The marine environment as tourism-recreational resource. An economic assessment of the demand

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Abstract

The socio-economic characteristics of the countries facing the Mediterranean sea along with the shared and extremely migratory fish stocks that live and breed in these areas, require a joint and mutually agreed action able to guarantee a future for the fishing industry and safeguard the marine resources.
To achieve this, the EU Commission suggested certain specific interventions for the Mediterranean in addition to the common measures established for all the European areas. Thus, amongst the principal stock protection measures, the Commission encouraged the establishment of new protected and safeguarded fishing zones as well as restocking areas.
This work is based on these considerations and its aim is to indicate certain reference points regarding the estimation of the total economic value (TEV) to apply to marine protected areas (MPA) in which tourist activities have been allowed and developed. Thus, an investigation was conducted to ascertain the effective importance that the users ascribe to biological protected areas (BPA) and an attempt was made to estimate a possible economic value of the tourist demand for such places as recreational destinations. In particular, the study conducts in-depth research into the possible use values of biological protected areas (BPA) by applying the Travel Cost Method so as to ascribe an economic value to the place in relation to the tourist-recreational facilities provided. The assessment model was applied to a specific research area, of artificial origin, situated offshore from the coast of Ravenna.

key words: marine protected areas, Travel Cost Method, tourism-recreational resource.

Résumé

Les caractéristiques socio-économiques des Pays riverains de la Méditerranée, alliées à la présence de réserves de poissons partagées et hautement migratoires, exigent une action commune et partagée afin de garantir un futur au secteur de la pêche et de la tutelle des ressources marines.
A ce sujet la Commission UE a suggéré de mettre en place aux côtés d'instruments communs pour tous les espaces européens, quelques interventions ciblées pour la Méditerranée et, notamment, parmi les principales mesures de protection des réserves, elle a favorisé l'institution de nouvelles aires de pêches protégées et sous tutelle, tout comme des zones de repeuplement.
L'étude part de ces considérations et se fixe comme objectif celui d'indiquer des points de repère relativement à l'estimation de la valeur économique totale (VET) à appliquer aux espaces marins protégés dans lesquels un flux touristique a été autorisé et développé. Nous avons par conséquent enquêté sur l'importance effective que les bénéficiaires attribuent aux zones de tutelle biologique (ZTB) et nous avons essayé d'en estimer la valeur économique, relative à la demande touristique du bien.
L'étude approfondit notamment les valeurs d'utilisation possibles des zones de tutelle biologique (ZTB) à travers l'application du Travel Cost Method, afin d'attribuer une valeur économique au site compte tenu des aspects touristiques et de loisir fournis. Le modèle d'évaluation a été appliqué à une zone d'étude spécifique, d'origine artificielle, située au large des côtes de Ravenne.

***Mots clés**: espaces marins protégés, Travel Cost Method, ressource touristique-récréative.*

1. Foreword and research objectives

The socio-economic characteristics of the countries facing the Mediterranean sea along with the shared and extremely migratory fish stocks that live and breed in these areas, require a joint and mutually agreed action able to guarantee a future for the fishing industry and safeguard the marine resources.

To achieve this, the EU Commission suggested certain specific interventions for the Mediterranean in addition to the common measures established for all the European areas. Thus, amongst the principal stock protection measures, the Commission encouraged the establishment of new protected and safeguarded fishing zones as well as restocking areas.

In actual fact, prior to this approach, Italy had already introduced the so-called Biological Protected Areas, regulated with law 963/65 and decree of the President of the Republic DPR 1639/68, the applicability of which is the responsibility of the Ministry of Agricultural, Food and Forestry Policies. After this, with its Reg. 1967/2006, the EU took over these policy guidelines and promoted their establishment in the Mediterranean area with a view to encouraging the replenishment of those fish stocks that had become more greatly impoverished and to direct the sector towards sustainable and responsible management of the resource. But apart from their action in favour of the ecosystem in certain areas, from an economic aspect these measures are still considered by the stakeholders in the Fisheries sector to be negative, since they limit the productive activities.

According to Italian legislation (Decree of the President of the Republic D.P.R. N° 1639 of 2 October 1968), the Ministry can, in Biological Protected Areas "... prohibit or limit fishing practices, as to the time and places, and whichever sort of catching method is used, in those sea areas that, according to scientific and technical research, are recognized as being areas where marine species of economic importance breed or grow or that would be impoverished by excessively intensive exploitation".

Currently however, one notes that beyond the importance for the environment, a tourist-recreational function is becoming ascribed to BPA to an increasingly greater extent

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since these areas are an interesting attraction for people who practice skin diving. Having examined the characteristics pertaining to their origins and functions, protection of which does not depend on their being particularly attractive in a "scenographic" way, these areas have become places where species gather in concentrations, thus encouraging the creation of extremely interesting colonies of fish and plants. So much so that, although they were not primarily created for this purpose, these areas are gradually becoming places that attract the community as a whole even though the only people to benefit from them are those who practice skin diving.

This characteristic cannot be ignored if a total economic value (TEV) is to be ascribed to a BPA area. The Total Economic Value concept (TEV) forms the methodological background for assessing environmental assets from the monetary aspect. It is based on the attempt to distinguish between two important categories of benefits that a natural resource is able to offer: the use values and the non-use values.

This work is therefore based on these considerations of a general character and its aim is to indicate certain reference points regarding the estimation of the total economic value (TEV) to apply to marine protected areas (MPA) in which tourist activities have been allowed and developed. Thus, an investigation was conducted to ascertain the effective importance that the users ascribe to biological protected areas (BPA) and an attempt was made to estimate a possible economic value of the tourist demand for such places as recreational destinations.

In particular, the study conducts in-depth research into the possible use values of biological protected areas (BPA) by applying the Travel Cost Method so as to ascribe an economic value to the place in relation to the tourist-recreational facilities provided. The assessment model was applied to a specific research area, of artificial origin, situated offshore from the coast of Ravenna.

Thus the aforementioned analysis model was used in order to achieve a preliminary economic assessment of the service provided by that area besides its main function of protecting and restocking biological assets.

2. Materials and methods: environmental economy principles and evaluation models

Over the past few years, the recognition and establishment of protected areas, which also include marine areas, has acquired a broader meaning than the sole need to safeguard nature. Other functions of a social character have also gradually been ascribed to such areas, functions that are indisputably linked to the initial ones and that are no longer negligible, considering their effect on the community. These functions include the educational, cultural and scientific role of such areas, as well as the tourist-recreational function considered in this research. Moreover, economists and experts could pay particular attention to this latter aspect since it allows the monetary value of areas to be assessed by evaluating the tourism and recreational flows.

An economic assessment of areas of this type also allows ways of compensating the local communities to be determined as these latter often have to sustain the costs required to maintain and preserve the assets. Parks or places like Biological Protected Areas require continuous maintenance, restoration work and monitoring, which are all very costly. The ability to establish an economic value would not only allow the cost for maintaining the characteristics of the area to be covered through interventions by specialized personnel but would also enable activities of the managerial type to be developed. Recognizing the value of an area and allowing the community to become aware of its natural heritage could only lead to a better use of the assets and greater respect for them.

These environmental systems and resources now constitute a multifunctional heritage able to provide services of economic value. However, very often there is no market price associated with these services and it becomes very difficult to establish their value. These considerations come under the concept known in the field of environmental economy as market failure, due to the existence of positive and negative externalities.

In this particular case, it may seem a complex matter to determine a value for a Biological Protected Area's many functions, such as protecting the fishery resources and tourist-recreational attractions, seeing as the market fails to assign any exchange price to them. If this were to occur, the market itself would limit their use and, thus, allow them to be preserved.

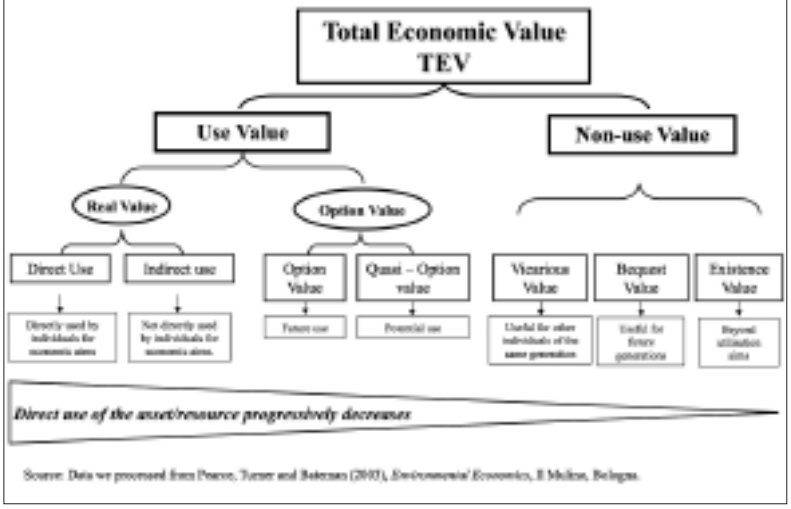
Environmental resources are often considered to be assets of a purely public type, i.e. characterized by the inability to prevent anyone from using them and by non-rivalry when it comes to consumption. On the long-term, these characteristics can lead to over-exploitation and deterioration of the actual resources themselves if they are not controlled and especially if they are managed on a free access basis.

There are four types of system for managing resources and they differ when it comes to rights, duties and privileges (Pearce, Turner, Bateman, 2003). In the case of public property, people must respect the rules governing use of the resource as defined by a control agency while in the case of private property, the owners possess rights in relation to the asset but they must assert them in a socially acceptable way and with sustainability criteria.

Since he does not sustain personal costs, an individual who uses fishery resources and/or makes use of the marine environment cannot be aware of making decisions that affect the well-being of others. The determination of negative externalities defined by Pigou (1920) as "*damage to third parties by an individual during the course of his activities without there being any compensation*" can be limited through public intervention which, by establishing rules and limitations to the use of a certain asset, can prevent it from being over-exploited. Vice versa, correct management of en-

vironmental resources can lead to positive externalities considered as "*those favourable effects (benefits) which, not being remunerated, affect one or more individuals thanks to the accomplishment of an activity by third parties*", as indicated by Marshall (1973). Thus, awareness of the positive and negative externalities generated by using an environmental asset is the preliminary assumption that indicates the need to ascribe an economic value to that asset.

Figure 1 – *Definition of the total economic value of an environmental asset.*



Source: Data we processed from Pearce, Turner and Bateman (2003), *Environmental Economics*, Il Mulino, Bologna.

The identification of models and instruments able to ascribe a total economic value (TEV) to environmental assets and the usefulness they generate becomes of fundamental importance if a balance is to be found between their unlimited exploitation and their protection. The determination of TEV is based on the distinction and on the identification of the use and non-use value of a given asset (figure 1). The use value refers to the effective possibility of using a certain environmental asset while the non-use value involves more complex concepts that are difficult to assess and that are not bound to the effective use or to a possible option.

Use values can be subsequently defined as real in relation to the concrete use of the assets, when they are directly or indirectly used by individuals for economic purposes, or as options and, thus, with reference to a potential value of the asset. In this latter case, the option to use the asset could be a future use or a potential use, which is classified as a quasi-option value. By and large, the use value of the possibility of certain circumstances occurring in the future is tantamount to man's willingness to pay so as to guarantee that that possibility occurs, and the greater the uncertainty, the higher that value is.

On the other hand, non-use values represent individual preferences that include care and respect for well-being and rights. These can be classified as follows: vicarious value, when one considers that the asset could be of value to others of the same generation even when it is not within one's personal sphere of interest; bequest value, when individuals ascribe an importance to the asset not for themselves, but for future generations; existence value, or a value that an asset may have merely because it exists. This last value is bound to the sole desire to guarantee the existence of the asset by safeguarding it from possible destruction, and increases insofar as the asset is unique.

This classificatory approach, in the order in which it has been given, marks a progressive detachment of the value ascribed to the asset in relation to use.

Generally speaking, the total economic value of an environmental asset does not merely comprise the effective use of that asset but also its non-use and provides this term with the meaning described for the aforementioned concepts.

Different issues must be considered when TEV is ascribed to an environmental asset. Firstly, the nature of the asset and/or the service it generates, if it is reproducible/non-reproducible, substitutible/non-substitutible as well as its current and future availability with respect to the demand, the possibility of using it, the level of protection and the characteristics of those consumers who show particular interest in that asset.

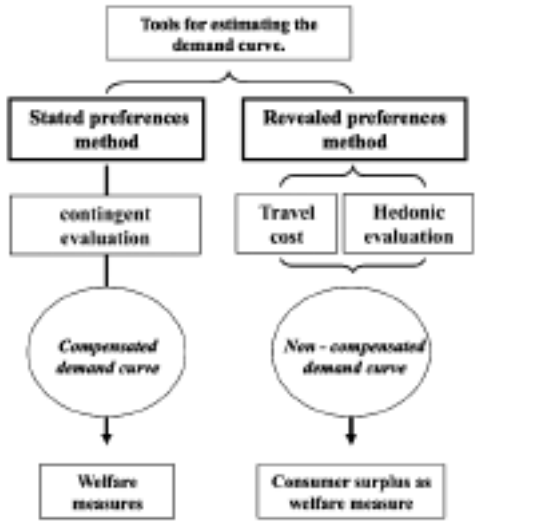
Moreover, the best type of assessment for analysing the case in question must be identified in order to establish the economic value of an environmental asset. The bibliography includes a wide choice of models for monetary assessment of environmental assets. Certain matters concerning the assessment of environmental assets by creating a demand curve are proposed in relation to the characteristics of the case researched in this work. There are two methods for conducting the analysis. One envisages an explicit declaration of one's preferences in a hypothetical market, while the other is conducted by examining the costs sustained for other assets and/or services in a surrogate market. In this latter case, the individuals implicitly reveal their preferences for a specific environmental asset or service.

Amongst the so-called direct evaluation methods, Contingent Valuation is often mentioned in literature. Here, the total economic value of the environmental asset is determined by asking those concerned if they are willing to pay and/or to accept in order to obtain a benefit or to be reimbursed for a damage. The data are generally obtained by means of questionnaires submitted to individuals who show particular interest in that asset. Welfare is measured by creating a demand curve compensated by other parameters, such as the income of the interviewees.

On the other hand, an environmental asset can be indirectly evaluated by means of the Hedonic Pricing method in which the environmental services that affect the market prices of a given area are assessed, or the Travel Cost Method according to which the value of an environmental asset is calculated on the basis of the expenses sustained for its use. Welfare is measured according to the consumer surplus, i.e. how much more than he actually spends is the con-

sumer is willing to pay in order to make use of the asset (figure 2).

Figure 2 – *Approaches and models of economic evaluation of environmental assets.*



It is not easy to choose the most appropriate assessment model for ascribing a value to a public asset of common utility since it is difficult for the estimator not to influence the choice through certain "personal" convictions when he considers that a determined analysis method or more or less suitable than another. The problem is that these are assets that do not possess a true market, but this can in some way be "constructed" on the basis of the demand for recreational assets. Thus, the value of these public assets is not established through the classic exchange between demand and offer, but stems from their very existence, while the demand that characterizes them assumes "social" proportions.

3. The case study: the travel cost method applied to a biological protected area

From the methodological aspect, evaluation of marine areas subjected to biological protection is part of the more extensive environmental assessment category. Moreover, when it comes to BPA, the environmental function of the asset is associated with a social function and this dual significance should be considered when the value is ascribed. All these elements can become a winning strategic factor when it comes to informing the public about the asset, since the public perceives the subsequent limitations imposed by the protection laws to a lesser degree (for instance, in the case of BPA, just think of the reduction in fishing activities and the consequent loss of income sustained by fishing enterprises that work in restricted sea areas).

Having ascertained that the main reason for people visiting the BPA was because of its scenery and recreational characteristics, the Travel Cost Method (TCM) was used to estimate the economic value.

Natural sites are therefore considered to be recreational assets and their economic-monetary value can be assessed as the willingness of the visitors to pay, supposing that these latter choose the destination (and the frequency with which they visit it) according (also) to the transport costs. This means that the travel time and cost represent the price for accessing the site. They allow a demand for the environmental asset to be calculated and, thus, the economic benefit the site is able to offer becomes the consumer surplus.

The advantage of opting for TCM is that although it is a method considered to be "approximate" by many scholars, it allows researchers, in an initial phase, to circumstantiate the indicative level of the ascribable market value and is able to direct any successive research and investigations that might be conducted. Zonal TCM was chosen for this research since the dependant variable of the function is represented by the ratio between the number of visits made from a place of origin and the overall total of the population residing in that place of origin. The aim was also to evaluate the ability of the site to attract tourists as a whole so as to form a possible promotion strategy for protected sites. The method allows the consumer surplus and the relative net recreational benefit to be calculated in the final phase. This result is similar to the social use value of the asset, which is given by the sum of the travel and site access expenses.

The *Travel Cost* method assumes that the time and costs sustained for reaching the site represent its purchase price, while the entity of visitors represents the expression of the demand. Thus, in a more in-depth study, it could be interesting to assess the individual consumer's willingness to spend, considering the frequency with which he visits the site.

The main phases of the investigation were conducted in the sequential mode:

- calculation of the visiting rate per 1000 inhabitants with respect to the municipality of origin: the assumption was that all the participants came from the main municipalities and/or provinces recorded, depending on the distance. The reference population was that of the 2000 Census, obtained from the ISTAT Databank;
- definition, for each visitors' place of origin, of an average travel cost sustained in order to reach the site;
- calculation of the consumer surplus for each area, based on the average travel cost and the number of users.

Various different cost items were considered when the average travel cost was calculated and each of these items was carefully evaluated, amongst which:

- transport;
- board/lodging;
- time.

When it comes to this last aspect, the cost of time is dealt with in literature in different ways. Some Authors have decided to consider it as a percentage of the average gross cost of an unskilled worker (Herath et al., 2004) and that was the

method used in this research, with appropriate adaptations to suit the case in question. The decision to ascribe a value to the time used for travelling was necessary since, as the resource in question is limited, it therefore becomes an economic asset and its use "deserves" to have a price. And it is because of the actual scarcity of that asset, that some Authors (Bockstael et al., 1987) have preferred to assign the whole value of the average hourly salary in force in the area from whence the visitors come. However, one should bear in mind that this is an opportunity cost as the consumer is free to decide the activity to which he intends to dedicate a certain period of time.

Linear regression was used in order to construct the demand curve since it is representative of the trend of the data obtained, and the calculated average travel cost was considered as the starting point for calculating the consumer surplus. Application of a zonal type of *Travel Cost* to the biological Protected Area identified was conducted in accordance with the following phases:

- identification of the catchment area around the site;
- acquisition of data about the visitors (number, origin, means of transport,…);
- assessment and calculation of the travel cost in relation to time, costs and distance covered;
- cost hypothesis for accommodation and dinner on site, for visitors who have travelled a long distance;
- creation of the **demand function**;
- final evaluation of the consumer surplus.

The analysis model was applied to a Biological Protected Area in the Upper Adriatic zone. Note that a total of 11 BPA have currently been established in Italy, of which 7 are situated in the Adriatic Sea. The researched area lies offshore the coast of Ravenna and was created by the gradual transformation of a wreck into a sort of artificial reef. Two natural gas rigs were positioned in the area during the '60's. One was called "Paguro", while its twin was named "Perro Negro" but, owing to a drilling error, the former rig exploded and its structure sank to the bottom of the Adriatic. At a depth of more than 30 meters, this artificial reef has turned into a very special, singular and important natural habitat when it comes to fish restocking, but is also a highly interesting attraction for skin divers (figure 3).

The Biological Protected Area comprising the wreck of the "Paguro" rig was established with a special Ministerial Decree issued by the Ministry of Agricultural, Food and Forestry Resources on 21 June 1995 with a view to protecting and preserving the biological heritage of that area by prohibiting both recreational and professional fishing in those waters. Later on, towards the end of the '90's, the area was enlarged by adding further obsolete natural gas structures positioned about one hundred meters from the first.

To complete the legislative process regarding the area, a Decree issued by the Ministry of Agricultural and Forestry Policies on 16 March 2004 established the Biological Protected Area called "Area Fuori Ravenna", which also includes the area containing the wreck and the disused rigs.

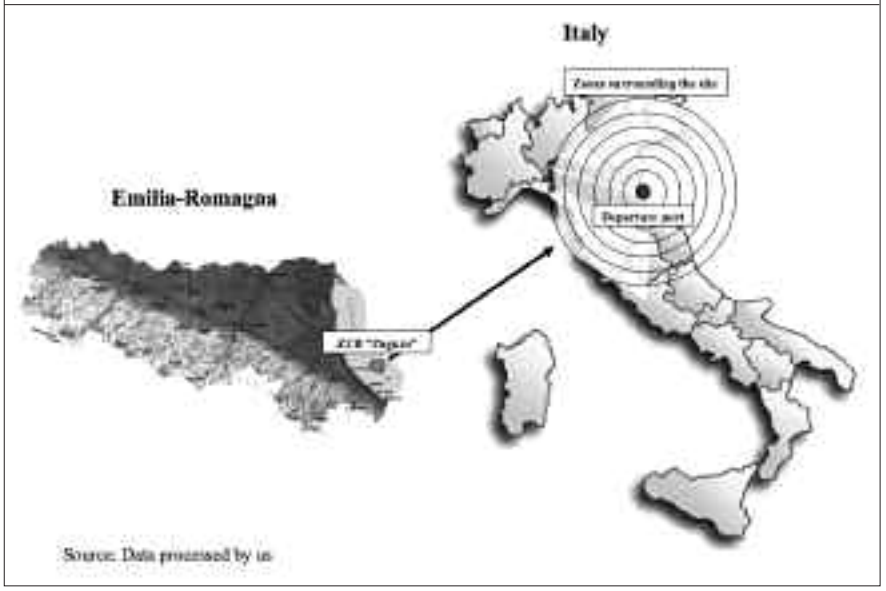
The flow of visitors to this particular site is governed by an association established in 1996 and called "Associazione Paguro". Thanks to a specific ordinance from the Port Authority, this association is authorized to organize and manage skin diving activities within the area. Data concerning the number of visitors who came to the site during the years 2005-2006 were obtained with assistance from the association that manages the BPA, after which the catchment area and the visitors' places of origin were identified so as to apply the TCM: the visitors' data sheets contain all the details required by this assessment method. The offshore Ravenna BPA attracted about 4,000 skin diving enthusiasts as an average of the years considered (2005/2006).

Certain hypotheses were adopted in order to process the model:

- the TCM was calculated by considering a vehicle with two people on board as a reference unit. This was because, according to information provided by users of the area, their equipment is so bulky that it is unlikely for them to travel with other means of transport (including public transport) or with a higher number of passengers in the car;

- the trip was divided into two phases: from the place of residence to the departure port, and the second phase from the departure port to the diving site. This was necessary as the value ascribed to time could be evaluated differently in the two phases: for car travel, the cost of time is considered as equivalent to an average hourly salary since it is not

Figure 3 – *Map of Italy: areas of origin of visitors and location of the site.*



bound to the recreational activity but is necessary in order to reach the chosen place. On the other hand, the journey from the departure port to the diving site represents the beginning of the recreational activity, thus the cost of time has been considered equal to half the hourly salary;

- lastly, allocation of a value to the time spent diving has been the subject of extensive debate: after thorough consultation of the available bibliography, the decision was to allocate a cost to the diving time so as to avoid omitting it completely, but to give it a small value since it is the true recreational activity.

The first part of the trip comprises items concerning:

- cost of the vehicle calculated by means of reference tables;
- motorway toll;
- cost of travel time per passenger.

The second part of the trip includes:

- boat trip;
- cost of travel time and stay at the site;
- cost of booking the buoy and mooring;
- cost of board and lodging for visitors who live long distances away.

About two hours are required to reach the diving site in the "Paguro" area. The mooring fee is about 30 euros per boat, which is then divided by the average number of persons transported.

The provinces of origin were considered as the starting point and the average distance was calculated from the province's chief town to the destination. Having observed the places of origin, it was considered advisable to maintain a municipal distinction for visitors from peripheral areas nearer to the naturalistic site as extension to a provincial scale would have caused the analytical evaluation to lose a great deal of sensitivity. Thus, calculation of the population per attendance rate was carried out on a municipal basis.

The area considered for the places of origin ranged as far as 380 km away. The catchment area was then divided into concentric kilometric belts, the width of which increased in a centrifugal way in relation to the diving site. 10 kilometric belts were created for the "Paguro" area: the first two belts were each 15 km wide, the third 20 km, while all the rest were 50 km in width. Following an analysis of the way the catchment area had been divided into kilometric belts, we found that the users of the BPA almost all (89%) resided in the region, while a small part came from Veneto (8%), Lombardy (1%), Trentino Alto-Adige (1%) and Fruili Venezia-Giulia.

The overnight accommodation and dinner at the site item was only considered for people from belts more than 200 km away and the figure was defined as average value since, apart from the mere excursion, organizing the visitors who access the area is rather heterogeneous.

It is worthwhile noting that, thanks to its particular features and the wealth of species that populate the site, the "Paguro" area is also known abroad: however, foreign visitors were not included in the assessment. In view of the distance and their very low numbers, their interest can be considered as random and their inclusion would have misrepresented the result of the research.

The basis for calculating the attendance rate (or the population residing in the concentric belts) was chosen by means of a simplification criterion (Marangon, Tempesta, 1998), i.e. by supposing that it equalled the sole boroughs of residence of the interviewees.

Thus, the hypothesis considered for the work is that the only variable able to influence the consumer's behaviour is the cost of accessing the area, i.e. the expenses sustained for accessing it as compared to a uniformity of behaviour in relation to the services provided by the area.

One should also note that the composition of the travel cost can vary subjectively as, for instance, it can also include the cost of purchasing equipment for accomplishing the recreational activity. The cost of equipment has not been considered in this research as it is not exclusively pertinent to use of the resource analysed here and is very often the tourist's own property (not hired). In actual fact, skin diving equipment is used for numerous dives and not just in the site in question. Moreover, many visitors could come to the site without actually diving.

The demand curve was created by considering a 10 euro constant added cost and was used for a basis for calculating the regression. After this, the results were checked and an R^2 test was conducted.

Analysis shows that the average cost for visiting Ravenna's offshore BPA ranges from about 85 euros for visitors who come from less than 15 km away to more than 380 euros for visitors who live farther off (table 1). The demand function

Table 1 – *ZTB "Paguro": table for calculating the travel cost average per visit.*

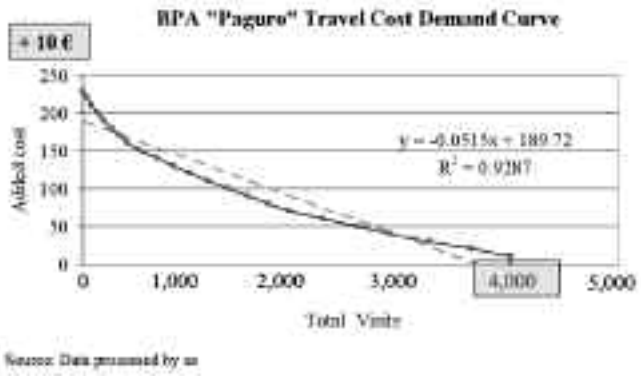
Zone	Distance (km)	Total Visits/ Year (n)	%	Zone Population (n)	Visits/ 1000[a]	Average cost per visit [b] (€)
1	<15	2,484	*62.10*	285,003	8.72	**85.2**
2	15-30	71	*1.78*	90,948	0.78	**101.25**
3	30-50	178	*4.45*	139,938	1.27	**124.47**
4	50-100	755	*18.87*	555,850	1.36	**158.56**
5	100-150	38	0.95	225,791	0.17	**204.81**
6	150-200	316	*7.90*	861,421	0.37	**245.37**
7	200-250	96	*2.40*	445,714	0.22	**276.53**
8	250-300	2	0.05	187,567	0.01	**317.12**
9	300-350	20	0.50	104,946	0.19	**340.46**
10	350-400	40	*1.00*	254,180	0.16	**382.55**
Totale		**4,000**	**100.00**			

a) The visiting rates were calculated per 1000 inhabitants in each zone

b) The cost includes the following items: cost of travel to the departure port (return travel). This cost includes the variable costs sustained for reaching the port, the cost of the time required to travel from home to the port and any tolls paid for reaching the port. Other items are the costs for travelling from the port to the diving site, the cost for booking the buoy, the cost of the time required to travel from the port to the diving site (including the cost of the time spent at the diving site and the actual diving time) and the costs for food and accommodation when required.

(10 euro added cost constant) created and the linear regression used allowed us to identify a consumer surplus exceeding 346 thousand euros as a whole and 86.63 euros per visit (Figure 4).

Figure 4 – *BPA Paguro Travel Cost Demand Curve.*



Conclusions

At the end of the research, the results concerning the flows of benefits produced by the Biological Protected Area obtained by assessing the recreational demand function and by calculating the consumer surplus, were 346 thousand euros per year with a value per visit of approximately 87 euros. The analysis conducted by applying the zonal *Travel Cost Method* thus showed that the majority of the visitors to the area in question resided in the same region as the BPA. Moreover, we found that the distance from the site was not always a discriminating element for the numerousness of the visits since the attendance rates observed did not always diminish as the distance from the visitors' places of origin increased. In actual fact, the BPA is a unique environment and is the only one of its kind in the territory. This was also underscored by the frequency with which enthusiasts visit it, since they are willing to travel even long distances in order to do this.

One can therefore affirm that these areas in that part of the Adriatic represent a powerful attraction for people who practice skin diving.

Thus, it could be important to conduct an economic evaluation of Biological Protected Areas as this can be a valid aid when planning policies and management.

This type of evaluation is also useful for establishing an entrance fee for such areas, so as to finance the pertinent associations and encourage the organization of recreational events.

The category association can play a fundamental role in increasing the annual number of visitors by varying the recreational offer within the area. This could also increase the number of times that each tourist comes to the area during any one year.

If an entrance price to the area was established, the category associations could then use the relative proceeds for different purposes, such as research (a visual enumeration sheet for the marine fauna has been prepared for this particular site), the aim being to ascertain the condition of the biological and naturalistic habitat and, thus, the efficacy of such measures when it comes to responsible fishery management.

This analysis shows yet again, how fishery activities and tourism are closely linked in a synergic way, to the advantage of both.

In view of the results obtained, the model chosen is considered to have been useful in the preliminary phase but value assessment must be researched at depth in order to go beyond the mere criterion based on distance, since other discriminating factors that affect the willingness to pay have been observed.

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