

Impacting Communities Through Science-Themed Community Events – Evaluating Ocean Discovery Day

FGBNMS Advisory Council Meeting

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What is a science-themed community event?

- * An event that places scientists, researchers, educators and other stakeholders together with the public in order to create awareness about a topic or focus and demonstrate the relevance of science in everyday life (Wharton & Rutherford, 2011).
- * These events provide opportunities for the public to learn about science and technology in formats they can identify with (Dierking & Falk, 1994; Jensen & Buckley, 2014).
- * Ocean Discovery Day (ODD)



Why study science-themed community events?

Current studies focus on:

- * Visitor satisfaction of the event
- * Specific event experiences
- * Visitor motivation for attendance
- * Unpublished individual event evaluations





The case for Ocean Discovery Day

Research has shown:

- * Events like ODD present attendees with new opportunities for engagement
- * Opportunities to build on prior knowledge
- * Interactions with STEM practitioners largest predictor for attendee learning
- * Aligns with the mission and goals for outreach in the FGBNMS Management Plan

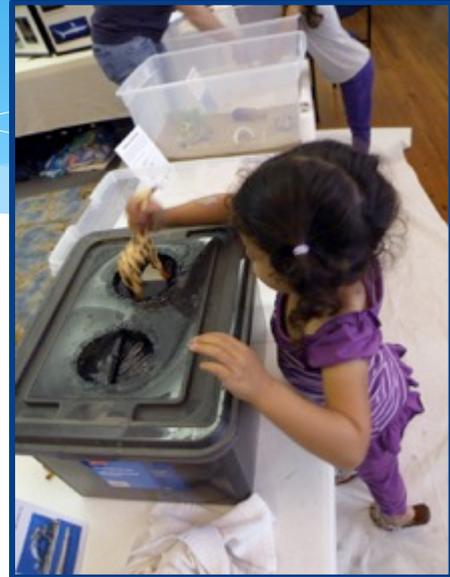
Purpose of the Study

- * **Develop a** visitor profile of who attends ODD and their motivation for doing so
- * **Discover** which experiences made lasting impressions on visitors
- * **Gain insight** as to how experiences vary between parents and their children AND how do parent/ child social interactions influence those experiences



Research Questions

1. Why were visitors interested in attending ODD?
2. What did visitors remember about ODD:
 - a) The day of the event?
 - b) Three months or more after the event?
3. What social interactions (if any) do parents and children draw or mention when describing their experiences during ODD?
4. What are the differences (if any) in the experiences parents and children remember from ODD?





Qualitative Study

- * **Setting** ODD annual event hosted by a National Marine Sanctuary on the Texas Gulf Coast (U.S. Department of Commerce, et al., 2012); Free admission
- * **Participants**
 - * 175 ODD visitors completed an exit questionnaire
 - * 5 family groups (N=13) completed drawings and interviews in the follow-up portion of the study

Data Analysis

Day of the Event:

- * Exit questionnaire – Open & Axial Coding (Strauss & Corbin, 1998)

Three Months Post Event:

- * Drawing activity
 - * Each drawing was evaluated to measure breadth, extent, & detail (Bowker, 2007; Cainey, Bowker, & Humphrey, 2012)
- * Semi-structured interview – Open & Axial Coding (Strauss & Corbin, 1998)

Results – Visitor Profile

Visitors

- Female (67%)
- In mid 30's
- White, Non-Hispanic (70%); Hispanic (22%)

Locality

- Reported living outside the host city (59%)
- Outside Galveston County (44%)

Attendance

- Had not attended previously (73%)
- Would attend again (95%)

Results – Visitor Profile

Visitors

- Consistent with prior studies (Craig et al., 2011; Manning et al, 2010)
- Suggests potential for encouraging science learning in underrepresented groups

Locality

- Opportunity to reach more of the local population
- Opportunity to increase awareness about the sanctuary to an audience who although may not have direct access to the ocean, still have an impact

Attendance

- Continued rise in attendance increases chances for creating awareness
- Repeat attendees can build on knowledge learned from attending ODD

Results

Day of the Event – How did you hear about ODD?

Responses for “How did you hear about ODD?”



Results

Day of the Event – Why were visitors interesting in attending ODD?

Themes, Properties of Themes and Example Words/Phrases Given for Motivation to Attend

Themes	Subthemes	Examples of words/phrases
Education (47%)	Education/Learning	Learn about new things
	Conservation	They have good information about recycling and how to save animals
Interest (24%)	Organisms	I like sea turtles
	Venue	Wanted to visit to see the place
Social (15%)	Meet people	Friends were attending
	Family outing	Family member wanted to attend
Entertainment (14%)	Fun	I was looking for something fun to do in the area
	Specific activities	I wanted to play the ocean games

Attendance Motivation

Perceived
the Event as
Educational

Reported
Desire to
Learn

Opportunity
for Creating
Awareness

Opportunity
for Science
Learning

Results

Day of the Event – What did visitors learn about NOAA?

Theme	Subthemes	Examples of words/phrases
Responsibilities (45%)	Research	More than just weather studies; research on the Gulf Coast; ocean acidification studies; they do important research
	Testing	Pelagic Longline Gear & Hook Testing
	Monitoring	Sanctuary monitoring; invasive species monitoring
	Conservation	Save sea life; they help the ocean; they protect coral; they create environmental consciousness
	Education outreach	They have a website. Please keep this event going. This event should be mandatory for everyone on the planet. Everyone should attend events like these.
	Careers	Provides careers in the field of science; you can be a scientist for NOAA
Organism Information (40%)	Sea Turtles	Their work to help sea turtles survive; why they hatch and release turtles; Sea turtle rescues.
	Dolphins	Partner with TMMSN; help save dolphins
	Misc. Information	Help with lionfish problem; they help save marine life; monitor coral reefs
Branches (8%)	NOAA Corps	Role of NOAA Corps; they work with the Coast Guard; it's works world wide and has a world wide impact
	FGBNMS	Sanctuary protects ecological resources
	Weather	Weather Stations; monitor waves and Tsunamis
Historical Information (7%)	Facts	NOAA exists and has been around for a while. What NOAA stands for. The campus has a very interesting history

Results

Day of the Event – What did visitors remember about ODD?

Themes,
Properties of
Themes and
Example
Words/Phrases
Given for What
Participants
Remembered the
Day of ODD

N=175

Theme	Subthemes	Examples of words/phrases
Organism Information (61%)	Sea turtles	Sea turtle rescue information
	Dolphins	Rescue workers put sunscreen on dolphins' beaks
Conservation (10%)	Pollution	We need to keep fishing line out of the ocean
	Environmental Issues	Acid in the ocean is eroding shells
OF Activities (9%)	Mural Painting	I like the mural and the animals on it
	Turtle Excluder Device (TED) Obstacle Course	I really liked running the obstacle course
Exhibits (8%)	NMS	At the NMS exhibit I learned about the sanctuary
Historical Information (7%)	Building	The building is old
	Organization	I did not know about the history of this organization
Social (5%)	Staff & Volunteers	Staff gave factual information; Staff were helpful and nice
	Group Interaction	I loved seeing my son's reaction and excitement to all the fun things to do and interesting things to see

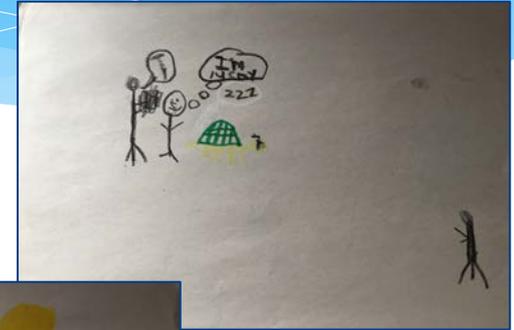
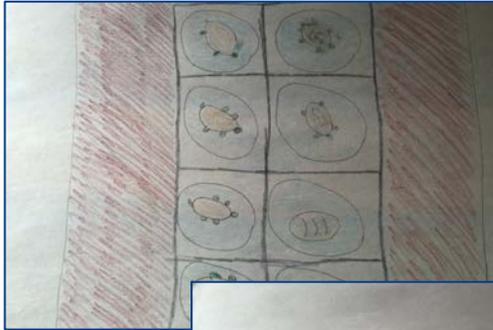
What do Visitors Remember 3 Months Post ODD?

Themes	Subthemes	Examples of words/phrases
Organism Information (30%)	Sea turtle	We got to see the turtles in their tanks
	Dolphin	We toured the marine mammal stranding network center where they sometimes have dolphins
	Coral	I looked at different types of coral
ODD Activities (27%)	Obstacle course	I played this really cool game about sea turtles. We climbed through this net. I buried turtle eggs
	Mural	I painted a square on the mural.
	Movie	We watched the Window in the Waves movie
Social (23%)	Staff Interaction	He talked to us about dolphins. She helped us climb through the net. I listened to him talk about exploring the ocean floor.
	Group interaction	We took turns climbing through the net and rolling for jellies. We touched coral.
	Other attendee interaction	There were so many people there. I saw my friend at the sea turtles.
Exhibits (20%)	Specimen jars	I really like the specimen jars. You could pick it up and look underneath it.

Results

3 Months Post Event – What social interactions (if any) do parents and children draw or mention when describing their experiences during ODD?

- Parents described themselves as facilitators
- Parents drew exhibits and organisms



- Children described interactions with staff/with members of their group
- Children drew activities and organisms



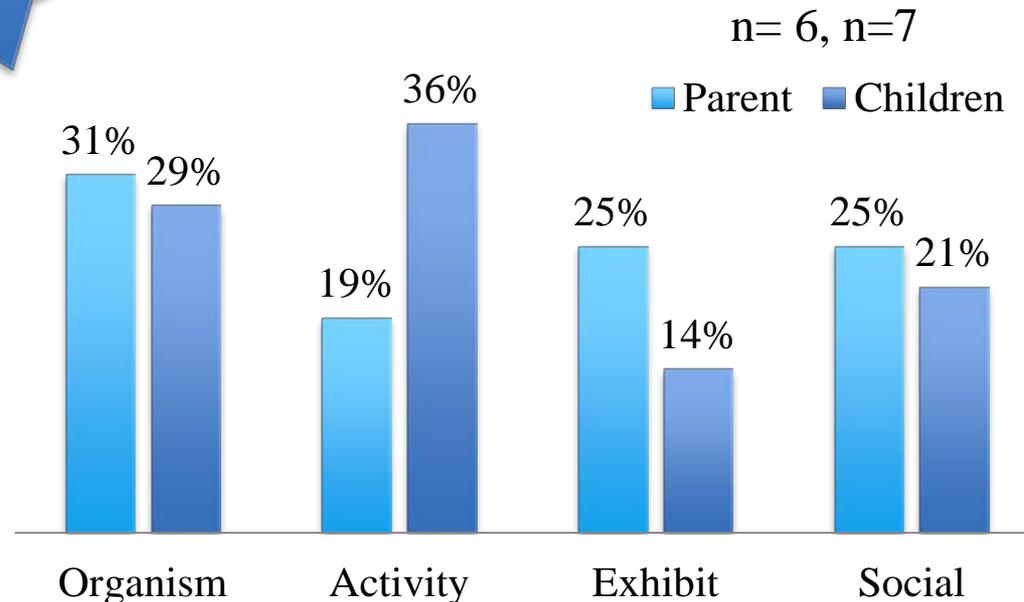
Results

3 Months Post Event – What are the differences (if any) in the experiences parents & children remember from ODD?

“That’s me, that’s my mom and that’s a sea turtle...that’s a plastic bag. Turtles can’t eat them. They will get sick.”

To grow you need to eat...I kept rolling bad stuff that turtles can’t eat, like plastic bags.”

Coded Interview Response for Memory – Post Event



“The kids played at the turtle game for almost an hour...kept telling me ‘just one more time’”

“I watched them do the course at least half a dozen times...”

Differences in Experience



Child's focus is on
Organisms, Activities,
& Social Interactions
with Staff/Group
Members/Attendees

Parent focus is on
Organisms, Exhibits, & how
their children experienced
OF



Experience is driven by
interest & needs

(Anderson, et al., 2007; Briseño-
Garzón, et al., 2007)

Conclusions

- * Visitors are attending the event because they believe it's educational
- * Parents & children view the same event from different perspectives
- * Parents see themselves as facilitators and observers, but their drawings suggest they see themselves as individual learners too
- * Role playing is an important contributor to the memories children developed at a ODD
- * These memories of ODD indicate there is some lasting conservation awareness

For the future...

- * Increase advertising for ODD – Earlier, locally
- * Something for everyone
- * More opportunities for role play
- * Extend the experience for visitors



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Photo credits – Kelly Drinnen, FGBNMS

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