomes the new form of investment in the territory with the involvement of public actors, but also the local community and above all professional and trade associations. The contribution will therefore analyze the co-production as a management tool applied to marine protected areas will be identified and the consequences and possible strategies in an attempt to combine the protection of the environment to tourism development.

KEYWORDS: Marina Protected Areas, Co-Production, Sustainable Development of Tourism in Marina Protected Areas, Management of Marina Protected Areas.

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1. INTRODUCTION

The co-production can be defined as the mode of production of public services for which you establish a fair and reciprocal relationship between the public body and its users (Ostrom E., 1996, p.1074).

Nowadays the co-production is the management method that relies on consumer responsibility for the service, becoming the recipient of the service and not its beneficiary. Decline co-production in marine protected areas is to give a different interpretation to the already tested public-private partnership, as it becomes the new form of investment in the territory with the involvement of public actors, but also the local community and above all professional and trade associations.

2. LITERATURE REVIEW

The need to change the management of public services comes from their failure both to the citizen that the public administration. The citizen has occurred on one side as the public service over time it has become increasingly poor in quantitative and qualitative, on the other hand the government has found it increasingly costly to provide services to meet the needs and new needs of the citizens.

The process of co-production can be applied in various fields from that health, as it is started in the United Kingdom³, to the more specific ones as in social services.

In this direction can be placed, however, all forms of participation that tend to involve citizens following the principle of subsidiarity, for which, the problems that arose in a community it is preferable to be resolved within the community itself. Starting with Indeed, the involvement button-down, have been developed innovative methods for managing public services, changing the traditional system based on the centrality of decisions and hierarchical organization. Among these new forms, co-production can be recognized as the mode that, recognizing the inseparability of service production and its delivery, a new active behavior of service users by reducing the dependence of the citizen to policy makers. In the co-production users, in fact, become service co-producers so that, as emphasized by Bovaird and Loeffler(2012), using a more conscious resources, improves performance and are constantly evolving thanks to the contributions of its users.

For the user of the service, which then is nothing more than an ordinary citizen, can intervene decisively on the quality and on service provision, it is necessary to start a new horizontal two-way process: the decision-maker to become a facilitator of service, on the other hand the user to change their behavior, trying in their own abilities how to solve problems.

The process is realized only when relationships become horizontal or when the government engages the user in a way that there is a mutual exchange also offering a number of incentives to improve the service. This innovative method of the relationship between user-generated citizen and public administration, however, a peer network due to the transfer of knowledge that citizen-user pours in the production of the service. As has been repeatedly pointed out (Realpe, A., Wallace, LM 2010, Stephen L., J. Ryan-Collins, D. Boyle, 2008), the co-production, in fact, bases its operations in place at the center of the service users' abilities, so that starting from its expertise and its ability it is possible to build an efficient and effective service responsive to the real needs of the citizen-user. To implement this type

³ <http://www.scie.org.uk>

of service the unit is no longer central provider of the service, as the audience is no longer passive, but takes an active role of peer support. The equal relationship between the service provider and the user changes the behavior of the public who, appreciating the needs of users-citizens, may entrust the provision of the service to the user itself, although it can be done on a voluntary basis, however, not excluding accountability in the conduct of the service. The co-production requires, therefore, a well-organized system of co-governance and co-management for which the public entity first identifies the potential users and to be able to engage with them, then, defines the service map from its conception to delivery, and monitoring in all steps possible and possible improvements.

To this end, in addition to identifying the responsible entity, you find a manager who can interpret the needs of users, so that it is recognizable and authoritative in front of all users-citizens.

The two leaders, so, check the resources necessary to provide the service, assess their efficiency, and develop methods to improve the delivery end, precisely due to the provision of skills that the user can offer.

This process necessarily needs a few steps:

1-Co-commissioning: during this process the public body involving users, with their skills, they can identify and develop ways to improve the service and segment according to the different needs of their users, in which they identify.

2-Co-design: in this phase the user responsible for the co-commissioning phase of the external design to all possible users, so that these can affect and possibly improve the architecture of the plane (websites made with the dialogue with users, prototypes infrastructure to be discussed).

3-Co-delivery: in this phase we realize the service and proceed to its provision by both the user and the government. The production and consumption of many services, however, are inseparable, and in this case it is necessary to reduce the dependence on the user's service manager with the public body.

4-Co-assessment: the final assessment of the service provided by focus groups in which they are interviewed users, citizens and the public body. A further method of evaluation of the service can be done through social networks and online communities, in which exchange different views and opinions on the service by users.

3. THEORETICAL FRAMEWORK

3.1. The Co-Production: Advantages for Use of Resources

The co-production is a new model of management of resources and it's very interesting in geographical framework, as service delivery has impacts both horizontally, within the users that use it, but also vertically in the territory in which the service is provided. This model changes the use of land and the social functional of the resources. The pour the effects of the service on the territory opens new scenarios both on a local scale, both on a regional scale because, once verified the quality of the service, and the costs, but above all the benefits expand to allocate resources optimally. The design and management entrusted to the expertise of the users determine, in fact, the opportunity to meet the needs of service users and as a result the development of infrastructure is facilitated by an architectural point of view, both the efficient use of resources under the organizational profile. The co-production, as is described below, in fact, starting from the design phase by facilitating dialogue between the public and users and residents so as to expand access to services in all possible categories, narrowing the gap between resources and needs and mainly based on the real

needs of the different communities on which management falls. This phase of the process is very important geographically as through the exchange of ideas between the three parties involved, the infrastructure will certainly be designed in harmony with the landscape and landscape. The involvement of the local community and users in fact allows you to schedule the service requested functional structures with a careful use of local resources, using appropriate technologies, the most abundant in the area. This new mode of service management, therefore, well it differs from the traditional organization based on the centralization of powers, as the co-production model service delivery according to the different local needs.

These advantages are outweighed by the costs (Bennetta NJ, Deardenc P., 2014, p.98) that in the short period since the time of preparation and planning will be longer than the normal time schedule. These costs will decrease in the long run, when, once the service is produced and delivered, it will be increasingly tailored to the needs of users with a more efficient use of resources.

This new mode of payment shall also confers social benefits as being involved that most users, who co-produce the service and resides in the territory, helping to spread a high sense of social responsibility and citizenship with positive social benefits, including an expansion of the possibilities of social networks. It's the integration of professional users and citizens, where the service resides, which develops the empowerment directed to verify the deficiencies of the service and to resolve problematic to "upstream" and "downstream", preventing the planning stage possible obstacles .

If during the design phase is the participatory approach, where participation involves three types of partners during the service delivery management will always be much shared between users and the public administration. The public administration or disclose addresses methodological and cheap, while the user provides to achieve the required objectives so that the service can be transparent, accurate, useful, legal and ethically correct, accessible, understandable and at the same time more and more specific, innovative and quality.

This new way of planning and management can definitely be defined as sustainable as it determines a quality of service that can definitely tough with long-term environmental, social and economic success.

4. METHODOLOGY

4.1. The Cost-Benefit Analysis for Implementation of the Co-Production in Marine Protected Area

The co-production, therefore, serves to activate the virtuous cycle of using resources in an efficient and functional to the real needs of the user, that making available its know-how, can be improved with lower cost, targeted service. Another field where you can use this innovative system of management is the management in protected areas, as in these areas you can learn about the needs of users with its specificity and participation of its local community. To activate the co-production in the Italian marine protected areas is fundamental understanding of the economic, social and environmental impacts of protected areas both on the part of users and citizens resident in those parts of highest quality. Overcoming information asymmetries, in fact, you can definitely enable collaborative forms between Park Authority, the local community and users. To start this process, the Park Authority has the task of contacting the local community to identify possible activities and subsequently the possible users. From this initial step, we proceed to the schedule for the performance of activities requiring users their expertise to the design of possible

infrastructure requirements. The relatedness between the three parties, as already mentioned in the preceding pages, enables sustainable design and put into the context without territorial, overburden the area with facilities necessary for the purpose intended. The infrastructure that will be designed, then, will be shared with other members and with the local community and thanks to the co-evaluation for all users and the local community can, thanks to their capabilities, identify critical issues and improve the negatives. The role of the park will be crucial in order to give concreteness and to decide in a shared way all the proposals and activities. In the Italian marine protected areas the Park Authority, for example, may function to stimulate the activities of snorkeling, or those activities observation of the sea with the use of masks and snorkels and without air tanks, bringing together both the local community to be informed about of marine resources already available and widely used by fishermen, and representatives of associations of snorkeling, to develop interesting activities for those who practice this sport. After this meeting, you start the design phase of planning and verifying, through focus group rooms and the direct participation of experts and professionals in the field of local and snorkeling, the ability to create infrastructure for the practice of sport. The function of the institution is that of facilitator of the resulting paperwork for the realization of what was planned, as well as assessment of the opportunity costs derived from the implementation of this service. The local community and the associations of the sport rather have the responsibility of service. This procedure requires both the local community and non-profit organizations to search for additional funds, beyond those provided by the park, to be requested from other institutions or large companies for the implementation of projects and the search for new users who are interested in that type of sport.

The heads of the associations of snorkeling can in turn delegate the various functions, from design to delivery of, to the members who have the ability, or that over time have acquired the know-how necessary for the optimal allocation of resources and technologies for quality of service. The more the service will meet the needs of members of the association, thanks to the skills that they have made available, more will be required not only to those who adhere to the association, but also by all those who practice the sport, as well as from the local community, however, is that feel involved in this process.

The proposed activities are varied depending on the service that is requested by the participants. Some are aimed at those who practice for the first time snorkeling, others still at a higher level for the more experienced, and still others involve families and carers, who provide assistance to participants.

The verification of service quality is attested by both an on-site surveys distributed, but especially from the discussion on the web through social media, the community and forum in which users are democratically all the same - both proponents that the users of the service - shall exchange information and leave comments deemed necessary to improve the service. The comments received are, however, drawn by the user, in charge of the service, to make the appropriate corrections, improving steadily and continuous performance

5- THE RESULTS

5.1. The Case Study of Belize

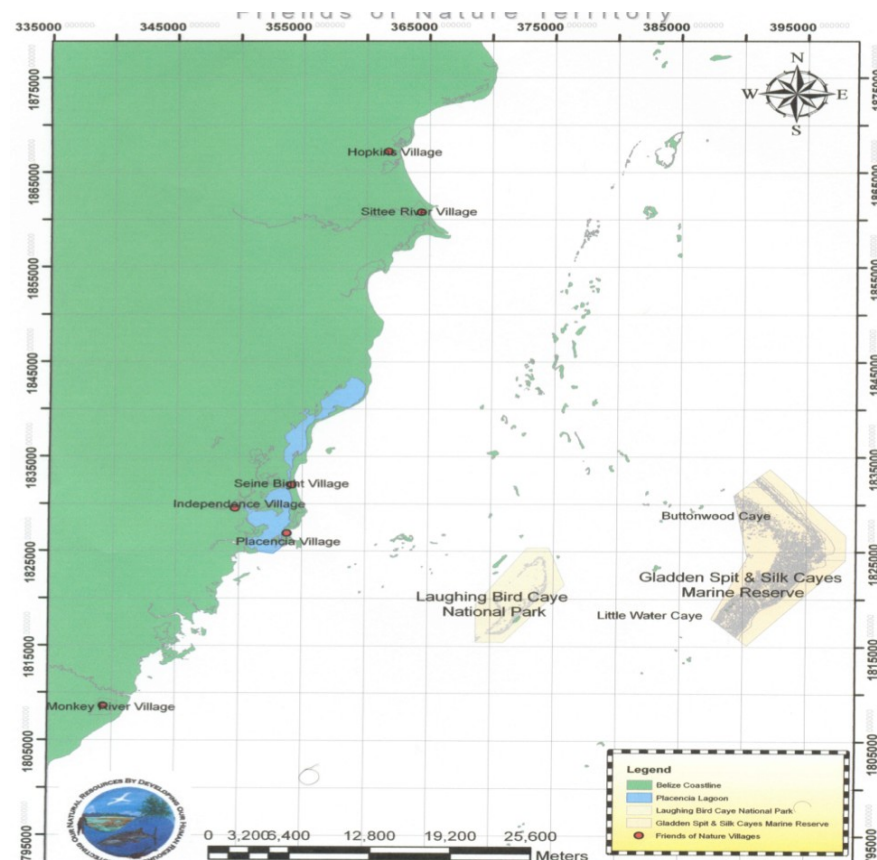
The possible application of the co-production in marine protected areas is derived from the experience made in the marine Gladden Split in Belize, (Gray, NJ, 2008), where in the early nineties, a small group of residents, protesting against the sale Silk Cayes potential of the island to a private contractor, had the full support of international organizations and funding

from the UNDP / GEF to protect the island, since it was identified as a place of high marine biodiversity (UNEP, 2012, chapter5, p.322).

Thanks to this economic possibility, inhabitants have formed non-profit association and have continued to develop field research to identify as such islands were the privileged place not only for reproduction for certain types of fish, which risked extinction if this place had not been protected by both tourists and fishing, largely to poachers. This discovery led to 18 May 2000, the Government of Belize to declare the Gladden Spit & Silk Cayes Marine Reserve and to entrust the management over to the local government of the inhabitants also association, which in turn, given the responsibility, they set up a network with other international environmental protection associations such as WWF.

The protection was, however, determined by definite benefits that would have been determined on a regional scale in terms of marine biodiversity: if you had fallen marine biodiversity due to the sale of the island and the resulting fishing permit to large international companies, it is would have risked a great movement of sharks throughout the region from south to north from Honduras to Mexico in search of food and the extinction of some species of fish, which they laid more eggs just in the islands of Belize for continued fishing. The establishment of the Marine Reserve, therefore, would have the main task to keep these fish to allow the balance of the marine ecosystem and protect the same Mesoamerican Barrier Reef.

Map.1: The Glanden Spit & Silk Cayes Marine Reserve



Fonte: GRAY N.J. (2008) p.16



Local associations have been authorized to co-produce the design and management of the marine area, as within these ONG were both fishermen and environmentalists, the two groups most interested in an antagonist, as the fishermen had the goal of finding ways to harvest fish, while environmentalists he advocated a strict nature reserve without fishing opportunities. Working together, the fishermen have noticed, thanks to continuous research in the field, that the poachers were very numerous and difficult to differentiate from local fishermen and greatly detracted from the ecosystem above all at the regional, rather than local.

The co-production is embodied in the research by environmental groups to check the status of the ecosystem and especially in the application of laws limiting fisheries associations over write the report on the state of quality of the marine environment and the state of fish, guiding tourists in the park, have a duty to police in the capture of the fishermen.

This activity, however, at first not very welcomed by the local fishermen, then, Given the positive effects of such constraints and security restrictions, however, that he had made fully approved the co-management.

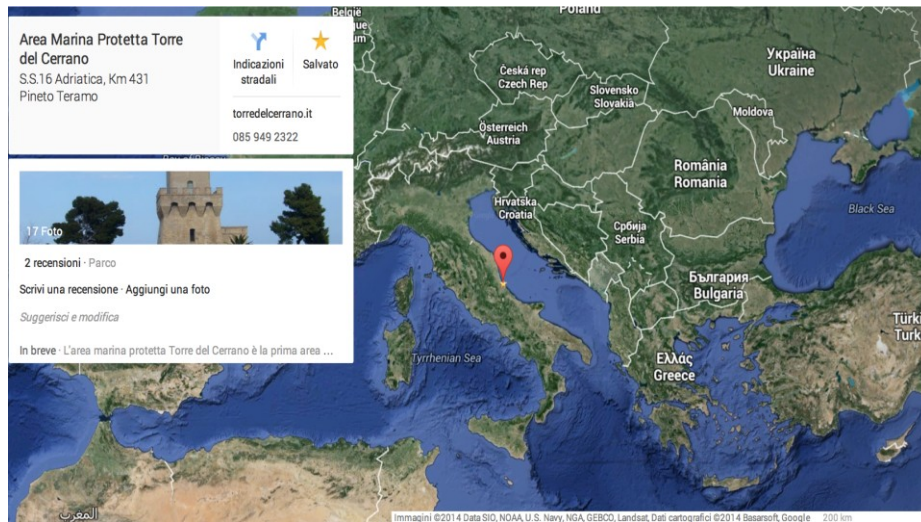
The association has a ratio of full autonomy and responsibility in its tasks and constantly communicates its activities to the Park, also seeking funding to carry out appropriate research projects, often developed with the help of the international network of environmental associations. To date, the protection of a marine protected area is co-managed by the public and by the environmentalist who's task is to: protect the island and its waters from the harmful effects of pollutants and tourism, monitor illegal fishing with the task of police and enforce limits for the fisheries of the premises, carry out scientific studies on reproduction and on the habits of the fish, seek new sources of funding for the study and recruit and train new volunteers as guides.

6. THE FUTURE RESEARCH

6.1. Potential Place for the Co-Production in the Marine Protected Area “Cerrano Tower” -Italy

The Marine Protected Area "Cerrano Tower" takes its name from the stream, which flows in the surrounding areas and was originally dedicated to Ceres, goddess of the harvest and fertility. It extends up to 3 nautical miles delimiting 7 km of the Adriatic coast - of which 2.5 km of sandy dune along the shore - through the settlement of two towns Silvi and Pineto that arise on the coast of Abruzzo Region - in the center of Italy - extending both to the sea, whether for a small part, to the ground. In particular in the area that is located on the mainland, there is the Tower, which is used in the sixteenth century by the Spanish, as a bulwark against the Saracen pirates, now completely restored is home to the Center for Studies of Marine Biology and the Center of Marine Protected Area, established in 2010.

Map 2: Georeferentiation of Marina Protected Area “Cerrano Tower”



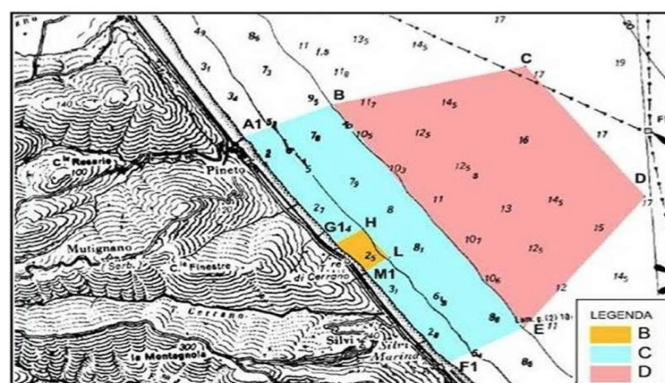
Fonte: Google Maps – accessed 14 October 2014

The marine area, characterized by areas of low and sandy coast, typical of the Adriatic, presents important dune vegetation, with beautiful specimens of sea lily, Soldanella Sea and the beaches of Euphorbia. This ecosystem, along with the marine environment has been the privileged place for many species of fish to breed, thus preserving the species (VALLAROLA F., 2009). For this reason it was set up marine protected area, to store different types of fish resources, threatened in recent years by aggressive fishing activities. The establishment of the protected area has allowed therefore, the repopulation of the types of species and restoring the balance of the marine ecosystem.

The marine protected area is approximately 37 square kilometers and is divided (Rules of the Ministerial Decree of 28 July 2009, 218) in three zones (see Map 2):

- 1) a restricted zone B (general reserve) that defines a square of about a kilometer from the side opposite the Cerrano Tower;
- 2) a zone C (spare part) of about 14 square kilometers that is developed for 'full extent of the sea front until about 2 kilometers from the coast;
- 3) a large area D (protection) of trapezoidal shape, about 22 km square that extends to the 3-mile limit where there is a reference physical depth of 17 meters underwater oasis formed by the barriers of restocking.

Each zone corresponds to a different degree of protection and, consequently, a different Safeguard Regulation that is more rigid and stringent for zone B and more reaching out to a greater use to the area C and D over to the area where you can be found most of the rules already in force in the codes and regulations ordinary for fishing and boating.



Map 3: Marina Protected Area “Cerrano Tower”

Fonte: Di Maggio M., 2013, p.112

After the establishment of marine protected area, there were numerous problems that have focused on the local population. The consortium of Marine Protected Area “Cerrano Tower”, with an open and attentive to customers' needs, has been trying to find a point of meeting with local fishermen engaging in numerous programs of diversification of economic activities. The premises, with some initial wariness derived from the difficulty of owning boats and able of travels long distances, have accepted this collaboration as they have been welcomed as the first and true connoisseurs of sea and land and their inclusion in activities such as recreational fishing are been recognized as an opportunity for added income for the same, above all in the summer months.

An Area Marine Protected Area, like all other protected areas, however, is based on the consent of the local population as well as on the proper functioning of all its parts management.

For this reason, seen, being very broad consensus of the local community, in this marine area co-production seems to be a further possibility in which both residents and users of the reserve may help to improve its management. In particular the activity of snorkel can surely be realized in that the biological diversity allows a wide possibility of observation. The associations of snorkeling, however, can also be considered very important for the purposes of a broader strategy of sharing in their organization, the ability to take advantage of other marine protected areas, thanks to the existing network which is part of the marine protected area “Cerrano Tower”. The methods with which the 'association connects to the marine consortium for the start of the co-production and co-management of assets, have already been described in the previous paragraph.

E 'useful in this regard to point out that this new possibility of co-production can definitely open up new investment that can not only be returned to the research, being home to the Tower of Cerrano's Centre for Research on Marine Biology, and the availability of resources, but also increase the cohesion and trust of the local community by creating the social capital, very important for the sustainable development of the marine marina and the entire surrounding area. The co-production becomes a co-production of knowledge, as "using science along with the indigenous knowledge develops respect and mutual trust" (Berkes 2009, p. 1699). The co-management, therefore, can help the complex process of learning by doing through which the experience of non-profit networking and shared with the local community and then synthesized so as to “enhance institutional interaction and experimentation to generate learning” (Berkes, 2009, p.1699).

7. CONCLUSIONS

In conclusion, the co-production is a new mode of design, planning and management of public services. This new mode of sharing the decision-making process realizes the principle of subsidiarity and rationalization of costs and numerous social benefits to the local level. These benefits are transferred at the regional level; when the exploitation of resources, as well as involving the local community, is poured on a regional scale due to increased accessibility and usability of the attractions.

The co-production, as has been shown, is a form of sustainable management and is well suited wing management of marine protected areas as it allows users, shared with the park authority to exploit the valuable resources of the area without beyond the limits of carrying capacity.

In the co-production, however, innovations, aimed at reducing the use of resources - especially natural ones - thanks to appropriate technologies are easily adoptable as they are known by the user who then returns them in the management of the service, being themselves the co-managers.

The process of diffusion of innovations among users is certainly greatly facilitated by social networks and all those communication tools and available today. The park authority, therefore, uses these tools to check whether the user co-manager is able to offer a qualitatively and quantitatively efficient and effective.

The co-production, therefore, generates a virtuous circle of continuous assessment on the quality of service in a public and transparent.

For both case studies, in fact, co-production has as its main aim to a better use of resources, using them responsibly. With regard to the case study of the marine protected Cerrano Tower the possibility of establishing a co-production with the combination of snorkeling could definitely offer multiple benefits at both local naturalistic scientific, and economic. Certainly to activate this potential, the administration together with the association necessarily need to establish a relationship of great mutual trust, to be paid in both projects, which will carry out investments to expand even with the help of networks of associations and snorkeling other marine areas, both in the local population, offering them the opportunity to be part of this collaboration, as residents in the best position to evaluate the sustainable activities, including those in the tradition and local culture, thus contributing to local development.

As regards the case of Belize, co-production has already carried out many activities that have expanded the possible interactions and institutional relations and human resources contributing to the new knowledge, useful for the development of the potential of marine protected areas.

Consequently, the co-production can be an innovative way of delivering public services, but you still make calls for more research to verify the legal implications and the effects of geographic and economic, which can be determined.

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ETHICAL CONSIDERATION

Authenticity of the texts, honesty and fidelity has been observed.

AUTHOR CONTRIBUTIONS

Planning and writing of the manuscript was done by the authors.

CONFLICT OF INTEREST

Author/s confirmed no conflict of interest.

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