

Socio-economic implications of the KwaZulu-Natal sardine run for local indigenous communities

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Abstract

This paper reports on the findings from a study of the economic and social effects of the annual sardine run on the indigenous community on the south coast of KwaZulu-Natal, South Africa. Data were gathered using questionnaires and personal interviews with 329 members of the community, and their knowledge, perceptions and attitudes about the sardine run, as well as their level of involvement in, and the financial benefits accrued from it, were assessed. Although around two-thirds of those interviewed were aware of the sardine run and just over half participated in it, only some 17% benefited financially from it. However, despite this low level of participation, the financial benefit to the community could amount to R17-18 million, and as much as R34- 54 million if a multiplier effect of 2-3 is applied. There was a high level (over 70%) of willingness to learn more about the event, and to become more involved in training exercises that would allow local people to take advantage of opportunities arising from the sardine run. It is recommended that management strategies and development plans should be implemented towards assisting the indigenous communities to become more involved in the sardine run

Introduction

In recent years there has been a growing recognition of the importance of the tourism industry, especially regarding economic development and the alleviation of unemployment in developing countries and economically impoverished regions around the world. Ecotourism is one of the fastest expanding tourism markets (Stone 2002) and presents an excellent opportunity for local economic development, provided the area has tourist attractions (Young 1993). Similarly, ethnotourism is also growing rapidly (Markandya et al. 2003). Marine ecotourism is considered to be particularly effective at providing both economic and social benefits for poor communities in what are termed “peripheral” areas (Garrod and Wilson 2004) that are underdeveloped and suffer high unemployment. One form of marine ecotourism is whale watching, which has experienced a worldwide growth of 12.1% per annum and is now worth US\$1 billion (Curtin 2003). For example, in Kaikoura, New Zealand, whale watching is supported and driven by the local indigenous Maori community (Curtin, 2003) while in Vava'u, Tonga, it is a source of national pride to the indigenous population and is worth about US\$ ½ million per annum to them (Orams 2002). In South Africa, whale watching has had enabled job creation, business increases and education of the local indigenous population (Bucchianeri, 1997). Another South African marine ecotourism activity is cage diving with sharks, which has been valued at between R12.5 million and R25 million per annum, depending on the target species (Hara et al. 2003, Dicken and Hosking 2009).

A relatively new marine ecotourism attraction in South Africa is the ‘sardine run’, an annual phenomenon in which millions of sardine *Sardinops sagax* migrate during winter along the East Coast from the Agulhas Bank into KwaZulu-Natal (KZN) waters (van der Lingen et al. 2010a). The sardine run provides food for a variety of predators, such as piscivorous fish (Fennessy et al. 2010), sharks (Dudley and Cliff 2010) and seabirds and marine mammals (O’Donoghue 2010a). During the run, sardine are sufficiently close to the shore to be caught by local inhabitants, and residents of villages, towns and cities rush to the beaches to gather as many fish as they can using a variety of gear, from nets to laundry baskets, and even skirts. Sardine are also caught commercially using beach-seine nets (van der Lingen et al. 2010b). The sardine run has become a major tourism event during the past decade (Maxwell 2002), with the KwaZulu-Natal Sharks Board’s Sardine Hotline, operated by a local commercial radio station, advising the public of the current status of the shoals. The run has been featured on American, British, German and Dutch television (KwaZulu-Natal Sharks Board 2006), and crowds of local and international tourists arrive for photo-opportunities or to participate in associated activities such as micro-light flights, or diving and swimming with the shoals (Dicken 2010).

Although the sardine run occurs from East London to Durban the event itself generally takes place along the Hibiscus Coast (between Port Edward and Hibberdene; see Figure 1), with Hibberdene itself a focal point because sardine move very close to the shore in that region (O’Donoghue et al. 2010). Most (52% in 2006) of the human population of this district is under 20 years old, and has a dire need for education, health, recreation and welfare facilities (KwaZulu-Natal Provincial government 2006).

The area requires social development and upliftment in order to alleviate poverty, indicated by the fact that 66 000, of the estimated 102 237, households in the Ugu District rely on social grants to survive (Municipal profile 2001). The popularity of the sardine run has provided potential for investment opportunities and for creating employment to local communities, with Nancarrow (2004) estimating that the run could generate up to R6 million annually. However, participation in the sardine run by the indigenous (black) community in the Hibiscus Coast region is low compared to that of the residential (white, coloured and Indian) community, and those benefiting most from the run are hoteliers and bed and breakfast owners who provide accommodation for local and international tourists, and local businesses who generate income from those tourists.

The lack of indigenous community participation in the sardine run, and the perceived low financial benefits accrued by them from the event, may place at risk the development of the sardine run as a major ecotourism event. Threats could include: crimes against tourists, leading to a decline in tourist numbers; the community undermining efforts to promote ecotourism based on the sardine run because of its perception of gaining no benefit from it; and not encouraging community participation in, or support of, the event.

Where social problems and poverty coincide with a major potential tourist attraction such as the sardine run, it is essential that every effort be made to enable the local community to share in the benefits that could accrue from this event. This study is aimed at establishing whether the sardine run has economic and social benefits for the indigenous community. If it does provide financial benefits, then it is possible that a lack of knowledge about the event prevents the indigenous community from participating, and thereby possibly limiting the future development of the sardine run as a major tourism event.

Material and methods

A descriptive research method was developed to describe the following: knowledge of the indigenous community about the sardine run; their perceptions of, and attitude towards, the run; the skills they possess; the level of their involvement in the run and the extent to which they benefit from it. Primary data were collected by means of questionnaires.

Sample population and data collection

The study population was local people living in the more rural areas of the Hibiscus Coast Local Municipality, part of the Ugu District Municipality (Figure 1). A non-probability sampling method was used, namely convenience sampling, of people drawn from the Hibiscus Coast rural areas and including those available from the indigenous community at the time when the research was conducted. Convenience sampling was used because the study focused on any available local person, with no limitations on age, gender, education or particular area. Respondents were selected from houses, shopping centres and from among street hawkers. The sample

comprised 360 respondents, drawn equally from three indigenous areas in the Hibiscus Coast region: Kwandwalane, Kwanzimakwe and Kwanoxolo.

Data were collected via a questionnaire administered during personal interviews, which enabled a visual check to ensure the respondent fitted the correct sample population, facilitated the collection of personal data (age, opinions, earnings), and ensured that any questions that interviewees did not understand could be explained. Three university students familiar with the Hibberdene area were recruited and trained to provide assistance with conducting the interviews.

The questionnaire was developed based on the objectives of the study and from information gathered during a literature review. It was translated into IsiZulu and pilot-tested with 10 respondents from the same population who met the sample criteria to identify any errors or ambiguities in the questionnaire. Only minor corrections were necessary. The reliability and validity of collected data were enhanced by the brevity of the questionnaire (which took only 30 minutes to complete), and questions that were clear, unambiguous, and of interest to the respondents. Additionally, one of the researchers was also involved in conducting interviews which helped to achieve consistency in data collection and determine and correct any data collection problems.

The data collection method used had two potential weaknesses. First, because a non-random sample was taken, it may not have been representative of the population. To resolve this possible bias, care was taken to select respondents who matched the criteria for the population. Second, interviews were conducted during daylight hours only, on account of security concerns by both respondents and interviewers. This could bias results by influencing the type of respondent being interviewed, and was partially rectified by conducting some interviews over weekends when a more representative section of the population was available.

Data analysis

Data were captured using SPSS Version 13, and a number of analyses were run on the data. Frequencies were used to cross-check the coding of data and to determine responses to particular questions, and cross-tabulations were used for comparisons between the age, education and gender of respondents, as well as their attitudes and opinions about the sardine run. Chi-square tests were used to test for statistical significance, with a p value of 0.05 used for all tests except for the cross-tabulation of knowledge of the event and education.

Results

In the cross-tabulations, only the comparisons between gender provided useful information. The findings relating to the overall sample were generally more interesting and therefore these, together with the cross-tabulations for gender, are discussed in more detail below.

Sample demographics

The demographics of the interviewees are shown in Table 1. The sample is skewed towards males, probably because females are more likely to have jobs

in the formal sector and therefore were less likely to have been available for interviewing during the day. However, the sample of females was considered large enough for the study to provide meaningful results.

The splits in the sample by age and education were generally consistent with the makeup of the population of the Hibiscus Coast rural area, i.e. skewed towards the youth and consequently lower levels of education. Thus, it was concluded that the sample was adequately representative of the population.

Involvement in the sardine run

Table 2 indicates the extent to which the local indigenous population are involved in the sardine run, by indicating knowledge about, participation in, and financial gain from the event.

About two-thirds of those interviewed was aware of the sardine run and just over half participated in it in some way, but only 17.6% gained financially from the event, despite the fact that less than one-third held another job while the run was taking place. Although just over half of those interviewed participated in the sardine run, the event clearly presents opportunities, with two-thirds of those who were unaware of the event wanting more information about it.

Furthermore, nearly 70% of the total sample (including those aware and the unaware of the event) showed a willingness to receive training about the event in order to benefit more from it. This implies an opportunity for various organisations involved in the sardine run in any way, and for training/educational organisations on the Hibiscus Coast.

Table 3 shows the type of activities that the local population participate in during the sardine run. A large proportion (over 70%) of the participation is non-income generating, so less than one-third of those interviewed benefited financially from the sardine run. Of the interviewees who benefited financially, 53 indicated earnings between R60 and R5 000. If each particular earnings figure is weighted by the number of respondents who gave that earnings figure, a total weighted earning of approximately R53 000, or an average earning of about R1000 per person, is arrived at. By applying this average figure to the total sample (329), an average earning of about R160 per person is estimated for the annual sardine run event. Of the around 688 000 inhabitants of the Ugu District, some 16% live in the coastal strip, so up to 110 000 people are possible participants in the sardine run. At an average earning of R160 per person, the total population could earn up to R18 million from the sardine run. Furthermore, if the multiplier effect of 2 to 3, which is typical for informal sectors (Markandya et al. 2003), is taken into account, then the financial benefit of the sardine run to local indigenous inhabitants of the region could be as much as R36 to R54 million.

The number of dependants of the respondents who benefited from earnings accrued from the sardine run ranged from 1 to 10. Dependent numbers were weighted by the frequency of respondents that provided a figure (247 people), resulting in an estimated average of about five dependants supported by those

gaining financially from the run. Extrapolation of this average number of dependants, together with the proportion of the sample who earn from the sardine run (16%), to the population of the coastal strip of the Ugu district, indicates that some 83 000 people may benefit from the sardine run, equivalent to 75% of the population of the Ugu coastal strip.

Cross-tabulations with gender

Table 4 shows that a higher proportion of male respondents had knowledge of the sardine run, and that they were more interested in participating in it than were females. This could be because the sardine run is seen as a more male oriented event (e.g. fishing), because females are more likely to be busy in more formal occupation, or because much of the informal work available is more male oriented, e.g. car guard, washing cars, etc. However, a higher proportion of females seem to benefit financially from the event, possibly because the work they do (e.g. selling curios or working in bed and breakfast establishments) is better paid. There was no significant difference between males and females in the number of people they supported (Mann-Whitney test; $U = 312.5$, $z = -.202$, $p = 0.84$).

Cross-tabulations with employment

Table 5 shows the results of the cross-tabulations between employment status (holding another job or not) and the variables relating to respondents' involvement in the sardine run. These figures indicate that those holding another job and those not holding another job are similar in terms of their knowledge about, participation in, and desire for training in, the sardine run. However, more of those who do not hold another job are interested in finding out more about the event, possibly to be able to benefit from it. As could be expected, more non-job holders gain financially from the event.

Discussion

A large percentage of local people living in the rural areas of the Hibiscus Coast district of KwaZulu-Natal interviewed for this study knew about the sardine run, with males generally being more aware of it than females. Thus, by taking a less active role in the event, females are missing an opportunity to benefit from it. However, participation in the run was generally low, irrespective of age or level of education. This has implications for skills development and reflects an opportunity for central and local government, training and educational institutions, organisations involved in the sardine run, and local businesses, to provide training for unemployed or underemployed youth. Interventions to assist the community develop skills that could be associated with the event such as entrepreneurial and marketing skills are warranted.

Some 70% of respondents indicated that they would like to receive training on sardine run-related activities, especially those who were unemployed. Hence the perception and attitude of the community about the sardine run is positive and a large portion of the community would like to be associated with the event.

However, the high percentage of participants who just watch the sardine run without doing anything to generate a financial benefit indicates a potential opportunity for community development and upliftment, even though a high proportion of these probably are employed. Although it could be argued that the sardine run may be enjoyed purely as entertainment and a visual spectacle, the fact that 70% of respondents indicated a need for training related to the run may reflect limited skills or a lack of knowledge of how to participate economically.

Although there is a generally low level of participation in sardine run-related activities by local indigenous communities, the estimate that up to R18 million (without multiplier effect) can be earned indicates that the community is benefiting considerably from the sardine run. This estimate is considerably larger than the amount of R6 million considered to accrue to local hotels and restaurants from the sardine run by Nancarrow (2004). Thus, it can be concluded that the sardine run contributes to the economic and social upliftment of the local indigenous community. However, if higher levels of participation could be encouraged it is obvious that even greater benefits would accrue to the community.

South Africa's Reconstruction and Development Programme prioritised community-based development as the way to empower and provide employment for marginalised communities (South Africa 1998). The result has been a range of activities, including encouragement of tourism-based development and support for formal and informal tourism businesses (Binns and Nel 2002) that create employment and uplift communities. Development of the tourism industry in South Africa, particularly ecotourism, can benefit rural communities through alleviating poverty while at the same time conserving nature (Albertyn 2002). However, improving access of local informal entrepreneurs to tourism markets is essential for poverty alleviation (Kirsten and Rogerson 2002), particularly so if local people are to gain some level of control of the tourism industry rather than being relegated to menial jobs with inadequate salaries.

A major factor behind the weak state of local community involvement in the tourism industry is a lack of appreciation, knowledge and understanding of the industry and of its potential importance to local communities (Rogerson, 2002). This lack of appreciation extends even to local councillors, who have expressed the need for 'real jobs' in mines or factories rather than in tourism. In order to assist indigenous communities of the Hibiscus Coast rural areas towards a greater involvement in the sardine run a development plan should be implemented. The components could include:

- (1) Community training programmes to ensure international standards. These could include: improving knowledge of the sardine run, its biological importance and why it is of interest to tourists; the role of local communities, how they can participate, and how local people can benefit from it; and how to upgrade the type of entertainment activities valued by tourists, e.g. cultural activities such as dance and music.

(2) More promotion of the sardine run by tourism departments, especially among the indigenous community, in order to increase knowledge and participation, as well as among local and international tourism organisations, to increase opportunities for local people and their businesses.

(3) Business and marketing training programmes for individuals, and micro- and small businesses, to enable the unemployed and underemployed to take advantage of sardine run opportunities.

(4) Environmental education programmes so that the local population fully understands the continuing benefits that can be achieved from sustainable eco-tourism activities. Such understanding will help the development of the sardine run as a long-term, sustainable activity for the local population.

In addition to such 'business-oriented' recommendations, further research is required to better understand some of the insights gained from this study. For example, investigations into the reasons why female knowledge, participation and interest in the sardine run are significantly lower than that of males should be conducted. Also, the marketing strategies and activities of organisations promoting the sardine run should be investigated towards improving the quality and penetration, both local and international, of such campaigns. Such information, together with the findings of this study, will help ensure that the sardine run contributes to greater understanding, increased participation and the gaining of more benefits by local indigenous communities. Such visible economic and social benefits to the community will undoubtedly lead to a much more beneficial relationship between the sardine run and tourism industries, as well as the local communities.

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Table 1: Demographics of respondents interviewed

Gender	Male	Female			Total
<i>Frequency</i>	207	122			329
<i>%</i>	62.9	37.1			100.0
Age	16 – 30	31 - 45	46 - 60	>60	Total
<i>Frequency</i>	207	76	27	19	329
<i>%</i>	62.9	23.1	8.2	5.8	100.0
Education	No formal	Grade 1 - 6	Grade 7 - 12	Tertiary	Total
<i>Frequency</i>	90	41	142	56	329
<i>%</i>	27.3	12.5	43.2	17.0	100.0

Table 2: Summary of interviewee responses on knowledge about, participation in, and financial gain from the sardine run

	Yes		No		N/A* or **		Total	
	F	%	F	%	F	%	F	%
Knowledge of event	223	67.8	106	32.2	-	-	329	100
Participate in event (those with knowledge of event)	182	55.3	52	15.8	95**	28.9	329	100
Obtain financial gain (those who participate)	58	17.6	119	36.2	152**	46.2	329	100
Interest to gain awareness (those without knowledge)	67	20.4	39	11.9	223**	67.8	329	100
Want training about event	229	69.6	81	24.6	19*	5.8	329	100
Hold another job	103	31.3	110	33.4	116**	35.3	329	100

* = Not applicable or ** = Not answered

Table 3: Respondent participation in the sardine run

	Method of participation	F	%
Income Generating activity	By dancing for tourists	3	0.9
	By selling my products	16	4.9
	By catching fish	43	13.1
	By working for net companies	9	2.7
	Working in bed and breakfast during event	4	1.2
	Working in a hotel during the event	1	0.3
	Car guard	5	1.5
	Car wash	5	1.5
	Other	8	2.4
	Subtotal	94	28.6
Non-income generating	Not Aware of the event	159	48.3
	By watching the event	76	23.1
	Total	329	100.0

Table 4: Cross-tabulations between gender and variables relating to respondents' involvement in the sardine run

Question	Male *	Female *	χ^2 value	d.f.	Sig. value
Knowledge of event	76.8 %	52.6%	20.845	1	0.000
Interested in gaining awareness	72.6%	55.1%	24.621	2	0.000
Participation in event	80.4%	71.8%	17.669	2	0.000
Other job held	50.6%	42.5%	23.798	2	0.000
Financial gain from event	29.0%	42.1%	15.155	2	0.000
Training wanted	84.4%	56.8%	31.356	2	0.000

* = Excludes not answered or not applicable.

Table 5: Cross-tabulations between employment status and the variables relating to respondents' involvement in the sardine run

Question	Other job held *	Other job not held *	χ^2 value	d.f.	Sig. value
Knowledge of event	98.1%	98.2%	254.657	2	0.000
Interested in gaining awareness	50.0%	80.0%	202.685	4	0.000
Participation in event	82.2%	83.3%	226.268	4	0.000
Financial gain from event	18.5%	50.6%	171.069	4	0.000
Training wanted	81.8%	76.0%	11.625	4	0.020

* = Excludes not answered or not applicable.



Figure 1: Location of the study area showing the Hibiscus Coast Local Municipality (black shading) and the Ugu District Municipality in KwaZulu-Natal.