

# LOW POWER RADIO: AN ANTIDOTE FOR COASTAL VISITORS LOOKING BUT NOT SEEING!

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**Abstract:** State parks in Oregon provide important sites for visitor recreation and natural resource education. With the increasing number of visitors to Oregon coastal parks, tide pools and beach areas, there is growing need for site-specific marine education to enhance stewardship, interpretation and safety knowledge. The Oregon Sea Grant Program and the Oregon Parks and Recreation Department collaborated in a demonstration project of low power radio (LPR) technology in 1998. An evaluative research project of this technology was conducted at Boiler Bay State Park, Oregon during July through August 1998. This project evaluated the effectiveness of a 100 milliwatt low power radio broadcast in providing coastal resource interpretation to visitors parked at a scenic overlook. LPR is a limited broadcast range AM radio station that park visitors can tune-in on their car radio to hear pre-recorded messages.

Several research parameters were investigated during the evaluative portion of the project: (1) do signage numbers influence LPR listenership, and (2) does a relationship exist between specific demographic characteristics of visitors and listenership? Visitor surveys were conducted three days a week from July 1, 1998 to August 2, 1998 during 10:30 A.M. to 2:30 P.M. Occupants from 822 vehicles (i.e., cars, trucks, RV's or motorcycles) were interviewed.

Research results indicate that significantly more visitors tuned-in when more signs were displayed. Demographics do not appear to be a significant factor in listenership. Ninety-seven percent of LPR listeners recommended that LPR stations be placed in additional parks. Results

from this study indicate that LPR broadcasts are a promising communication technology for providing park visitors with helpful information.

**Keywords:** low power radio, coastal tourism, Boiler Bay State Park

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## Introduction

Warm sea salt mists, crashing ocean waves and driftwood laden sandy beaches sound alluring to many people. As visitation to coastal parks, tide pools and beach areas increases each year, park managers, business owners and communities face new challenges in educating and informing coastal tourists of the natural resource experiences available in coastal areas. Visitors are often looking for, but not necessarily seeing, the resources that coastal areas offer. Additionally, sustainable use and safety practices must be communicated to guests to protect themselves and these unique coastal ecosystems.

The coast is a powerful attractant that yields fun while generating large revenues. "The nation's coasts are both rich in their promise for tomorrow and bountiful in their delivery of today's ecological, recreational, aesthetic, and commercial rewards. The vastness of the coasts and their resources is matched only by the dimensions of the challenges society faces in preserving and nurturing those resources" (Coastal Challenges: A Guide to Coastal and Marine Issues, 1998).

The travel and tourism industry is estimated to generate USD\$502 billion annually, generating over 7 million jobs, with tax revenues of \$71 billion and a trade surplus of over \$24 billion (EPA Sustainable Industry webpage). Recreation and tourism also cause immense environmental impacts. "The scope of these impacts creates the potential for significant benefits to the environment and the economy through improved performance by participants" (EPA Sustainable Industry webpage). Visitor expenditures generated an estimated \$4.5 billion in 1996 in Oregon (Official Tourism Website for the State of Oregon). Oregon's coastal state parks provide important sites for resident and visitor recreation and marine education.

The Oregon Parks and Recreation Department (OPRD) administer many coastal parks overlooking the Pacific Ocean that are used for camping, whale watching, and picnics. These upland areas are also located adjacent to many valuable rocky intertidal areas, thereby providing visitor access to these resources. Additionally, this state agency manages dry and wet beach areas owned by the State of Oregon. Park managers must balance the need to educate and provide interpretative information to visitors with the financial and other resources available to them. Few state parks have full or even part-time staff members present to answer visitor questions. Therefore, the need for affordable, accessible visitor information with limited staff numbers must be met in new ways. Oregon State Parks are just one agency along the coast that must manage coastal lands.

Oregon's coastal zone has several different agencies responsible for managing coastal lands and waters. Oregon's coastal zone encompasses a wide variety of lands that are managed by many different cities, counties and state agencies. Oregon has a federally approved Coastal Management Program, which combines state laws with future land use goals for managing the coastal lands and waters. Coastal areas accessible to tourists and residents often fall under

several state agency jurisdictions. Inevitably gaps in coastal protection and sustainable use practices exist due to the multi-agency management of coastal areas. Teaching visitors to be better stewards of the coastal environment could narrow this gap.

With the degradation of many coastal resources, it would be advantageous to educate visitors to be good stewards of these resources. By the year 2010, it is estimated that nearly 127 million Americans will live within the coastal zone (<http://www.nos.noaa.gov/News/estuarieday.html>). In light of this predicted increase in coastal tourists and residential populations, coastal managers are worried about the continual availability of limited coastal resources for future generations. To help secure these resources, wise use and stewardship principles must be effectively communicated to coastal tourists.

Public parks provide an important doorway for people to access coastal resources. In 1996, over 40 million day visits were made to Oregon's state parks ("About OPRD"). But state parks must have enough money to maintain the park areas they manage and keep these sites open to the public. One affordable and promising communication technology for oceanshore visitor education is low power AM radio (LPR).

LPR is a limited broadcast range radio station that listeners can tune in on their vehicle radio to hear prerecorded messages. There is a 100 milliwatt LPR system that broadcasts within a radius of 0.5 square miles from the station, or a 10 Watt system, which broadcasts in a radius of approximately 15 square miles (DeYoung, 1992). The Federal Communications Commission (FCC) does not require licensing for the 100 milliwatt station and commercial advertisement messages are allowed. Sponsorship by a governmental organization and FCC licensing is required for a 10 Watt system. While the 100 milliwatt system can have commercial messages, music, or other sound enhancements, the 10 Watt system

cannot. New messages can be uploaded manually, or from a remote location, and the broadcast runs continuously.

## Background

LPR is most widely known for its applications in roadside travel information and airport updates using 10 Watt broadcast systems. It is, however, finding increasing use as a communication strategy for enhancing stewardship, interpretation and safety knowledge in recreation areas. The National Park Service (NPS) has used LPR broadcasts since the 1970's for interpretive and educational information. The NPS has installed over 100 LPR units in national parks across the country (Weed, 1999). Within Oregon there are several agencies utilizing this technology to enhance recreation opportunities. Beverly Beach State Park in Oregon used a "Talking House" LPR system from 1995 to 1998 to accelerate park registration and notify visitors of park amenities. Additionally, the Extension Forestry Service at Oregon State University uses 10 Watt LPR stations along state highways traversing forests. This project, called "Forest Talk" directs its broadcast to the traveling visitor.

The goal of the Forest Talk project is to educate the motoring public about Oregon's forests as motorists are driving past points of interest (Lamb, OSU Graduate Student, 1994). In 1993, Lamb evaluated the listenership and sign effectiveness of the Santiam Pass Forest Talk LPR site. Lamb recorded license plate numbers from vehicles driving over the Santiam Pass during July to August 1993. She then contacted the registered owners of those vehicles for a telephone survey. The telephone survey sought to ascertain whether the vehicles had seen a sign advertising the broadcast and whether they tuned into Forest Talk. The telephone

survey also obtained demographic information to see if any relationships between age, gender or residence and tune in rates existed. With an additional focus group survey of selected populations, additional information regarding message recall, broadcast enjoyment and value was collected and analyzed. Through the telephone survey Lamb found a total tune-in rate to the broadcast of 8% (out of 278 surveys). Thirty percent of the sample saw the broadcast signs, with 28% of those people subsequently tuning into the broadcast. Lamb found no significant relationships between age, gender or urban versus rural residence and vehicles tuning into the broadcast. However, the focus group survey found that "urban respondents considered the program useful more consistently than rural dwellers" (Lamb, 1994).

The Forest Talk program has expanded broadcast sites since Lamb's 1994 evaluation. An additional roadside evaluation at three western Oregon broadcast sites showed that 1.3% of passing vehicles tuned into the Forest Talk station (Reed and Bondi, 1995). Respondents indicated their listenership by flashing their headlights when they saw survey personnel after hearing a special radio message asking them to do so. Results from this survey also showed that 46% of those asked did not see highway department signs alerting them to the radio broadcast (Reed and Bondi, 1995).

## Project Rationale and Objectives

While the 10 Watt system has a larger broadcast range, its use has several disadvantages. This size system costs about \$10,000, requires government sponsorship and a FCC license to operate. Additionally, the 10 Watt LPR

LPR Attributes	100 milliwatt LPR	10 watt LPR
Purchase and installation	about \$3,500	about \$10,000
Approximate broadcast range	0.5 square mile radius	10 square miles
Government sponsorship	Not required	Required
FCC licensing	Not required	Required
Music and sound effects	Can include	Cannot include
Ground plane antennae	Optional	Needed
Commercial ads/messages	Allowed by FCC	Not allowed by FCC
Signage	Typically in parking areas	Along public roadways with ODOT permission
NOAA weather rebroadcast	Optional	Optional
Printed promotion materials	Can be helpful	Can be helpful
Equipment maintenance	Typically minimal	Typically minimal
Message updating	Occasional	Occasional
Message memory unit	Same equipment	Same equipment

**Table 1. A comparison table of LPR 100 milliwatt and 10 watts station attributes**

system is often used in mobile vehicle settings, where a driver or passenger must see instructional signs and locate the broadcast frequency while traveling at high speeds. Conversely, a 100 milliwatt LPR system costs about \$3,500, has few restrictions and can broadcast messages in localized areas to more stationary visitors (see Table 1). Due to the affordability of this “parking lot” size system, it seems especially well suited and promising for outreach projects, especially in Oregon’s state parks.

To determine the efficacy of utilizing this technology to meet the need of affordable, accessible visitor information despite limited staff numbers, Oregon Parks and Recreation Department and Oregon Sea Grant (OSG) collaborated in a demonstration and applied research project at Boiler Bay State Park near Depoe Bay, Oregon. This project evaluated the effectiveness of a 100 milliwatt low power radio broadcast in providing coastal resource interpretation to visitors parked at a scenic overlook. Though LPR has been used in many public outreach ap-

plications on high-speed roadways, this project is the first known evaluation of static listenership.

### **Demonstration and Evaluative Research Project Methodology**

This project was split into two sections: an equipment test and initial demonstration of the radio technology in late March 1998 and the survey segment of the project, which occurred from July 1 to August 2, 1998. A 100 milliwatt radio unit with ten minutes of memory, remote telephone access and a National Oceanic and Atmospheric Administration (NOAA) National Weather Service radio was used for this project.

### **Demonstration and Equipment Test**

The LPR technology equipment test occurred during OPRD's “Whale Watching

Week", March 21-28, 1998. Six radio messages were created by OSG and OPRD and uploaded for whale watching week. Throughout this week, Boiler Bay State Park visitors were asked for suggestions and feedback regarding message content and length. Many visitor suggestions were incorporated into the message scripts, which were subsequently modified or created for the summer survey period. Additionally, we were interested in visitor receptiveness to the technology and interpretive opportunity it provided. Four signs were displayed during this time period: two at the park turn-ins and one on each of the external bathroom walls. The signs used for this period were 18 by 24 inches with blue vinyl lettering on white corex board. The signs read "Whale Talk, Tune to 1610 AM." Most visitors informally questioned during this period did not see any of the entrance or bathroom signs advertising the station. The "Whale Watching Spoken Here" volunteers had a radio playing the broadcast for visitors. When informally questioning visitors, most had positive reactions to the use of a radio broadcast to provide interpretive information.

## Evaluative Research Methodology

This collaborative research project between OSG and OPRD assessed visitor reactions to LPR technology and 100 milliwatt broadcasts heard while parked in their vehicles. Additionally, this project sought to determine if there is a relationship between the number of signs presented and the number of park visitors tuning into the radio broadcast. We also wanted to investigate whether a relationship exists between specific demographic characteristics (such as city or country residence, age, or gender) of park visitors and their tuning into the radio broadcast. The project's hypotheses were:

*Hypothesis 1:* There is no relationship between the number of signs and park visitors tuning into the low power radio broadcast.

*Hypothesis 2:* There is no relationship between specific demographic characteristics (i.e., city versus country residence, age, or gender) of park visitors and their tuning into the low power radio broadcast.

Eight radio messages were broadcast during the summer survey period. These included modified versions of the demonstration period messages and new scripts created for the evaluation period.

There was a message alerting visitors to the survey being conducted and to the possibility of being asked to participate. Total message length was approximately seven minutes. In addition, the station broadcast two and one-half minutes of National Weather Service (NWS) information after the completion of each message cycle.

Visitor surveys were conducted from July 1 to August 2, 1998 on Wednesdays, Saturdays and Sundays. The survey instrument included questions about whether the visitor tuned into the broadcast, message retention, sign observation, and demographic information. Surveys were collected from 10:30 A.M. to 2:30 P.M., the high visitation period, with some variation due to weather conditions or visitor numbers. The signs advertising the broadcast were sky blue colored, reverse-printed with the phrase "Coast Talk, Tune your radio to 1610 AM." Oregon State Parks and Oregon Sea Grant logos were printed on the bottom of the signs. The parking lot signs were temporarily staked in the ground and removed each day. The entrance and bathroom signs were permanently installed. Each of the five survey weeks (a Wednesday, Saturday, and Sunday) had a different number of signs displayed to test the effect of sign numbers on visitor tune-ins (see Table 2).

Week 1 was considered "normal" signage. "Normal" is the number of signs that OPRD would display permanently without this evaluation and consisted of displaying one sign at each entrance and one sign on each bathroom wall for a total of four signs. During the second week, maximum sign num-

bers (48 total) were displayed to ensure that all park visitors would see at least one sign. The following two weeks reduced this maximum number by approximately one-half each week. Week 5 was considered the "optimal" signage week and utilized the previous four weeks research experience for strategically placing signs throughout the park in the most highly noticed areas.

Signs displayed during Week 5 were installed on signposts (instead of placed in the ground like previous weeks) and the two large entrance turn-in signs were replaced with smaller size signs just inside the entrance. Visitors may be more likely to retain the frequency number when placed just inside the park entrance. Since motorists are turning into Boiler Bay from a high-speed roadway, they may not have time to process the sign text and memorize the frequency number if signs are located at the entrances.

Survey respondents were approached when visitors were observed preparing to depart the park (i.e., packing up picnic items or moving towards their vehicle). Surveyors

were assigned to a survey zone, with five zones created, and zones were rotated after two hours. At the completion of the survey period, visitors were thanked for their participation and given a brochure informing them of a low power radio broadcast located at Seal Rock State Park at that time and general information about LPR technology.

## Results and Discussion

During the five-week survey period, 822 valid surveys were obtained from cars, trucks, recreational vehicles (RV's) and motorcycles. Analysis of the data shows that there was a relationship between the number of signs and the number of visitors tuning into the LPR broadcast. One sign located at each park entrance alerting visitors to the broadcast was not as effective as additional signs placed throughout the park. There was a significant difference in tune-ins between week 1 with four signs displayed ( $p < 0.01$ ,  $X^2$ ), and weeks 2, 3, 4, and 5 (additional signs

	Sign Locations	Total number displayed
Week 1	Park Entrances and bathrooms	4 (1 at each entrance + 1 on each exterior bathroom wall)
Week 2	Park Entrances, bathrooms, and parking areas	48 (4 Entrance & Bathroom signs + 44 park signs)
Week 3	Park Entrances, bathrooms, and parking areas	21 (4 Entrance & Bathroom signs + 17 park signs)
Week 4	Park Entrances, bathrooms, and parking areas	12 (4 Entrance & Bathroom signs + 8 park signs)
Week 5	Bathrooms and on sign posts	9 (2 Bathroom signs + 7 signs on posts and inside the entrances)

**Table 2. General signage locations and numbers for the five week survey period at Boiler Bay State Park, July to August 1998**

**Table 3. Tune-in numbers for each survey week as well as the percentage of survey respondents that saw signs at the entrance, bathrooms, or by parking space. (raw numbers are in parentheses).**

	<b>Week 1 n=190</b>	<b>Week 2 n=173</b>	<b>Week 3 n=163</b>	<b>Week 4 n=149</b>	<b>Week 5 n=147</b>	<b>Totals N=822</b>
<b>Tune-in numbers</b>	10% (19)	36% (63)	23% (38)	16% (24)	16% (24)	20% (168)
<b>% that saw sign total</b>	42% (79)	97% (168)	93% (152)	78% (116)	78% (114)	77% (629)
<b>% that saw entrance sign</b>	33% (63)	59% (102)	53% (87)	53% (79)	59% (87)	51% (418)
<b>% that saw bathroom sign</b>	11% (20)	20% (34)	17% (27)	15% (23)	14% (20)	15% (124)
<b>% that saw sign by parking space</b>	N/A	91% (157)	83% (136)	62% (92)	42% (62)	81% (447) n=551

displayed). Week 2 tune-ins were also significantly greater than weeks 3, 4, and 5 ( $p < 0.05$ ,  $\chi^2$ ). There were no significant differences in the tune-ins between weeks 3, 4, and 5 (see Table 3).

Different numbers of signs were displayed each week in order to determine the optimal sign number which could most effectively and efficiently advertise the broadcast. We conclude that week 1 signage was not effective with four signs posted and only 42% of the visitors seeing a sign. Week 2 had the largest volume of signs but this is not an appropriate number to display long-term, even though this week had the highest visibility and tune-in rate by visitors. Weeks 4 and 5 had about the same tune in rates, with three fewer signs displayed during week 5. There was a significant tune-in difference between weeks 1 and 5 with only five additional signs displayed during week 5. Therefore, the nine signs displayed during week 5 are considered the "optimal" sign number for visitor detection at this Boiler Bay State Park.

Only one significant correlation was observed between a demographic characteristic and broadcast listenership. During week 2, significantly more women than men tuned into the broadcast ( $p < 0.001$ ,  $\chi^2$ ). It is possible that more women were in a position, possibly the passenger seat, to see the signs and turn on the broadcast. The Forest Talk evaluation showed no significant relationships between age, gender, residence, and tune-ins.

Nearly 97% of listening park visitors interviewed during this study recommend that OPRD provide LPR broadcasts in more state parks. Respondents found the broadcast contained useful and interesting information and felt it enhanced their state park visit. Funding concerns were the main reason given by the four visitors who did not support the addition of these broadcasts in parks. These respondents were apprehensive that tax dollars would be used to support this type of outreach while parks themselves fall into disrepair due to funding

problems. If park fees or other funds were used to implement LPR systems, then most of these people supported the installation of broadcasts in additional parks.

The 100 milliwatt LPR system can have commercial or sponsor messages, so there are several avenues available to fund the purchase of additional LPR stations. One option is to have a business, or several businesses, purchase the radio unit in exchange for broadcasting a sponsorship message recognizing their contribution toward the broadcast. Another option would be to place sponsor logos on signs or brochures promoting the broadcast and/or provide recognition in the audio message itself.

Twenty-three percent of respondents did not see any signs prior to the interview. During week 1, 58% did not see any signs advertising the broadcast. Throughout the five weeks, an average of 51% of visitors recalled seeing a sign at a park entrance and 15% saw a bathroom sign. This lower bathroom number is largely because many visitors indicated they did not utilize the bathroom facilities. Many visitors volunteered that they were pleased there were additional signs in the park because they could not process the broadcast frequency quickly enough as they were turning into the park.

Twenty percent of park visitors interviewed during the five week period tuned into the broadcast that day or in a prior visit to the park (no repeat surveys were allowed). If the broadcast continued throughout the year, this would translate into approximately 20,000 vehicles tuning in for interpretative and informational messages (based on 100,000+ day visits, OPRD car counter data). Week 1 had the lowest number of visitors tuning in that day or a previous day (10% total) and Week 2 had the highest total number of visitors tuning in (36%). By comparison, Forest Talk had an 8% total tune-in rate during one evaluation period (Lamb, 1994) and a 1.3% tune-in rate during another (Reed and Bondi, 1995). It is unknown how many signs were displayed during their evaluation.

Ninety-seven percent of vehicles had a functioning AM radio and 74% of people surveyed listened to their radio "most of the time" or "some of the time" when traveling. More than 40% of interviewed park visitors not initially tuning into the Coast Talk broadcast said they intended to listen to the messages before leaving the park. Most of these people indicated that they noticed Coast Talk signs while walking around the park, but were interviewed prior to reentering their vehicles and turning on the radio broadcast.

Place of residence did not predict listenership. There was no significant difference in Oregon residents tuning into the broadcast compared to out-of-state or international visitors. Forty-eight percent of respondents had an Oregon zip code, 45% lived out of state and six percent lived in foreign countries (one percent refused to give their zip code). Almost 70% of park visitors interviewed on-site during this study indicated having an urban or metropolitan domicile. The Portland area was the most common residence of respondents from urban areas.

Many park visitors interviewed during this study found the broadcasts were a great tool for enhancing their state park visit. Most listening visitors could recall the major theme(s) of the message(s) they heard and found the message length appropriate. Additionally, many visitors who had not tuned into the broadcast prior to the survey expressed positive opinions about the unique opportunities offered by this technology and indicated they would tune into the broadcast at the completion of the survey.

Increased listenership may have been obtained by putting a sign on the highway (i.e., which the Oregon Department of Transportation would not have allowed for this project). While the short range of the 100 milliwatt station would not extend out along the highway, a highway sign could inform motorists of the broadcast opportunity available in the park and motorists could choose to visit the park to listen to the broadcast. Many visitors suggested place-

ment of signs along the highway. In addition, several respondents indicated they thought the signs and "Coast Talk" referred to a commercial broadcast or "talk radio show" and did not tune in for this reason. Increasing the size of the OPRD and OSG logos on the signs or an alternate name for the broadcast may have decreased the confusion. Many respondents suggested using the phrase "Park Info, Tune to 1610 AM" to notify visitors of the legitimacy of the broadcast.

Several visitors tried to tune into the broadcast but did have trouble receiving the signal. While many of these problems were attributed to faulty radio or antenna equipment, some reception difficulties remained. Often one visitor would have trouble hearing the broadcast while an adjacent visitor was listening to the broadcast. This problem may be attributed to differences in radios or antenna strengths.

## Conclusions and Implications for the Future

Fazio and Gilbert (1982) discuss some drawbacks of utilizing conventional commercial radio technology to communicate interpretive or educational information. Radio is an immediate medium where the message effectiveness depends on a "one-shot" effort at visitor contact and understanding and it is a more passive form of communication. Contact through the radio message does not necessarily mean communication. However there are several advantages from utilizing radio to communicate to visitors. Radio is a timely medium; it can be easily updated and it is relatively accessible. And it is relatively low in cost considering the large number of people who can be reached. LPR differs from conventional commercial stations in that messages are rebroadcast automatically every 10-15 minutes, 24 hours a day, seven days a week. Messages can be listened as many times as desired by visitors leading to increased retention of information.

Most survey respondents, regardless of whether they heard the broadcast, were enthusiastic about this communication tool. But funds for purchasing the radio equipment for Boiler Bay State Park have not yet been procured. It is hoped that as OPRD managers learn of the outreach potential of LPR broadcasts, funds will be secured for purchasing this equipment. Visitor education is vital to conservation of marine and coastal resources.

Low power radio broadcasts are a viable option for state park coastal managers to “do more with less.” LPR broadcasts could become a trademark of Oregon’s coastal parks. The state park system is already highly valued by residents and visitors. As we look ahead to increasing coastal residents and visitors, this outreach tool could help stimulate and renew interest in our marine environment and natural resources. One future study could investigate whether a Coast Talk broadcast encourages visitors to be more responsible stewards in the coastal environment.

There are several advantages of using 100 milliwatt LPR units in coastal parks instead of a 10 Watt transmitter placed along the highway. Signs notifying visitors of a 10 Watt system must be viewed while motorists are traveling at high speeds along roadways. Attention to the message content of these size stations may be minimal while motorists are navigating through traffic, perhaps studying maps, or distracted in other ways inside the moving vehicle. Use of 100 milliwatt broadcasts in parking areas provides greater opportunity for visitors seeing signs, attention to message content, and likely leads to greater retention of the broadcast information. Tune-in rates during the 10 Watt Forest Talk evaluations ranged from 1.3% to 8%. While the Boiler Bay project had a tune-in rate of 10% during the first week with only four signs visible, it jumped to 16% during Weeks 4 and 5, a rate which is double the highest Forest Talk listenership. The 100 milliwatt LPR stations must have an adequate number of signs dis-

played so visitors have the opportunity to tune in to the broadcast.

Whether the OPRD interest level increases enough to widen the LPR broadcast application in coastal parks remains to be seen. The Boiler Bay project results intrigued the Port of Newport and Hatfield Marine Science Visitor Center. Both locations now have a 100 milliwatt LPR station. Results from this study indicate that LPR broadcasts are a promising communication technology for providing park visitors with helpful information. State parks in Oregon offer important opportunities for visitor recreation and natural resource education. With increasing visitation to the nation's coastal parks, there is growing need for marine education to enhance stewardship, interpretation, and safety knowledge. This research indicates that parks should consider LPR technology as an affordable communication strategy for reaching these visitors.

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