

Responsive Management



MANATEE EDUCATION AND OUTREACH ASSESSMENT

**Conducted for the U.S. Fish and Wildlife Service
Florida Manatee Recovery Implementation Team
Education Working Group**

by Responsive Management

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EXECUTIVE SUMMARY

This study was conducted for the U.S. Fish and Wildlife Service's Manatee Recovery Implementation Team Education Working Group to assess existing education and public awareness materials and programs related to the Florida manatee. The assessment was designed to identify any overlaps among the various education and outreach efforts; the full range of manatee issues that may need to be addressed through education and outreach but are not currently being adequately addressed; the target audiences that should be served by the Education Working Group, including those not currently being adequately served; and the best strategies and technologies to educate and inform the target audiences, including a prioritization of the groups who most need specific additional information and how to get the information to them. The study entailed a combination of mail and e-mail questionnaires designed to fully assess the specific needs for manatee education and outreach efforts.

Two separate surveys were administered: one to Education Working Group members to determine their priorities with regard to education and outreach on the manatee; and another to education providers in order to inventory the available materials used for education and outreach.

EDUCATION WORKING GROUP SURVEY RESULTS

The following section discusses an overview of the needs assessment that was administered to Education Working Group members.

PRIORITY RATINGS FOR TOPIC AREAS FOR EDUCATION AND OUTREACH

Education Working Group members were asked to prioritize 16 topic areas for manatee education and outreach. Respondents were instructed to rate each of the topic areas as being an extremely high priority for education materials and programs, a high priority, a medium priority, a low priority, or not a priority at all.

- A substantial percentage of Education Working Group members (42%) identified how to safely observe manatees in the wild as being an extremely high priority for education efforts.

- Other notable topic areas designated by Education Working Group members as *extremely high* priorities are protecting aquatic ecosystems (37%), the effects of littering (32%), and reporting an injured, dead, harassed, or orphaned manatee (32%).
- The topic area designated most commonly by Education Working Group members as being a *low* priority or *not a priority at all* for manatee education and outreach efforts was fundraising (37%), followed by legislation for manatee protection (33%), and manatee natural history (32%).

SPECIFIC ISSUES OF MANATEE TOPIC AREAS

Education Working Group members were asked to name the specific issue of each listed topic area representing the most important issue for manatee education and outreach efforts. The following are the most important issues for the top four topic areas identified by Education Working Group members:

Observing manatees in the wild	<ul style="list-style-type: none"> • Public awareness not to feed, touch, or otherwise contact manatees in the wild • Observing from a distance
Protection of aquatic ecosystems	<ul style="list-style-type: none"> • Ecosystem and habitat destruction in general • General education of people and improving their awareness of habitat needs • Personal responsibility and obligations to protect ecosystem; getting involved
Effects of littering	<ul style="list-style-type: none"> • Monofilament line and entanglement issues
Reporting injured, dead, harassed, or orphaned manatees	<ul style="list-style-type: none"> • Hotline and other contact information

PRIORITY RATINGS FOR GROUPS TARGETED FOR EDUCATION AND OUTREACH

- Most commonly, Education Working Group members cited boaters and jet ski operators using public ramps (72%) and dock/marina permit applicants (72%) as groups having an *extremely* high priority for manatee education and outreach efforts, followed by public marinas (67%) and vessel/vehicle registrants (67%).

- Senior citizens (24%) and the business community (22%) were the most common answers regarding the groups Education Working Group members rated as low priorities or not priorities at all for education and outreach.
 - A notable percentage of Education Working Group members (17%) rated each of the following groups as low priorities or not priorities at all for education efforts: college students, tourists, elementary/primary/K-5 educators, and libraries.

EFFECTIVENESS RATINGS OF TYPES AND FORMATS OF MANATEE EDUCATION AND OUTREACH

- The computer was the overwhelmingly preferred format for manatee education and outreach materials and programs, with 80% of Education Working Group members citing Internet/website/e-mail/PDF documents as the most effective methods for delivering educational material.
 - The other top-ranked types and formats for manatee education and outreach were TV (65%) and training/programs for educators (65%).
 - A substantial percentage of Education Working Group members (60%) view nature centers and preserves as being the most effective in delivering manatee education.

MANATEE EDUCATION AND OUTREACH MARKET INVENTORY

The following section presents an overview of the market inventory administered to manatee education and outreach providers.

TOPIC AREAS FOR EDUCATION AND OUTREACH CURRENTLY ADDRESSED BY PROVIDERS

- Of the 16 topic areas focusing on manatees discussed in the survey, the following are addressed *a great deal* by at least half of the education providers who responded to the survey: boating regulations/signage/zones (58%); manatee natural history (54%); manatee mortality (54%); how to safely observe manatees in the wild (54%); manatee habitat needs

(50%); manatee research, rescue, rehabilitation (50%), and how to report an injured, dead, harassed, or orphaned manatee (50%).

- At the bottom of the ranking (by the percent of organizations addressing the topic *a great deal*) is fundraising (8%).

GROUPS CURRENTLY TARGETED FOR MANATEE EDUCATION AND OUTREACH BY PROVIDERS

- The survey asked about targeting by manatee education and outreach providers of 36 groups of different audiences and markets for manatee education. Four groups stand out as being targeted *a great deal* by substantial percentages of organizations: children ages 12 and younger (55%), adults aged 18 to 64 years old (55%), “everyone” (50%), and senior citizens (48%). Seven other groups rank high as being targeted *a great deal*, which include tourists (41%); environmental education centers (41%); park and museum staff and volunteers (36%); primary and secondary school educators (i.e., K through 12th grades: 41% for K through 8th grade educators, 36% for 9th through 12th grade educators); and Florida residents (36%).
 - Low on this ranking of organizations currently being targeted *a great deal* are current license plate holders (0%), property/land managers (4%), the business community (5%), developers (5%), and vessel and vehicle registrants (5%).

OPINIONS ON GROUPS TARGETED SUCCESSFULLY FOR MANATEE EDUCATION AND OUTREACH

- Children ages 12 and younger (67%), adults ages 18-64 (63%), and elementary/primary/K-5 educators (58%) are the groups that education and outreach providers most commonly say that they reach successfully.
 - Current license plate holders (4%) and developers (4%) are the lowest-ranked among groups education and outreach providers say they target successfully.

TYPES AND FORMATS OF MANATEE EDUCATION AND OUTREACH CURRENTLY PRODUCED BY PROVIDERS

- Brochures and pamphlets are the most common type of manatee education/outreach material, with 79% of education providers citing them as a format currently being produced for information delivery.
 - Three-quarters (75%) of manatee education providers currently offer conferences, seminars, and guest speaker programs as ways of providing manatee education.
 - Three-quarters (75%) of manatee educators produce interpretive signs for manatee education and outreach.
 - A substantial percentage of manatee educators (71%) utilizes the Internet, websites, e-mail, and PDF documents as methods for delivering manatee education and outreach.

PROGRAMS AND MATERIALS PRODUCED BY MANATEE EDUCATION AND OUTREACH PROVIDERS

- Currently available manatee education and outreach materials and programs are most commonly directed towards all general audiences (30%), while substantial percentages of programs and materials are produced with a focus on the scientific community (20%), those involved in education (18%), and general youth audiences (17%).
- Based on a qualitative analysis of program messages, education and outreach programs and materials communicate a wide range of messages to their target audiences. Most commonly, program messages stress ways to help manatees; the protection of aquatic ecosystems; and the effects of littering (with most of these messages singling out the danger of discarded monofilament line).
 - Less commonly, program messages include some mention of boating regulations, signs, and zones, and how to safely observe manatees in the wild.

MANATEE EDUCATION AND OUTREACH PROGRAM ELEMENTS

- Most education providers produce fewer than nine materials and/or programs dedicated entirely to manatees.

- The median number of programs produced by an organization that are entirely dedicated to manatees is 3.
- The median number of programs produced by an organization that are partially dedicated to manatees is 3.5.
- The median number of programs produced by an organization that do not address manatees at all is 12.
- The average dollar amount budgeted by organizations specifically for manatee education is \$20,395.83.
- On average, manatee education accounts for 36.67% of the education budgets of various organizations.
- Most organizations providing manatee education have staff sizes below 1,000 employees.
- Most organizations do not dedicate any full-time employees to manatee education efforts.
- Most organizations place at least some emphasis on developing and providing manatee education.
- Most organizations are satisfied with the amount of time and resources spent on manatee education within the organization.
- Most organizations agree that there is enough manatee education being produced by their organization as a whole.
- Most organizations consider manatee education to be very important compared to other types of education produced.
- The greatest amount of demand among education providers for a format not currently offered is for television, followed by virtual and electronic field trips, and decals, bumper stickers, and posters.
- Websites and the Internet are the most common promotional tools used by education providers, followed by word-of-mouth and news releases.

PRIORITY RATINGS FOR GROUPS TARGETED FOR EDUCATION AND OUTREACH

- The survey asked how much of a priority education providers thought it *should be* to target 36 different audiences and markets for manatee education. Most commonly, manatee education and outreach providers cited the marine industry (73%) and legislators/local and

state governments (68%) as groups having an extremely high priority for manatee education and outreach efforts. Other groups named by manatee education and outreach providers as extremely high priorities for manatee education and outreach were boaters and jet ski operators using public ramps (64%) and developers (64%).

- Four groups were identified as *high* or *extremely high* priorities for manatee education by 95% of respondents: boaters and jet ski operators using public ramps; the marine industry; public marinas; and private marinas.
- The lowest-ranked groups for manatee education and outreach were senior citizens (25%) and elementary/primary/K – 5 educators (23%).
- It is important to note the major differences between who manatee education and outreach providers *feel* should be targeted versus who they *actually* target. For example, 73% feel that the marine industry should be targeted while, among the same providers, just 9% said that their programs and materials target the marine industry a great deal.

INTEREST IN PARTNERSHIPS AMONG MANATEE EDUCATION AND OUTREACH PROVIDERS AND BARRIERS PREVENTING PARTNERSHIPS

- A substantial percentage (39%) of manatee education providers already partner with other organizations to provide manatee education and outreach. A further 44% of the educational organizations surveyed do not currently partner but are interested in forming partnerships, with most of those organizations being *very* interested.
- Nearly a third (32%) of manatee education providers reported that there are barriers preventing their organization from partnering with other organizations to provide more manatee education and outreach.
 - Time, staffing needs, and funding are the most common responses when manatee education providers are asked about the barriers preventing partnerships.
 - Not surprisingly, additional funding and staffing (including volunteer workforces) are the solutions commonly proposed by manatee education providers.

OVERVIEW AND RECOMMENDATIONS

BROAD, OVERALL ACTIONS

- This manatee education and outreach assessment documented that a plethora of manatee education and outreach programs and materials are available. Numerous topic areas and audiences are covered and various media are utilized to distribute these education and outreach efforts.
- An important aspect of this project was to compare the priorities of the Education Working Group with the educational actions and efforts actually taking place among manatee education and outreach providers. Evaluated in this way, a realignment of topic areas, audiences and media outlets should be considered to bring the supply of education and outreach topic areas, target audiences and media in line with the professional opinion of the Education Working Group. The Education Working Group should work to educate providers on the possible surplus and deficits of manatee education and outreach with the goal of having a coordinated and holistic manatee education and outreach effort. Organizations should develop education and outreach efforts with their own expertise and needs, but the cumulative effect should be the result of a comprehensive effort.
- When possible, manatee education materials and programs should be produced, distributed and marketed to the narrowest possible intended target audience(s) and market(s) without sacrificing the intended overall educational effect. Educational materials and programs are most effective when they are focused and specific to a group.
- When possible, dedicate more employees to manatee education within education-providing organizations. Most organizations do not dedicate full-time employees to manatee education, but even a single employee would help ensure greater focus and expertise in the development of materials and programs for manatee education.
- Providers should address funding, staff needs, and time when developing and producing future materials and programs for manatee education. Funding, staff needs, and time are the recurring barriers inhibiting not only the production and frequency of manatee education but

also the potential for partnerships among education providers. It is therefore reasonable to assume that these factors are common to many manatee education providers, and will continue to be issues in the future.

GROUPS FOR WHICH MANATEE EDUCATION AND OUTREACH SHOULD BE PROVIDED

- Current education and outreach efforts by providers were compared to the priorities of Education Working Group members. This was determined by subtracting the groups currently targeted a great deal by manatee education providers from groups rated by Education Working Group members as extremely high priorities for education. Here, positive values indicate an ample supply of education and outreach effort, while negative values show deficits in the amounts of education and outreach directed at a group.

- Based on this analysis, three groups have notable positive values, indicating likely overabundances in current education and outreach efforts for these groups. They are, from greatest amount of surplus:
 - Senior citizens ages 65 or older
 - “Everyone”
 - Children ages 12 or younger

- Currently, 18 target markets and audiences are not reached by manatee education and outreach as much as Education Working Group members would like them to be. The following groups are effectively in need of manatee education and outreach (in order of greatest amount of deficit):
 - Dock/marina permit applicants
 - Vessel/vehicle registrants
 - Boaters/jet ski operators using public ramps
 - Private marinas
 - The marine industry
 - Public marinas
 - Law enforcement

- Legislators/local and state governments
 - Developers
 - Shoreline/coastal property owners
 - Property/land managers
 - The media
 - The tourism industry
 - Divers, snorkelers, and swimmers
 - The business community
 - Current license plate holders
 - Florida residents
 - Libraries.
- Providers' likely future education and outreach efforts were compared to the groups rated by Education Working Group members as extremely high priorities. This was determined by subtracting the groups *to be* targeted a great deal by education providers from the groups rated by Education Working Group members as extremely high priorities for future education. Once again, a positive value indicates a possible future increase in education and outreach for a group, while a negative value is indicative of a possible future decrease.
- In the future, education and outreach providers plan to lessen their focus on several groups that Education Working Group members consider to be extremely high priorities for education:
- Dock/marina permit applicants
 - The media
 - Vessel/vehicle registrants
 - Boaters/jet ski operators using public ramps
 - Tourists
 - Public marinas
 - Law enforcement
 - Out-of-state residents.

- Groups rated as high priorities for manatee education and outreach were compared to the groups typically targeted for education and outreach. Possible levels of future education and outreach by providers were determined by subtracting the groups currently targeted a great deal by education providers from the groups rated by education providers as extremely high priorities for future education.

- Manatee education and outreach providers plan to decrease focus on six groups that have previously been targeted a great deal by providers (in order from greatest possible future decrease):
 - Senior citizens ages 65 or older
 - Adults ages 18-64
 - Tourists
 - Out-of-state residents
 - “Everyone”
 - Children ages 12 or younger.

Although each of these groups is *currently* being targeted adequately by education providers, they will not be given the same degree of focus by education providers in the future.

TOPICS ON WHICH MANATEE EDUCATION AND OUTREACH SHOULD BE PROVIDED

- Topic areas for manatee education and outreach rated by Education Working Group members as extremely high or high priorities were compared to topic areas on which manatee education and outreach providers focus a great deal. This was determined by subtracting the topic areas rated by Education Working Group members as extremely high or high priorities from the topic areas on which manatee education and outreach providers focus a great deal.

- In order of greatest amount of surplus (i.e., overabundance of focus), these are the topic areas on which more emphasis may not be necessary, or for which overlaps in education efforts may presently exist:
 - Manatee natural history

- How to report an injured, dead, harassed, or orphaned manatee
 - Ways to help manatees
 - Manatee research, rescue, and rehabilitation
 - Manatee population issues
- Education and outreach providers should work to diversify the content (i.e., the focus on topic and subject matter) of their materials and programs on manatees. Manatee education and outreach providers should work to focus more on the following topic areas not being addressed adequately in current education and outreach materials (in order of greatest deficit):
- Protecting aquatic ecosystems
 - Warm water issues
 - Harassment definition and impacts
 - The effects of pollution on water quality
 - The effects of littering
 - Boating regulations, waterway signs, and manatee protection zones
 - How to safely observe manatees in the wild
 - Legislation for manatee protection
 - Manatee habitat needs
 - Fundraising
 - Manatee mortality.

MEDIA AND FORMATS TO USE TO REACH AUDIENCES

- Twelve different education and outreach formats are viewed by Education Working Group members as being effective, but are not widely used by education providers. Manatee education and outreach providers should work to implement education and outreach through a wide variety of formats, with special attention paid to the formats below. They include, in order from least-utilized:
- Loaner resource boxes for educators
 - TV (e.g., video segments, programs, or ads/commercials, etc.)

- Billboards
- Radio
- Virtual or electronic field trips
- Training/programs for educators
- Books and magazines
- Postcard campaigns
- Nature centers/preserves
- Internet/Website, e-mail, PDF documents
- Newspapers (e.g., news articles, ads)
- Mail packets and utility-bill inserts.

SUCCESSFUL PROGRAM ELEMENTS

Through the years, Responsive Management has identified the elements of successful wildlife and conservation education and outreach programs. Following are the steps that have lead to successful wildlife and conservation education and outreach initiatives. Based on this manatee education and outreach assessment, the first step is for the Education Working Group to develop a written education and outreach plan that considers the following elements of a successful program.

- *Step 1: Identify and Prioritize Conservation Issues.* The first step in education and outreach planning is the challenging task of identifying and prioritizing the issues most important to the organization regarding conservation.
- *Step 2: Identify and Prioritize Education, and Outreach Issues.* The next step is to understand and identify the education and outreach goals and priorities of the organization staff. This assessment is an important first step.
- *Step 3: Define Goals and Set Measurable Education and Outreach Objectives.* The next step is to define specific goals and set measurable objectives. Goals define the management philosophy within which objectives will be pursued. They are general and often lofty statements about the outcome desired for a program or initiative. Objectives are directed toward the accomplishment of goals and are specific and measurable statements of what, when, and how much will be achieved.

- *Step 4: Identify, Define, and Target Publics.* To develop effective and successful education and outreach programs, managers need to identify and classify different user groups and discern their socio-demographic characteristics.
- *Step 5: Understand the Audience.* Understanding how people relate to conservation issues is an important foundation upon which education and outreach efforts can be built and can determine how the Education Working Group approaches target groups. Three major aspects of understanding how people relate to conservation and other issues include understanding public opinion, attitudes, and level of awareness or readiness stage.
- *Step 6: Identify, Define, and Test the Message.* Research clearly indicates that some messages will resonate with various target audiences while others will not. The final steps in marketing, publicizing, and advertising the education and outreach product, program, or service are to choose the appeal(s) or motivator, and develop and pretest the education and outreach program. Several considerations when developing projects and programs to create positive actions and behaviors include: appealing to people's emotions, creating programs that are locally based, making programs convenient for people, and reminding people of results and benefits. The final step is to pretest and evaluate the product, program, or service. Pretest programs, products, and messages on the target audience for which they have been designed. Incorporate feedback into the program. Repeat the exercise until the program produces the desired results.
- *Step 7: Consider Demographic, Social, Economic, and Political Trends.* Identifying and incorporating changing societal factors into education and outreach programs allows organizations to become proactive, rather than reactive, to external forces. Information on societal makeup and change also can be used in conjunction with market segmentation, target marketing, and target group segmentation.
- *Step 8: Getting the Message Across: A Marketing and Advertising Approach.* The next step in bringing an organization's message or program to target groups is to select the appropriate medium. The decision should be based on the target group – where they live; where, when and how often the organization wants to reach them; and how much communications promotions cost.
- *Step 9: Internal Considerations.* There are many internal issues that education and outreach specialists should be aware of that can make the difference between successful and

unsuccessful programs. For example, communications efforts will not work if there are not appropriate resources committed to the effort. Internal awareness and acceptance must be created as well.

- *Step 10: Project Evaluation.* Evaluation is one of the most important components of a communications program because it will answer the fundamental question, “Did the program work?” Evaluation of education and outreach programs should be based on the goals and objectives initially set.

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INTRODUCTION AND METHODOLOGY

This study was conducted for the U.S. Fish and Wildlife Service's Manatee Recovery Implementation Team Education Working Group to assess existing education and public awareness materials and programs related to the Florida manatee. The assessment was designed to identify any overlaps among the various education and outreach efforts; the full range of manatee issues that may need to be addressed through education and outreach but are not currently being adequately addressed; the target audiences that should be served by the Education Working Group, including those not currently being adequately served; and the best strategies and technologies to educate and inform the target audiences, including a prioritization of the groups who most need specific additional information and how to get the information to them. The study entailed a combination of mail and e-mail questionnaires designed to fully assess the specific needs for manatee education and outreach efforts. When necessary, telephone calls were made to respondents who preferred to submit their answers that way. Specific aspects of the research methodology are discussed below.

Responsive Management worked in partnership with the Education Working Group to design the survey instruments. Two separate surveys were administered: one to Education Working Group members to determine their priorities with regard to education and outreach on the manatee; and another to education providers in order to inventory the available materials used for education and outreach. Responsive Management designed the surveys based on discussions with the Education Working Group committee and our extensive experience with natural resource and wildlife surveys and with environmental education inventories and needs assessments. This design process ensured that the survey instruments met the exact needs of the Education Working Group. Responsive Management then pre-tested the survey instruments and made any

necessary revisions for logic and flow, wording, and clarification. After approval of the final survey instruments, the surveys were administered by mail and e-mail.

Responsive Management distributed the needs assessment survey to all members of the Education Working Group. Education members printed and completed the surveys and then returned them to Responsive Management by mail or by facsimile. When necessary, telephone calls were made to respondents who preferred to submit their answers that way. Trained interviewers at the Responsive Management central polling site entered the survey responses from these paper copies into the computer system. Responsive Management used strict quality control measures to ensure accuracy and completeness of the entire data entry process, including random reviews for data entry accuracy. QPL 4.1 was used for the mail survey data entry and storage of both the needs assessment surveys and the market inventory surveys. The Education Working Group needs assessment survey was conducted June to August 2006.

Responsive Management distributed the market inventory survey by e-mail to Florida manatee education and outreach providers. These providers were located through extensive background research conducted on organizations specializing in marine education and outreach. The inventories were printed and completed by department heads or their designees and then returned to Responsive Management by mail or by facsimile. When necessary, telephone calls were made to respondents who preferred to submit their answers that way. Trained interviewers at the Responsive Management central polling site entered the inventory data into the computer system. Again, strict quality control measures ensured accurate and complete data entry. The inventory was conducted June to September 2006.

All survey data was processed and analyzed using SPSS/11.5 for Windows software and proprietary software developed by Responsive Management. Data processing and analysis included coding, cleaning of data, preparation of straight tabulations, computer processing with cross tabulations, and preparation of study printouts. Responsive Management created graphs to correspond with each question for easy review and visual display of survey data. In those cases in which cross-tabulations were run, those tabulations were also graphed.

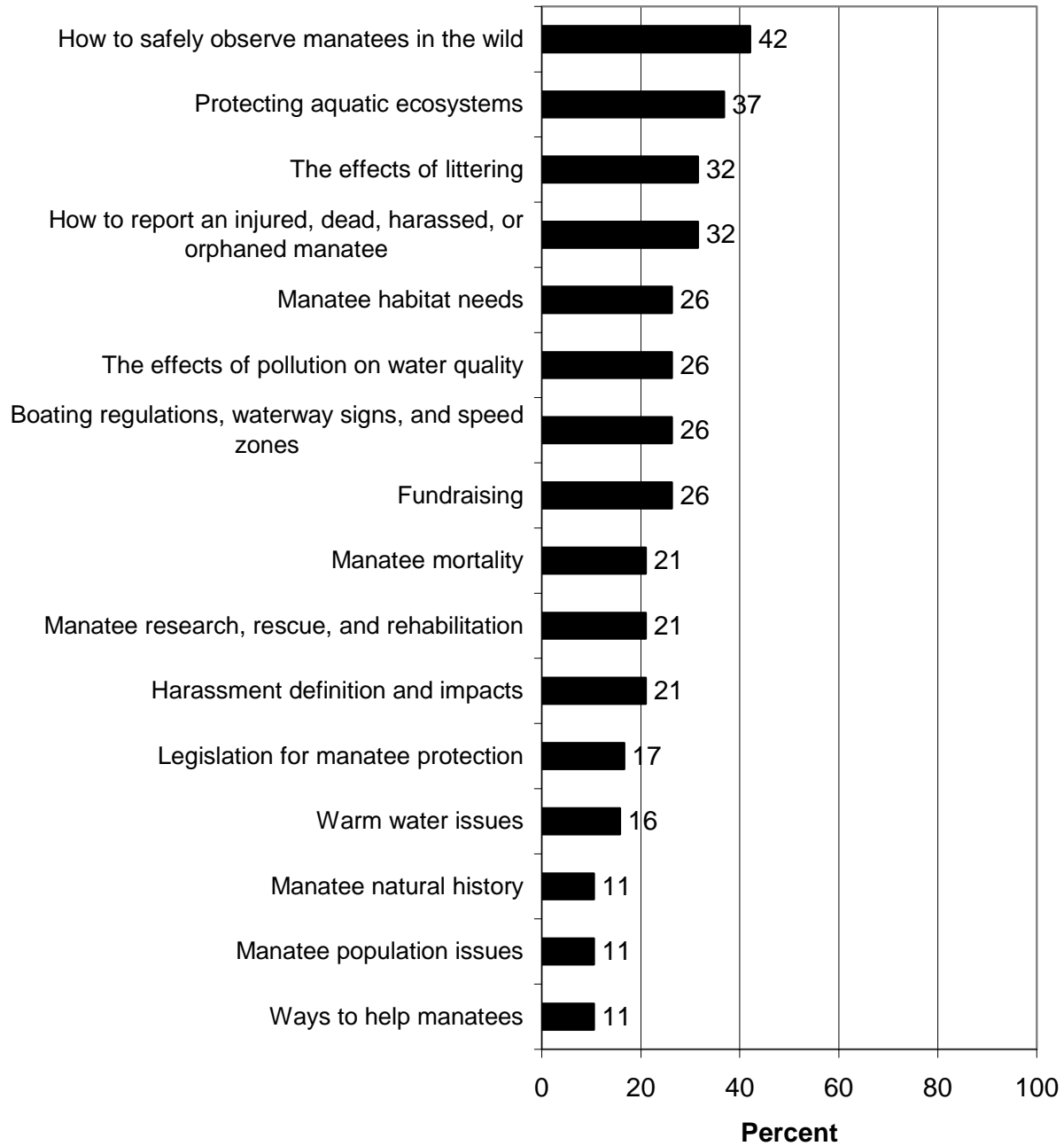
EDUCATION WORKING GROUP SURVEY RESULTS

The following section discusses the results of the needs assessment that was administered to Education Working Group members. This survey was used to determine Education Working Group members' priorities with regard to education and outreach on the manatee.

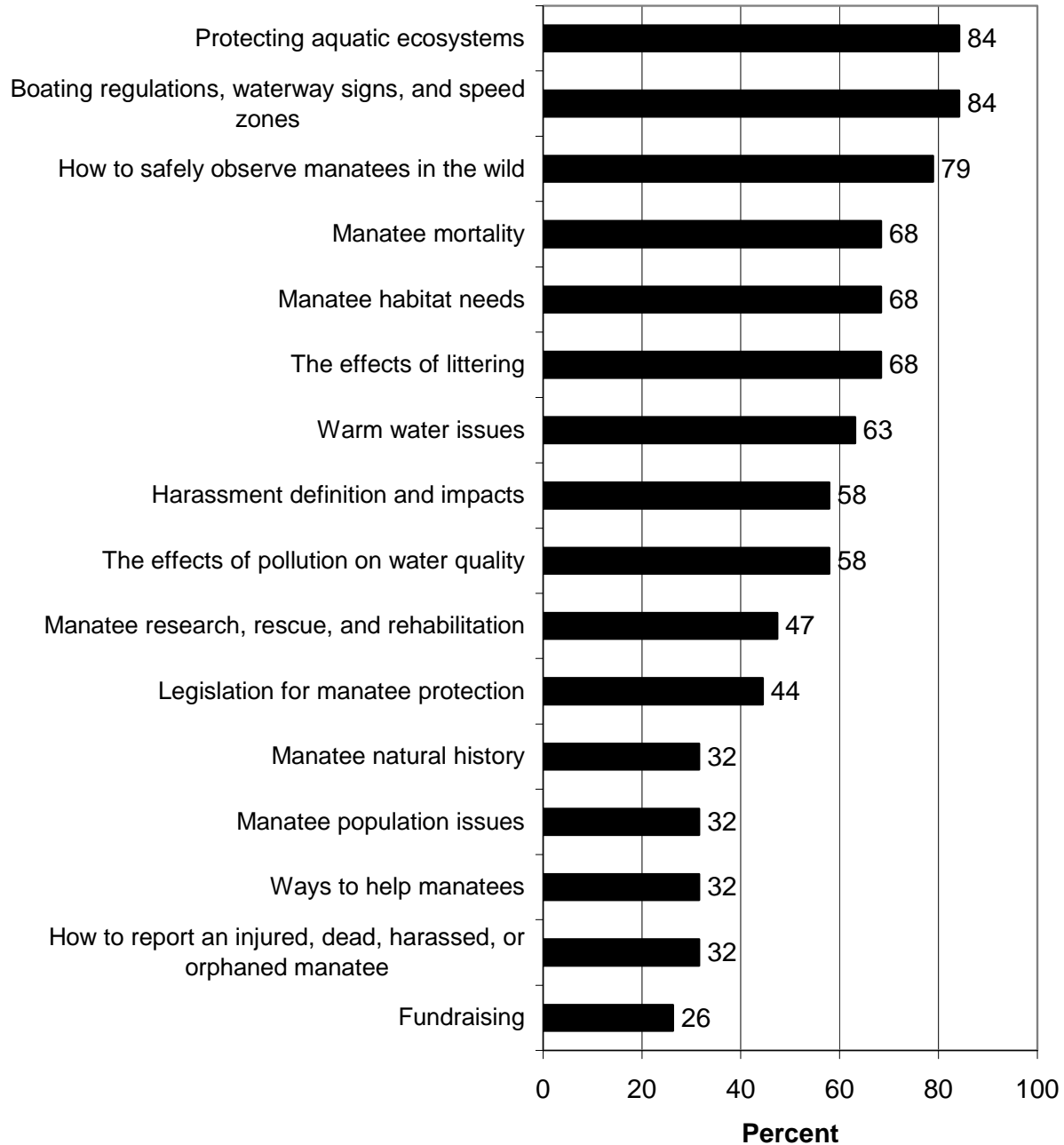
PRIORITY RATINGS FOR TOPIC AREAS FOR EDUCATION AND OUTREACH

- Education Working Group members were asked to prioritize 16 topic areas for manatee education and outreach. Respondents were instructed to rate each of the topic areas as being an extremely high priority for education materials and programs, a high priority, a medium priority, a low priority, or not a priority at all.
- A substantial percentage of Education Working Group members (42%) identified how to safely observe manatees in the wild as being an extremely high priority for education efforts.
 - Other notable topic areas designated by Education Working Group members as *extremely high* priorities are protecting aquatic ecosystems (37%), the effects of littering (32%), and reporting an injured, dead, harassed, or orphaned manatee (32%).
- Over three-quarters of Education Working Group members (79%) rate how to safely observe manatees in the wild as a *high* or *extremely high* priority.
 - An overwhelming majority of respondents (84%) rated protecting aquatic ecosystems as a *high* or *extremely high* priority for education efforts.
 - Over two-thirds of respondents (68%) identified the effects of littering as being a *high* or *extremely high* priority with regard to attention paid in education and outreach materials.
- The topic area designated most commonly by Education Working Group members as being a *low* priority or *not a priority at all* for manatee education and outreach efforts was fundraising (37%), followed by legislation for manatee protection (33%), and manatee natural history (32%).

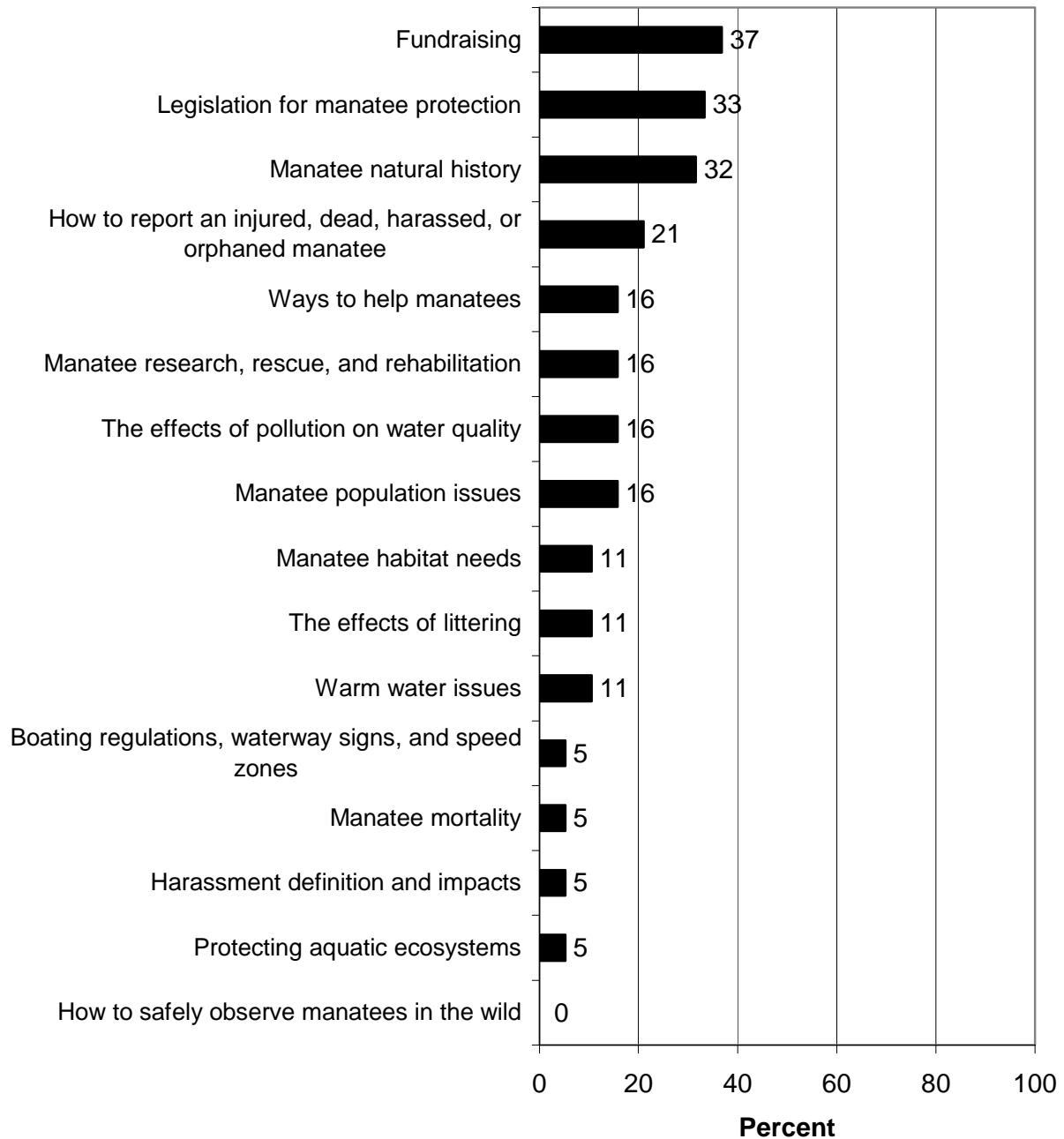
Percent who think the following education / outreach topic areas are extremely high priorities. (Education Working Group.)



Percent who think the following education / outreach topic areas are extremely high or high priorities. (Education Working Group.)



Percent who think the following education / outreach topic areas are low priorities or not priorities at all. (Education Working Group.)



SPECIFIC ISSUES OF MANATEE TOPIC AREAS

- Education Working Group members were asked to name the specific issue of each listed topic area representing the most important issue for manatee education and outreach efforts. This section will describe the major commonalities that emerged from the answers to these questions, while the comprehensive list of Education Working Group member answers is presented in its entirety in Appendix A of this report.

Topic Area	Most Commonly Mentioned Issues Related to Topic Area
Manatee habitat needs	<ul style="list-style-type: none"> • Habitat loss and general need for habitat protection • Seagrass • Warm water issues • Shelter, space, and food in general
Protection of aquatic ecosystems	<ul style="list-style-type: none"> • Ecosystem and habitat destruction in general • General education of people and improving their awareness of habitat needs • Personal responsibility and obligations to protect ecosystem; getting involved
Warm water	<ul style="list-style-type: none"> • Power plants • Importance of warm water for manatee survival • Improving public's awareness of warm water needs
Effects of pollution	<ul style="list-style-type: none"> • Fertilizers and pesticides • Polluted run-off • Red tide
Effects of littering	<ul style="list-style-type: none"> • Monofilament line and entanglement issues
Legislation for manatee protection	<ul style="list-style-type: none"> • Downlisting of manatees from endangered to threatened status • Importance of protective legislation
Ways to help manatees	<ul style="list-style-type: none"> • Donations and financial contributions
Manatee research, rescue, and rehabilitation	<ul style="list-style-type: none"> • Importance of research and rehabilitation in general • Hotlines and how to report manatee issues
Manatee harassment and its impacts	<ul style="list-style-type: none"> • How to observe without harassing • What to do and not do when encountering manatees • Defining/distinguishing harassment versus properly observing
Reporting injured, dead, harassed, or orphaned manatees	<ul style="list-style-type: none"> • Hotline and other contact information

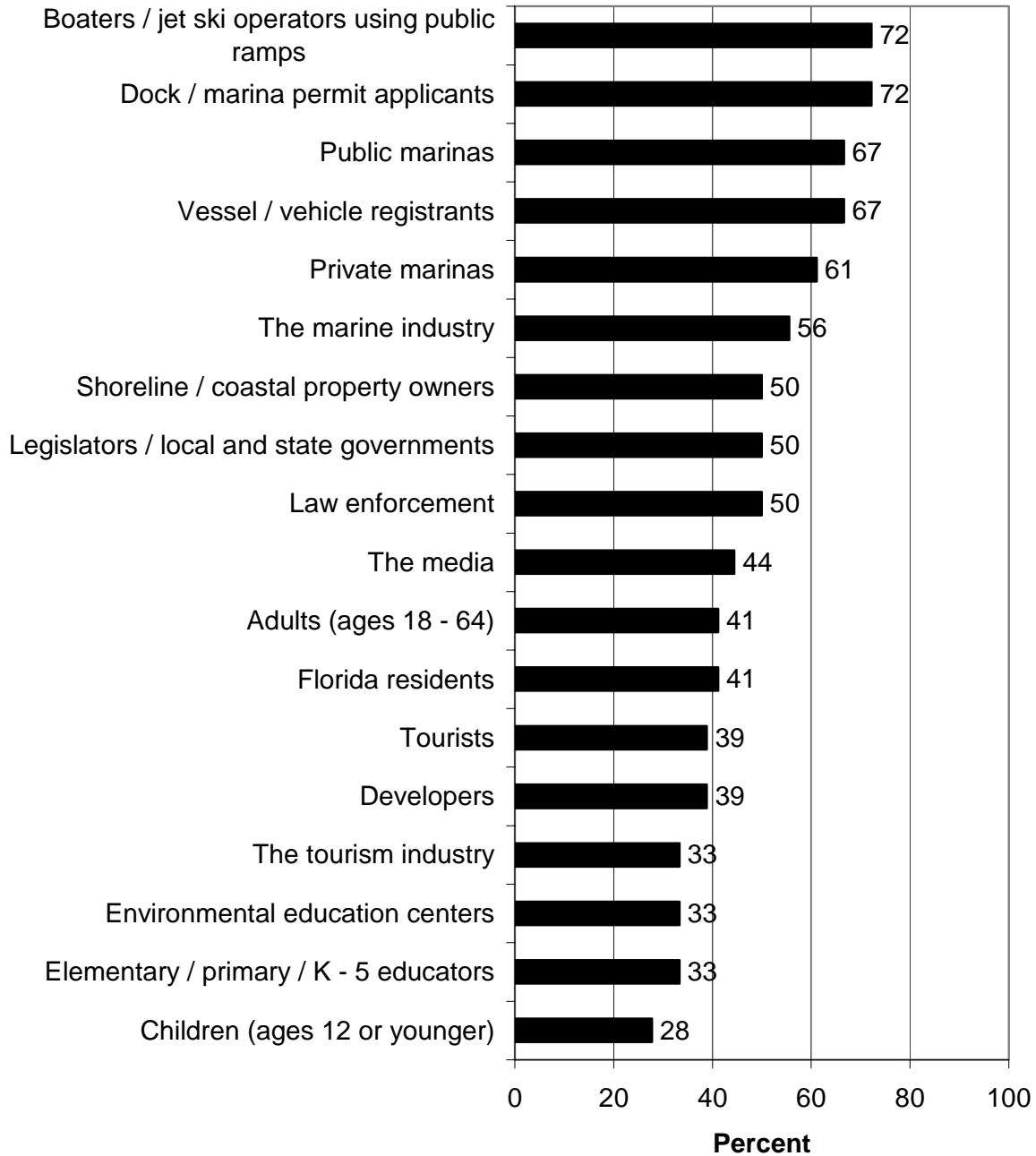
Observing manatees in the wild	<ul style="list-style-type: none"> • Public awareness not to feed, touch, or otherwise contact manatees in the wild • Observing from a distance
Regulations, signs, and zones	<ul style="list-style-type: none"> • Clarity and ease of understanding regulations • Location of signs and the number of signs • Enforcement and public awareness of signs and regulations
Manatee mortality	<ul style="list-style-type: none"> • Watercraft/human-caused injury and death
Manatee populations	<ul style="list-style-type: none"> • Ways to measure/monitor population • Mortality and death statistics
Manatee natural history	<ul style="list-style-type: none"> • Natural habitat of manatees (including Florida) • Mammalian characteristics and physiology
Fundraising	<ul style="list-style-type: none"> • Benefits of fundraising in general • Accountability in using funds

PRIORITY RATINGS FOR GROUPS TARGETED FOR EDUCATION AND OUTREACH

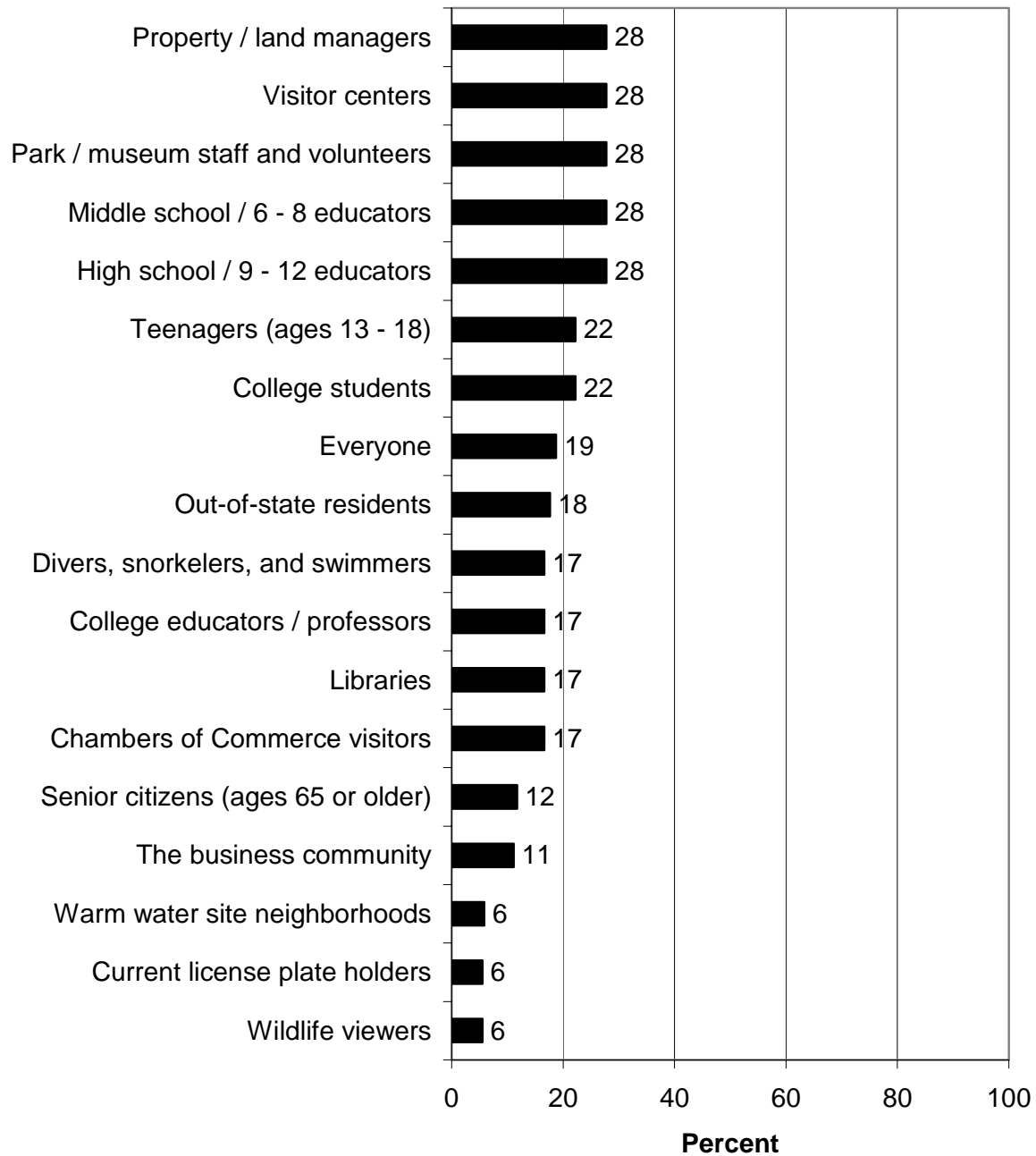
- Most commonly, Education Working Group members cited boaters and jet ski operators using public ramps (72%) and dock/marina permit applicants (72%) as groups having an *extremely high* priority for manatee education and outreach efforts, followed by public marinas (67%) and vessel/vehicle registrants (67%).
 - Boaters and jet ski operators using public ramps were identified as *extremely high* or *high* priorities for manatee education by 94% of Education Working Group members.
 - Dock/marina permit applicants were named as either *extremely high* or *high* priorities by 89% of respondents.
 - Public marinas were considered *extremely high* or *high* priorities for educational efforts by 94% of Education Working Group members, while 89% rated vessel/vehicle registrants as being *extremely high* or *high* priorities for education and outreach.

- Senior citizens (24%) and the business community (22%) were the most common answers regarding the groups Education Working Group members rated as low priorities or not priorities at all for education and outreach.
 - A notable percentage of Education Working Group members (17%) rated each of the following groups as low priorities or not priorities at all for education efforts: college students, tourists, elementary/primary/K-5 educators, and libraries.

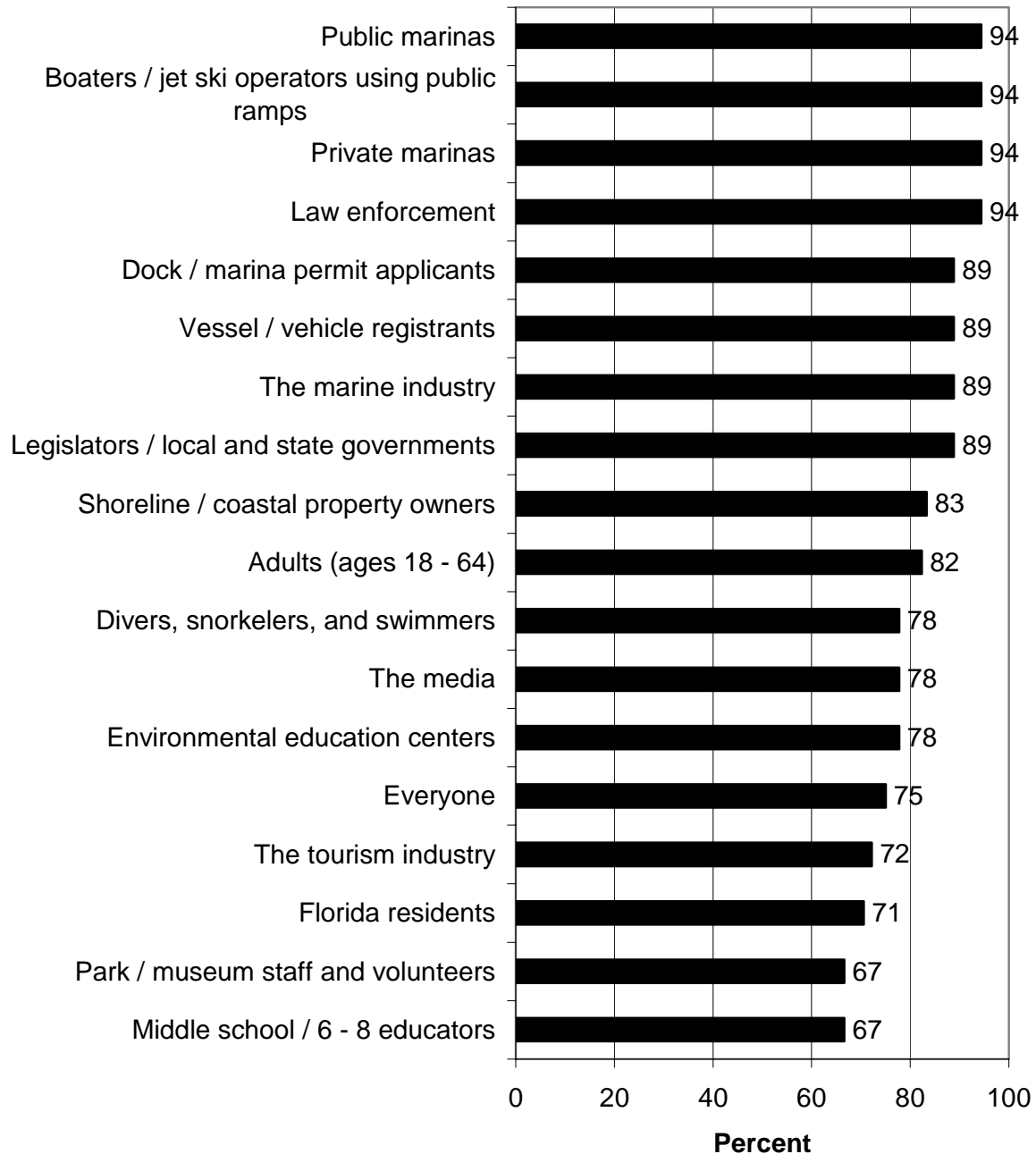
**Percent who think the following groups are extremely high priorities for education / outreach.
(Education Working Group.) (Part 1.)**



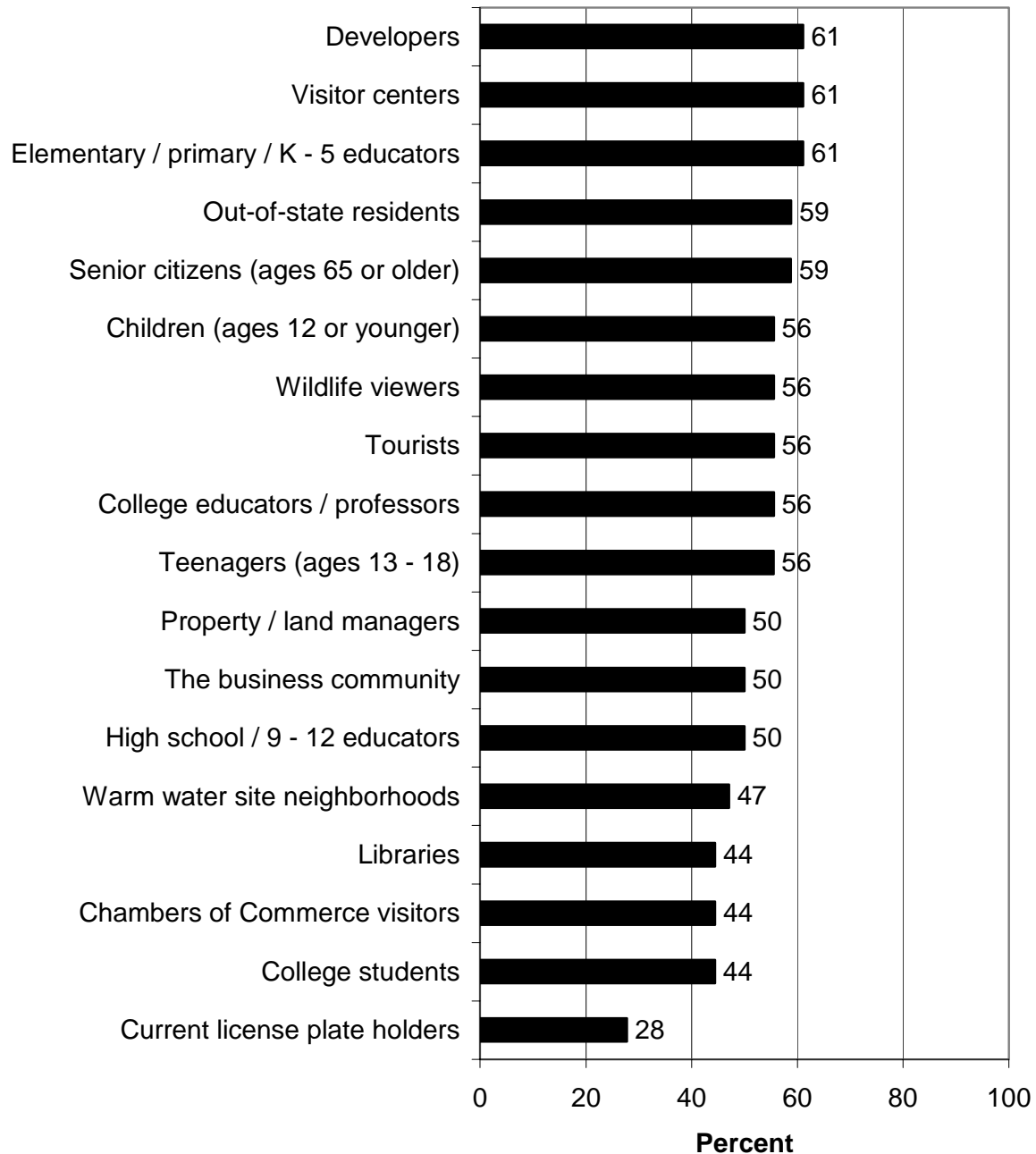
**Percent who think the following groups are
extremely high priorities for education / outreach.
(Education Working Group.) (Part 2.)**



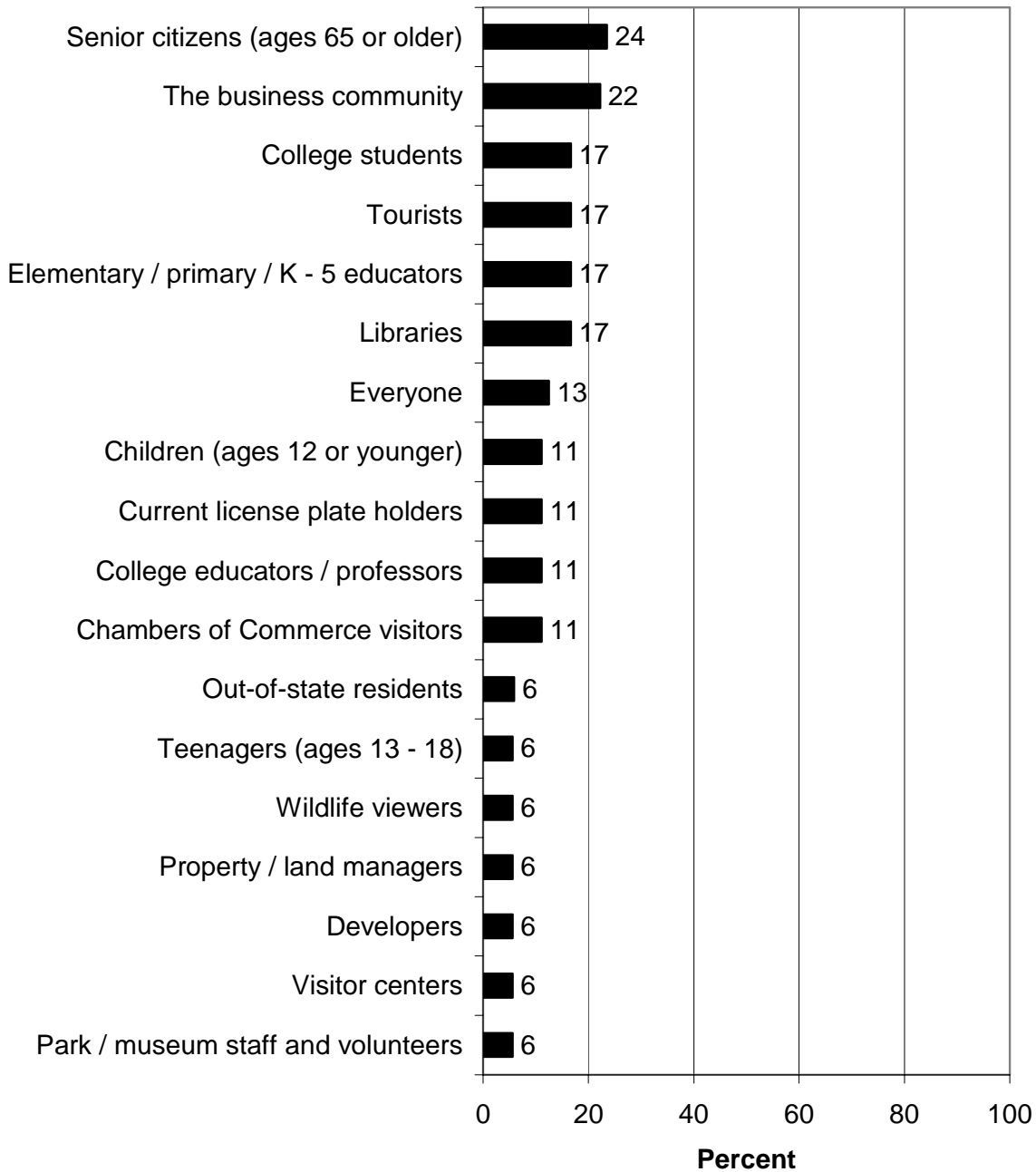
Percent who think the following groups are extremely high or high priorities for education / outreach. (Education Working Group.) (Part 1.)



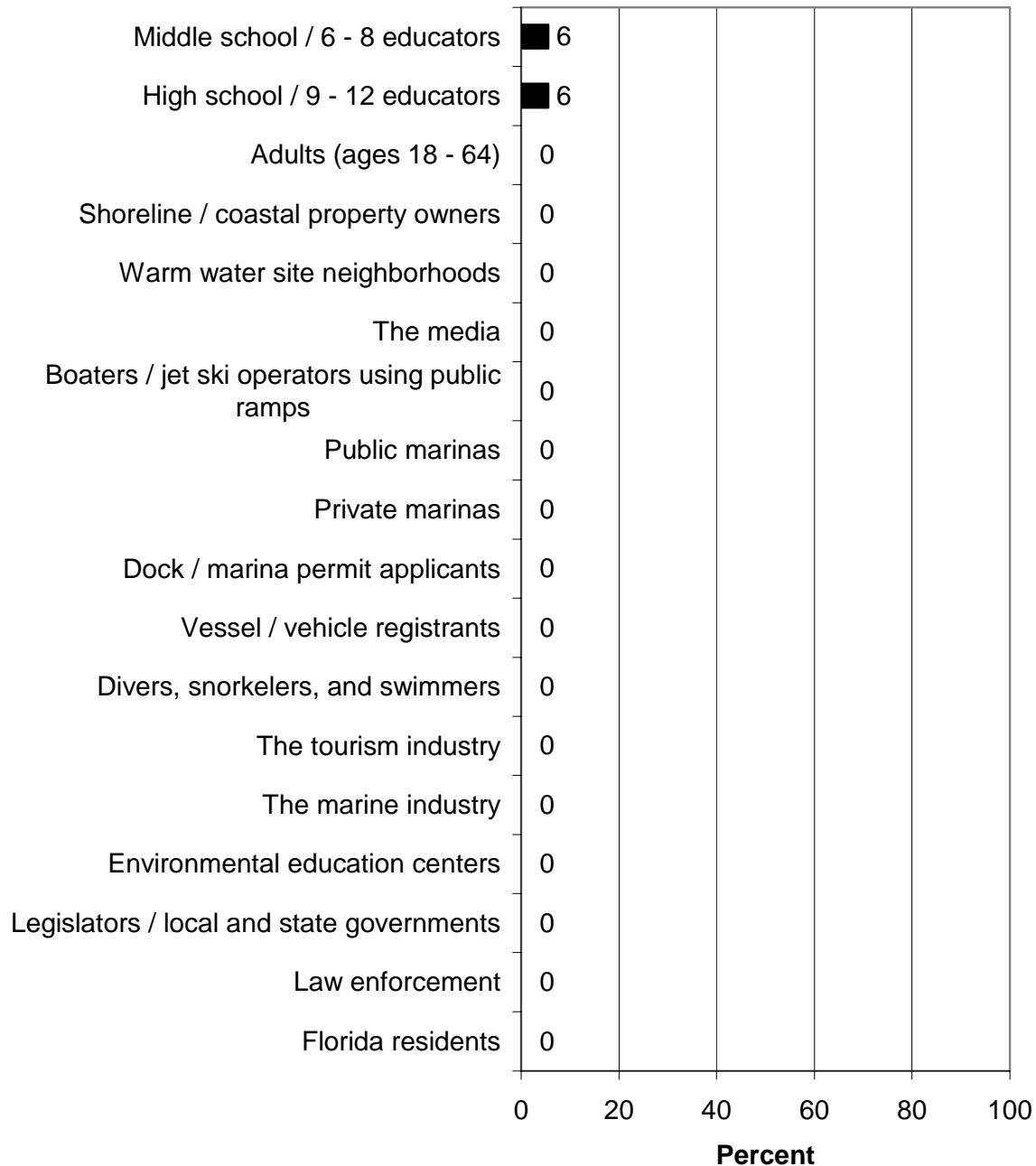
Percent who think the following groups are extremely high or high priorities for education / outreach. (Education Working Group.) (Part 2.)



Percent who think the following groups are low priorities or not priorities at all for education / outreach. (Education Working Group.) (Part 1.)



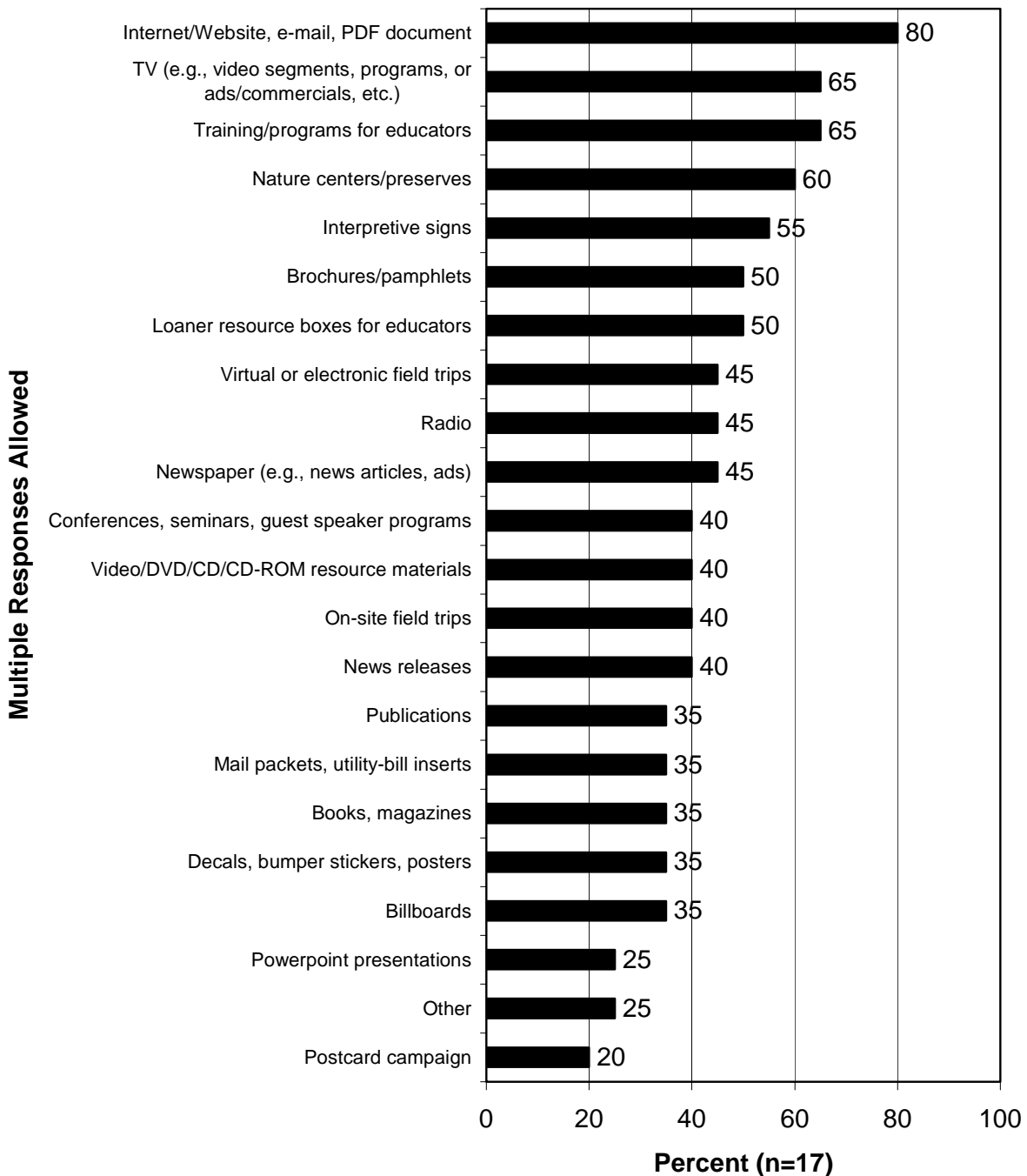
Percent who think the following groups are low priorities or not priorities at all for education / outreach. (Education Working Group.) (Part 2.)



EFFECTIVENESS RATINGS OF TYPES AND FORMATS OF MANATEE EDUCATION AND OUTREACH

- The computer was the overwhelmingly preferred format for manatee education and outreach materials and programs, with 80% of Education Working Group members citing Internet/website/e-mail/PDF documents as the most effective methods for delivering educational material.
 - The other top-ranked types and formats for manatee education and outreach were TV (65%) and training/programs for educators (65%).
 - A substantial percentage of Education Working Group members (60%) view nature centers and preserves as being the most effective in delivering manatee education.

Which of these types and formats of materials are the most effective methods of manatee education / outreach?



MANATEE EDUCATION AND OUTREACH MARKET INVENTORY

The following section discusses the results of the market inventory administered to manatee education and outreach providers. This survey was used to inventory the available materials used for education and outreach. All respondents to the market inventory were employees and volunteers of organizations that produce manatee education and outreach materials.

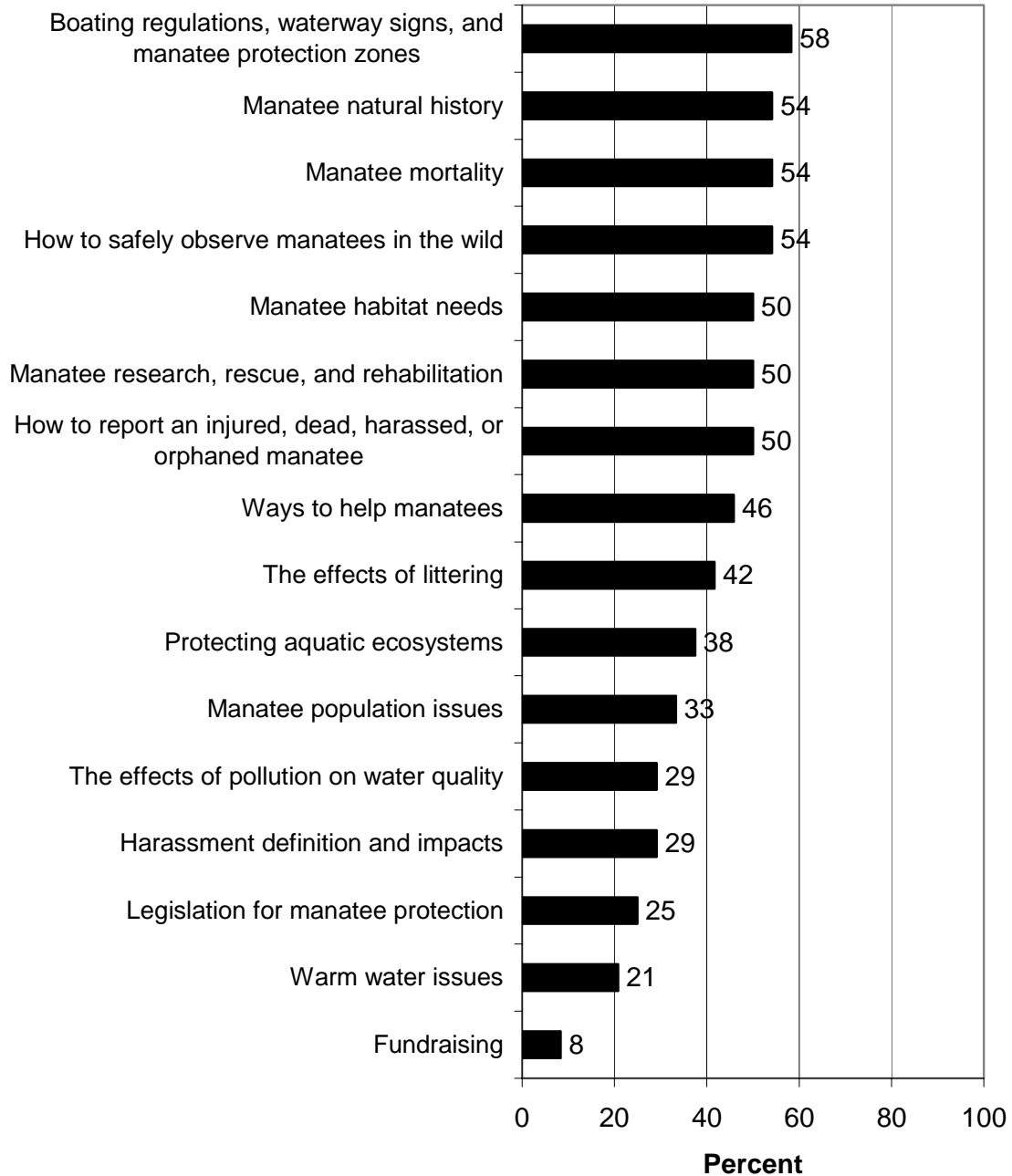
TOPIC AREAS FOR EDUCATION AND OUTREACH CURRENTLY ADDRESSED BY PROVIDERS

- Of the 16 topic areas focusing on manatees discussed in the survey (the same as those discussed previously in this report), the following are addressed *a great deal* by at least half of the education providers who responded to the survey: boating regulations/signage/zones (58%); manatee natural history (54%); manatee mortality (54%); how to safely observe manatees in the wild (54%); manatee habitat needs (50%); manatee research, rescue, rehabilitation (50%), and how to report an injured, dead, harassed, or orphaned manatee (50%).
 - At the bottom of the ranking (by the percent of organizations addressing the topic *a great deal*) is fundraising (8%).

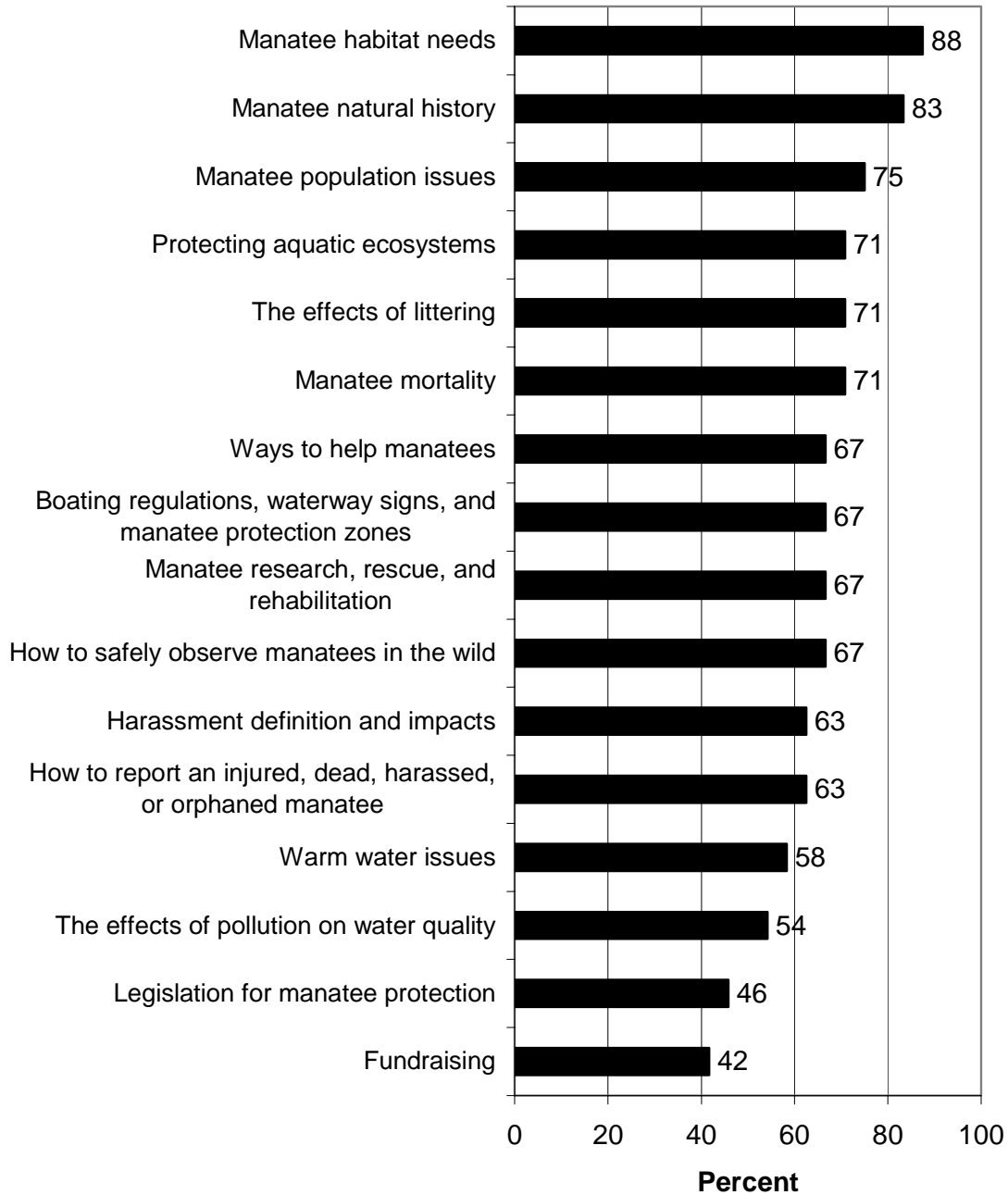
- In looking at topic areas addressed *a great deal* or *a moderate amount* by organizations, the following are addressed by a markedly higher percentage of organizations than are the other topics: manatee habitat needs (88%), manatee natural history (83%), manatee population issues (75%), protecting aquatic ecosystems (71%), the effects of littering (71%), and manatee mortality (71%).
 - Fundraising is again at the bottom of the ranking (42%), along with legislation for manatee protection (46%).

- In looking at topic areas not at all addressed in manatee education materials, note that all organizations address manatee habitat needs to some degree, even if only a little, and nearly all address protection of aquatic ecosystems, manatee mortality, and the effects of pollution to some degree.

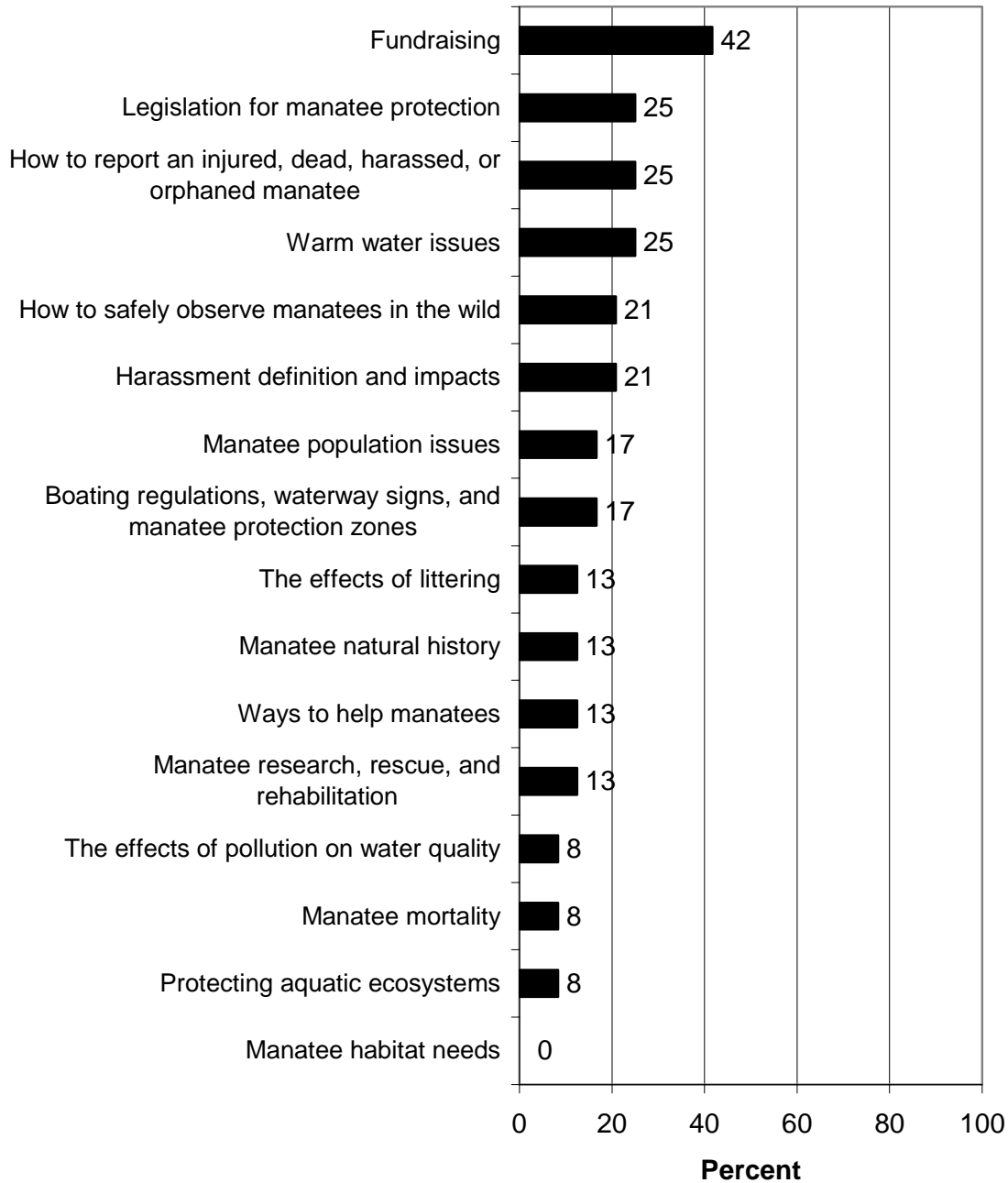
Topic areas addressed a great deal in education / outreach material by manatee education providers.



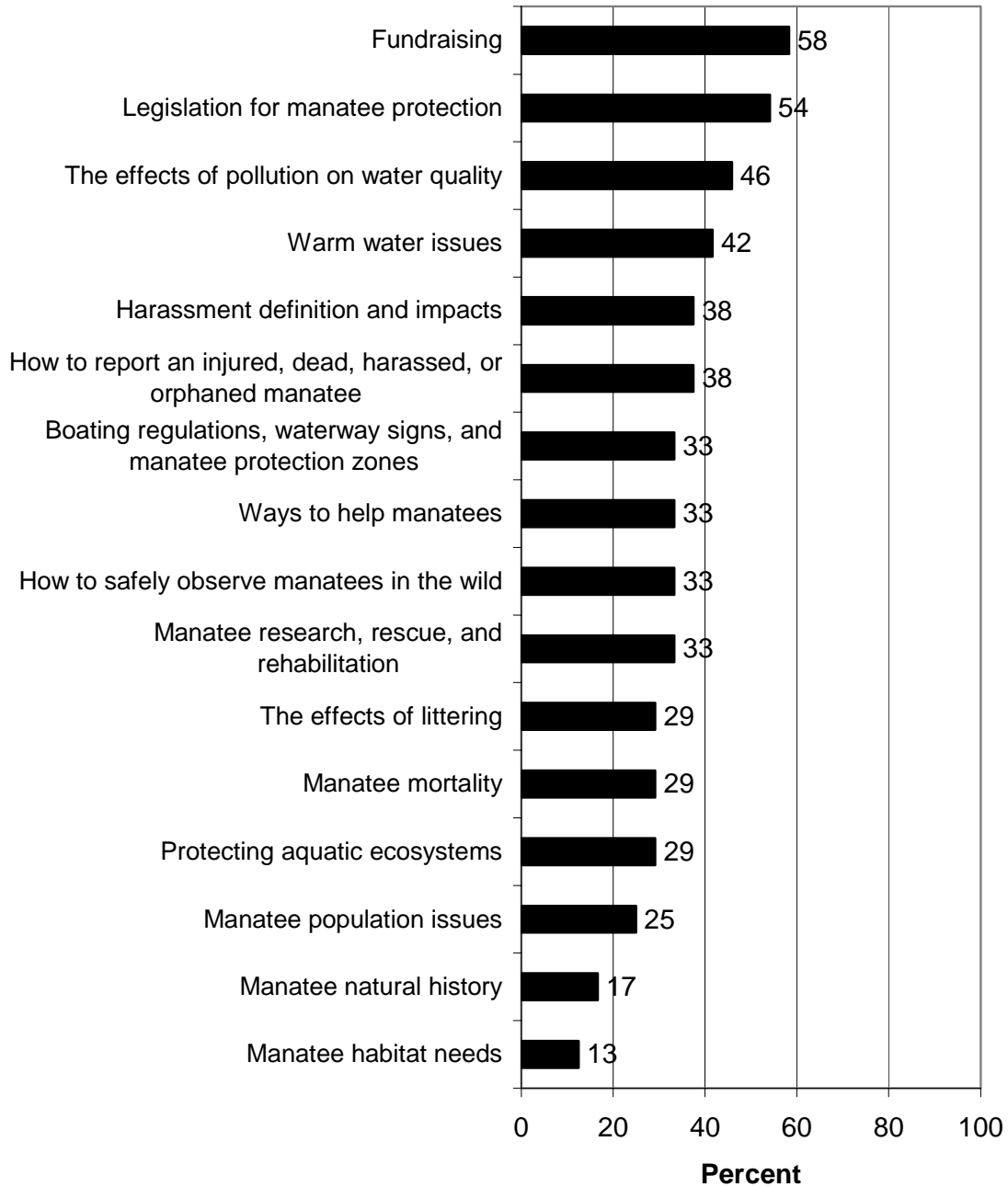
Topic areas addressed a moderate amount or a great deal in education / outreach material by manatee education providers.



Topic areas not at all addressed in education / outreach material by manatee education providers.



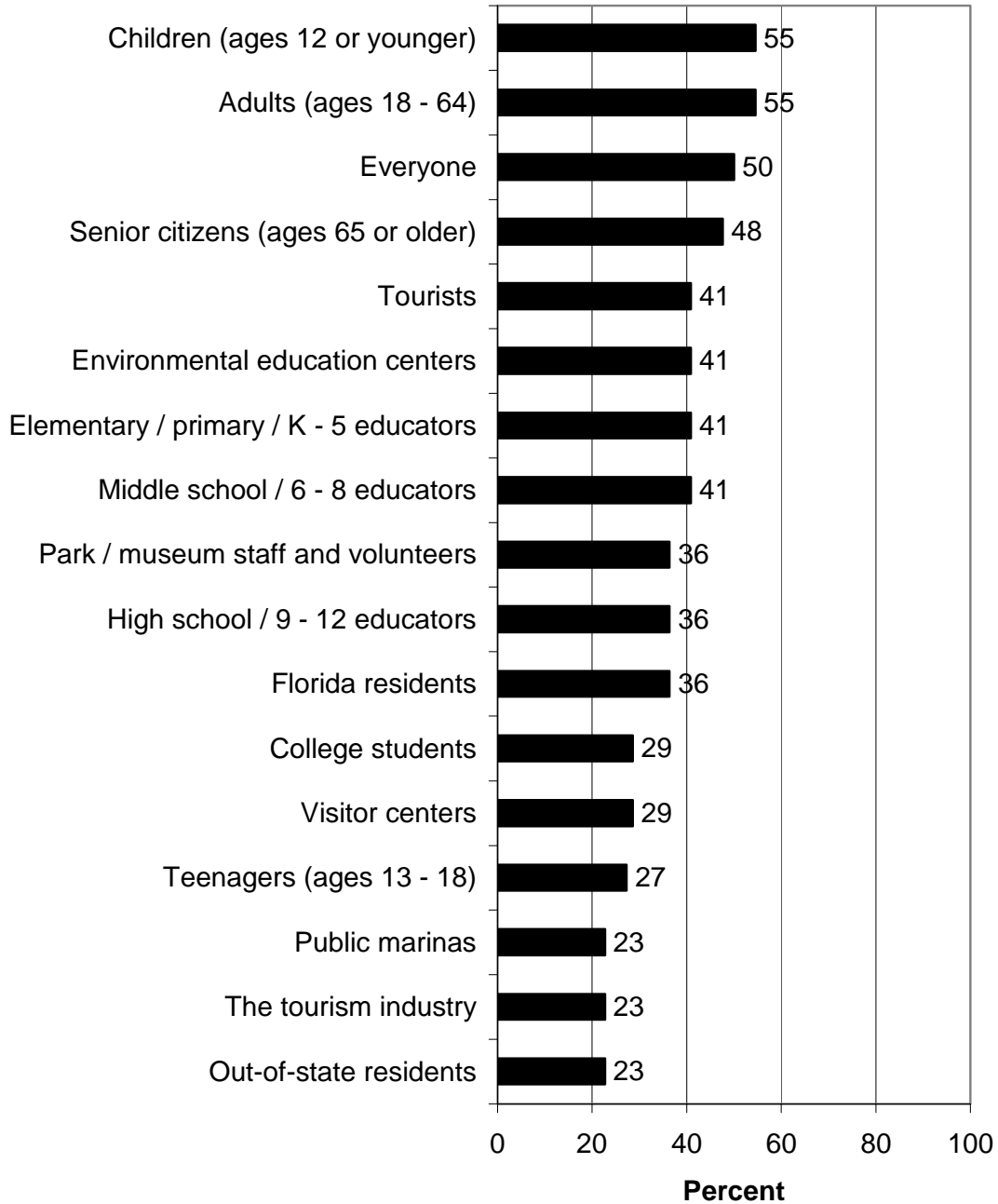
Topic areas addressed a little or not at all in education / outreach material by manatee education providers.



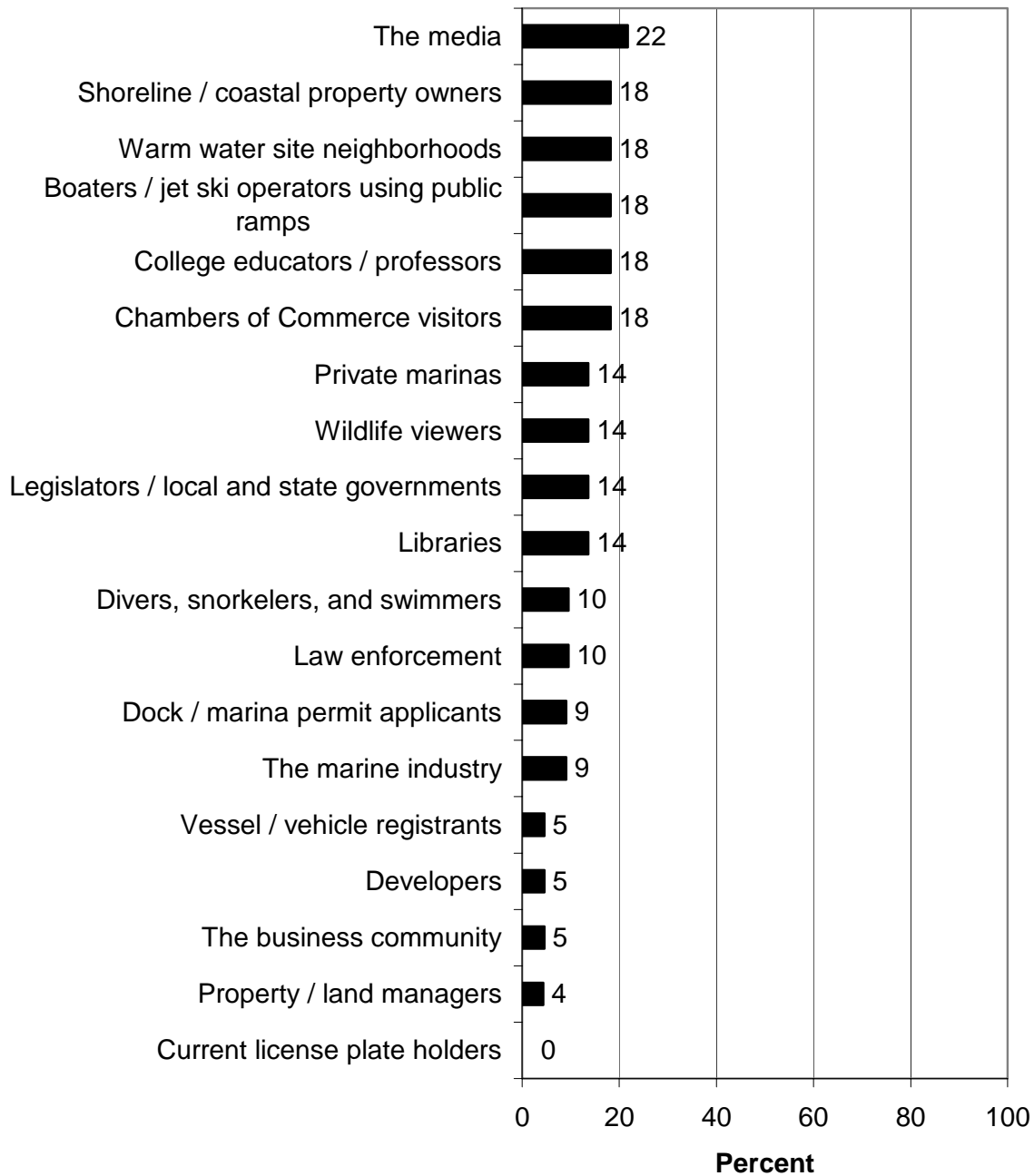
GROUPS CURRENTLY TARGETED FOR MANATEE EDUCATION AND OUTREACH BY PROVIDERS

- The survey asked about targeting by manatee education and outreach providers of 36 groups of different audiences and markets for manatee education. Four groups stand out as being targeted *a great deal* by substantial percentages of organizations: children ages 12 and younger (55%), adults aged 18 to 64 years old (55%), “everyone” (50%), and senior citizens (48%). Seven other groups rank high as being targeted *a great deal*, which include tourists (41%); environmental education centers (41%); park and museum staff and volunteers (36%); primary and secondary school educators (i.e., K through 12th grades: 41% for K through 8th grade educators, 36% for 9th through 12th grade educators); and Florida residents (36%).
 - Low on this ranking of organizations currently being targeted *a great deal* are current license plate holders (0%), property/land managers (4%), the business community (5%), developers (5%), and vessel and vehicle registrants (5%).
- In looking at audiences and markets being targeted *a great deal* or *a moderate amount*, five groups stand out as being targeted a great deal or moderate amount by at least three-quarters of the organizations: “everyone” (83%), children aged 12 and younger (82%), adults aged 18 to 64 years old (77%), environmental education centers (77%), and middle school educators (77%).
- A final graph examines groups that are targeted not at all, with dock/marina permit applicants (68%), current license plate holders (68%), developers (68%), vessel and vehicle registrants (59%), and property/land managers (57%) not being targeted at all by a majority of organizations.

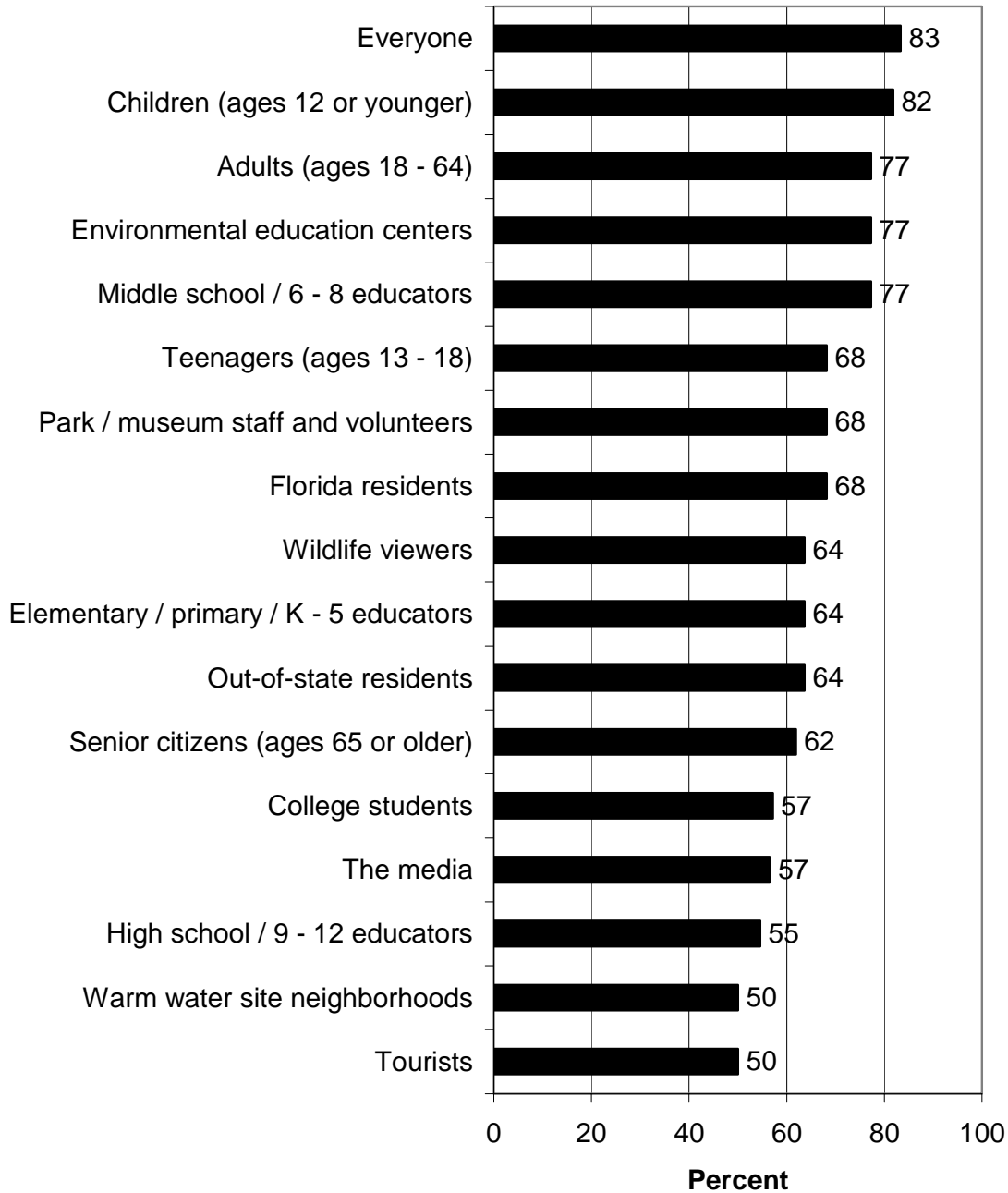
Groups currently targeted a great deal for education / outreach by manatee education providers. (Part 1.)



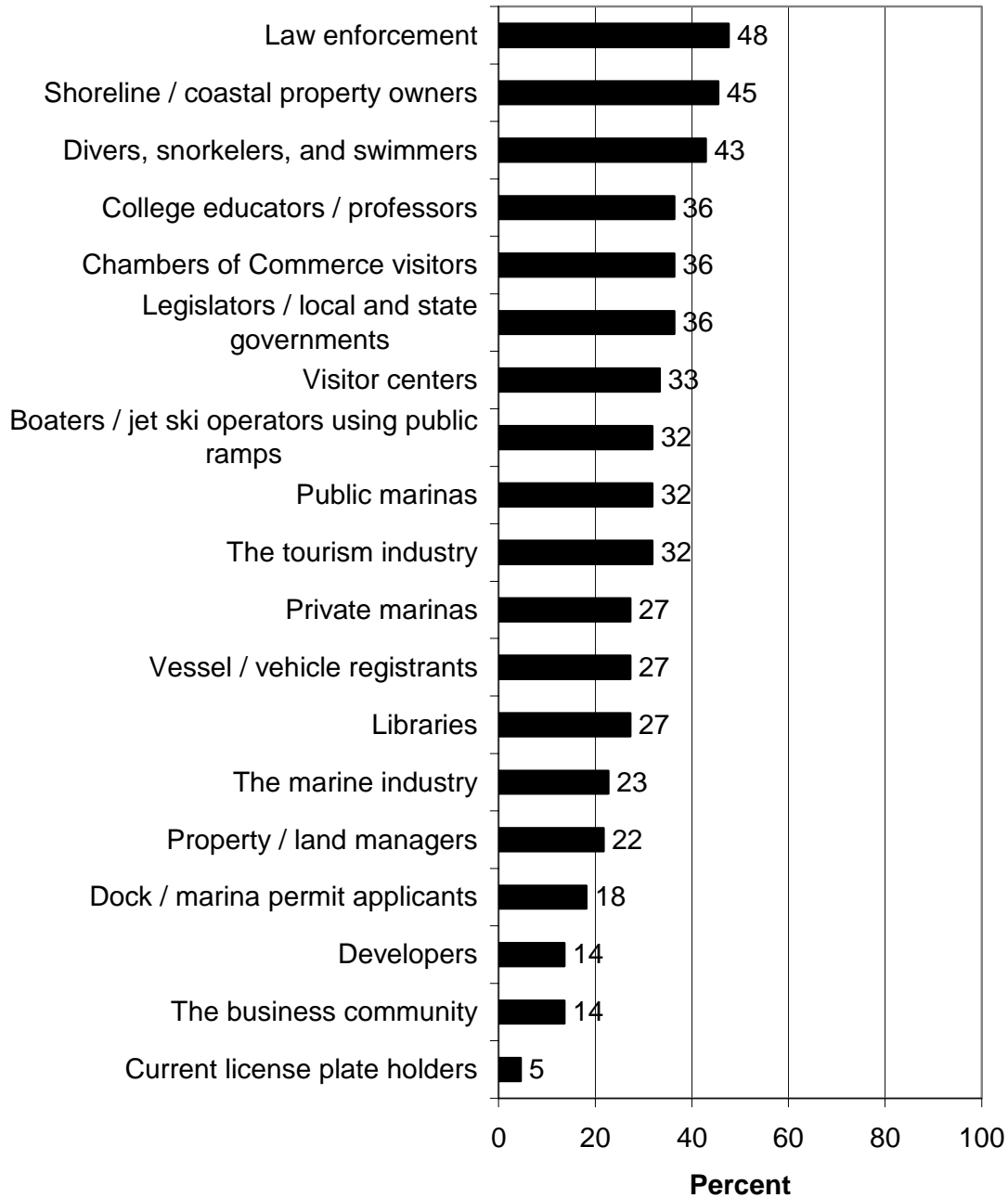
Groups currently targeted a great deal for education / outreach by manatee education providers. (Part 2.)



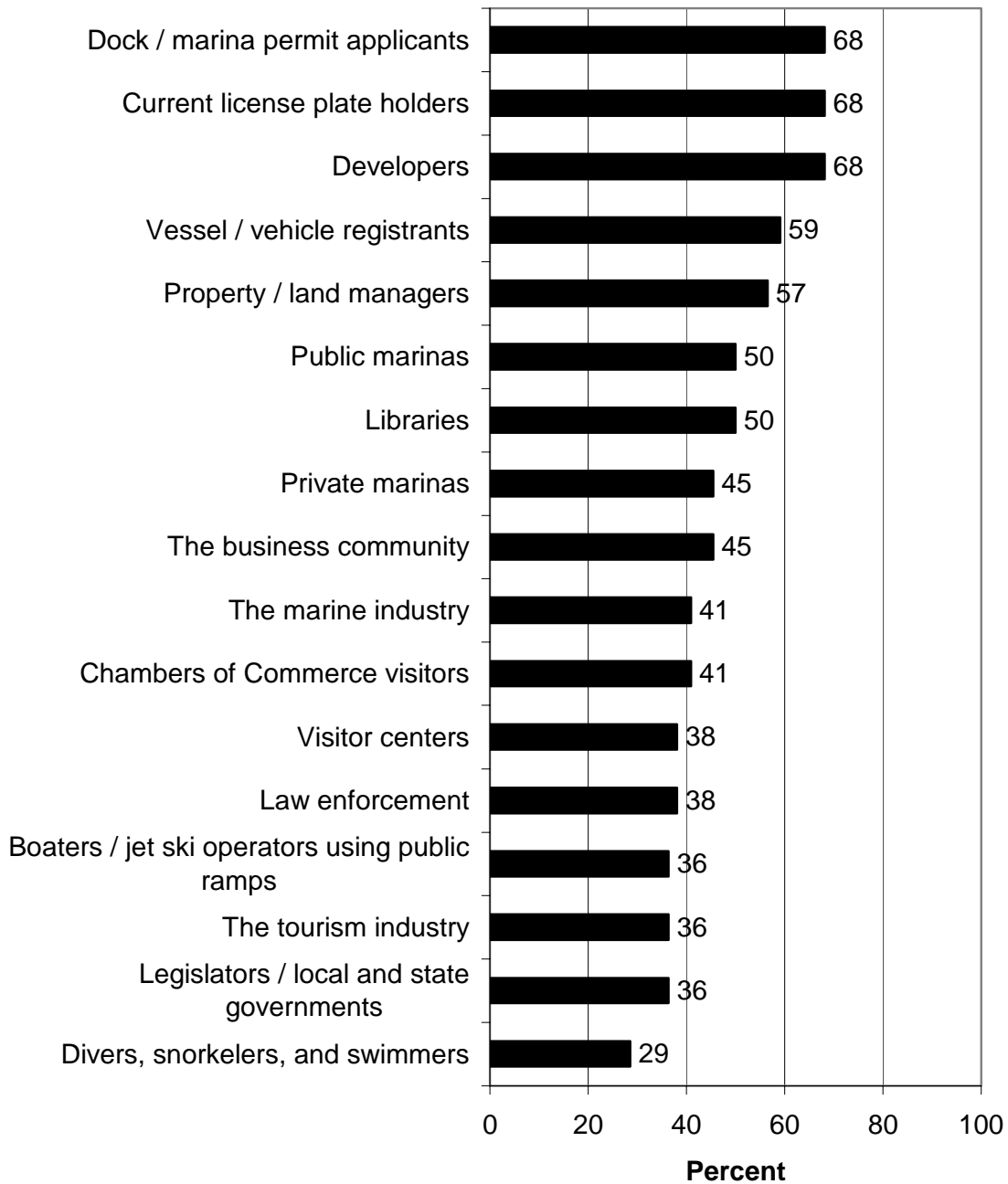
Groups currently targeted a great deal or moderate amount for education / outreach by manatee education providers. (Part 1.)



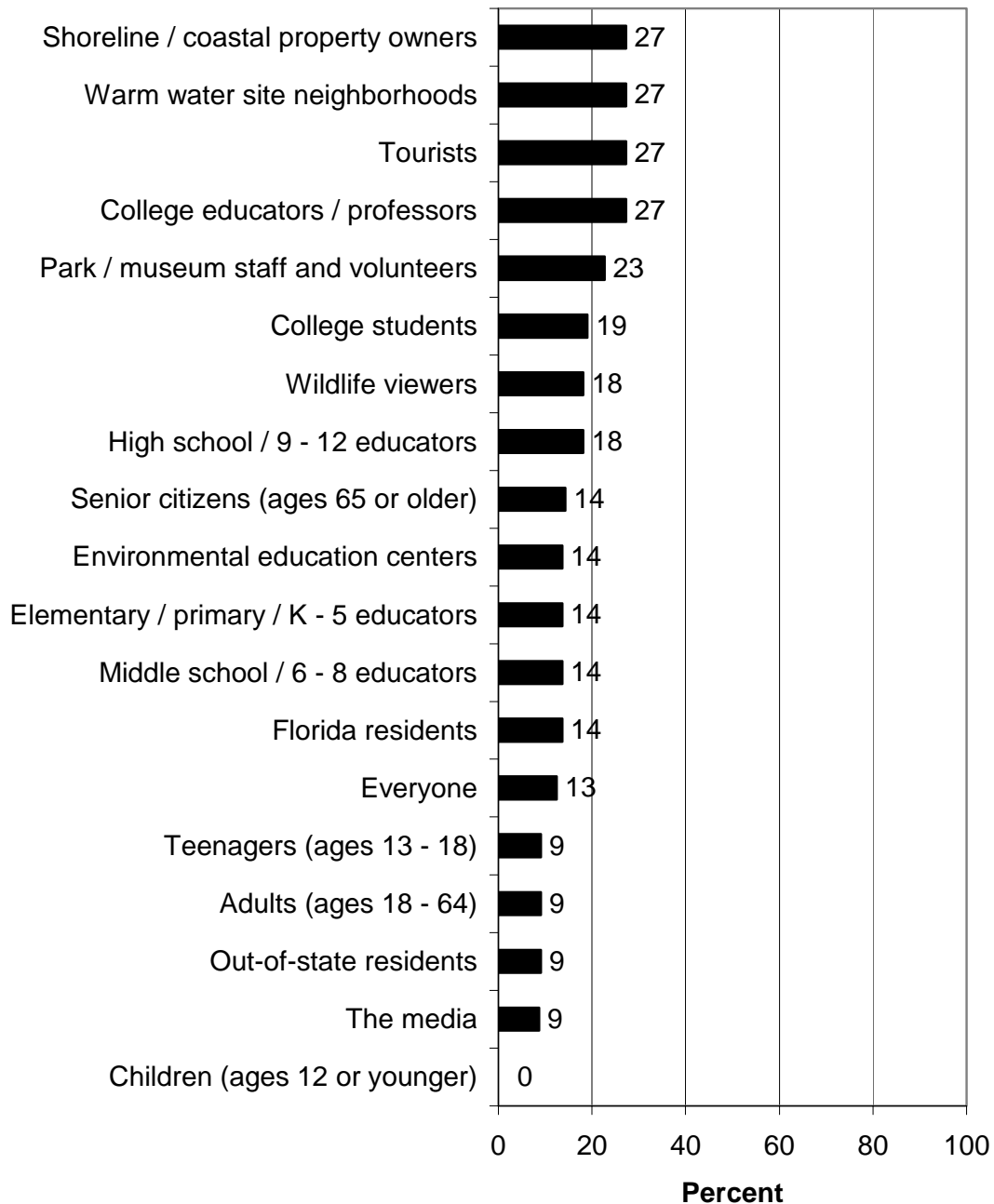
Groups currently targeted a great deal or moderate amount for education / outreach by manatee education providers. (Part 2.)



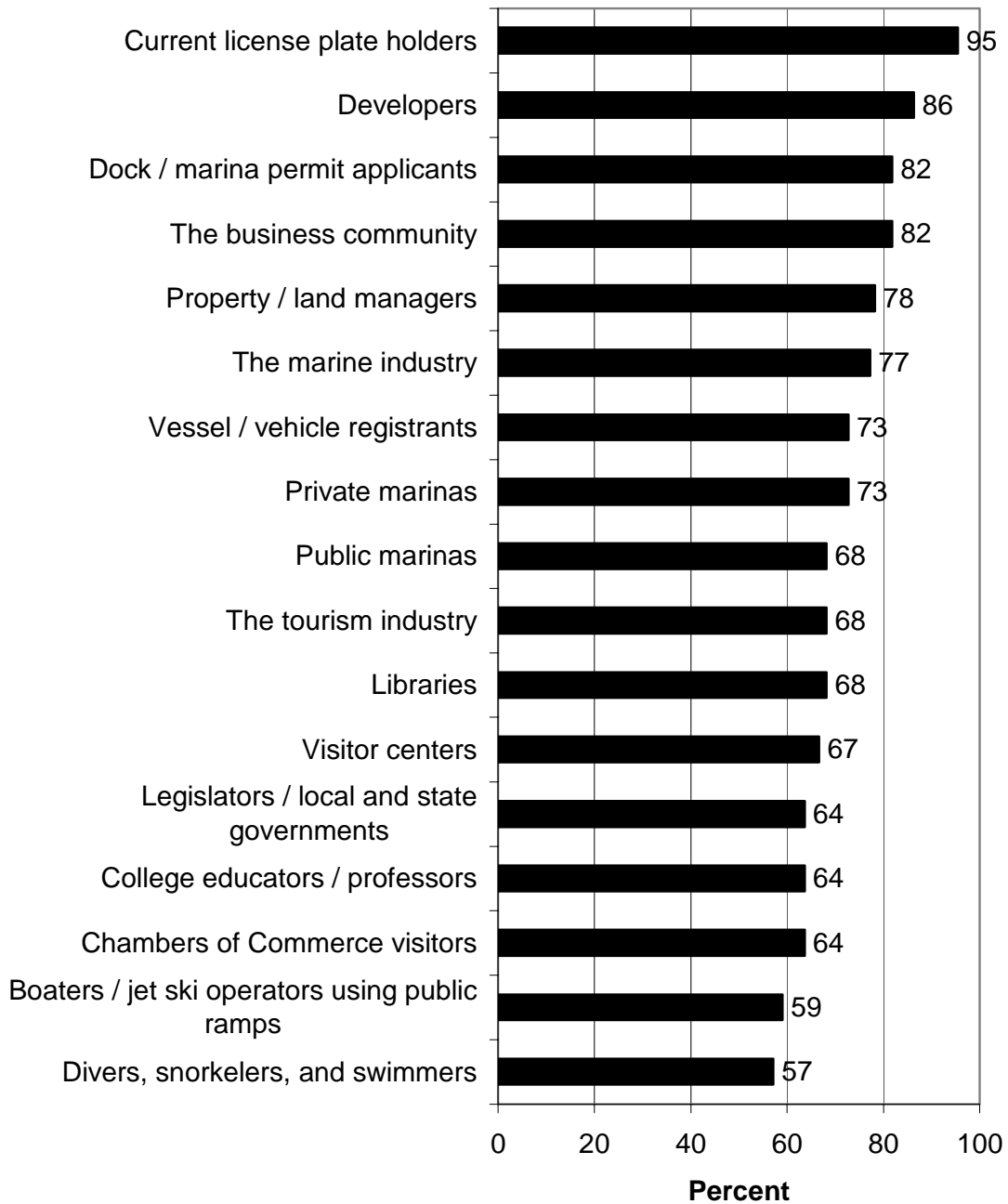
**Groups currently not targeted at all for education / outreach by manatee education providers.
(Part 1.)**



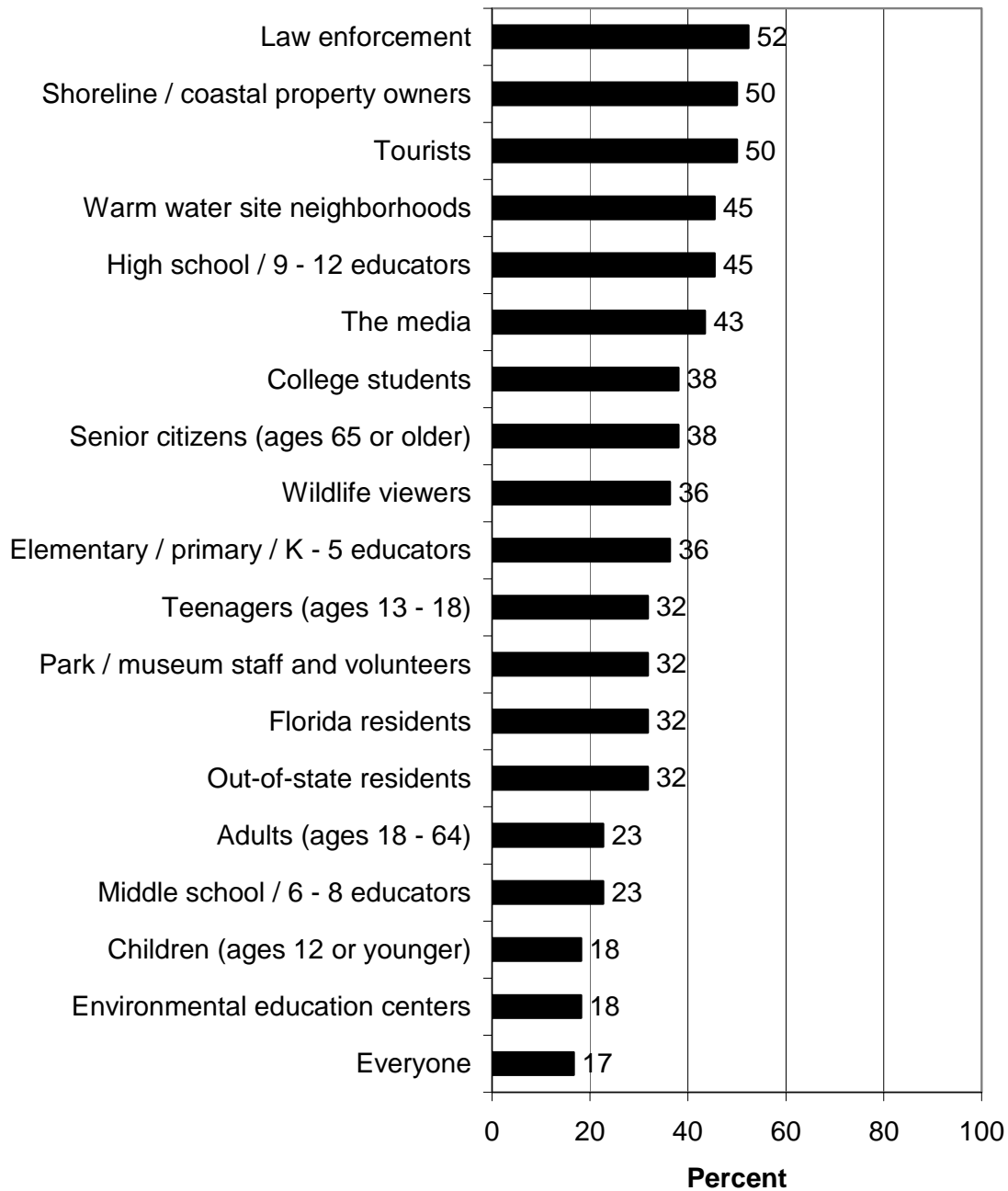
**Groups currently not targeted at all for education /
outreach by manatee education providers.
(Part 2.)**



Groups currently targeted a little or not at all for education / outreach by manatee education providers. (Part 1.)



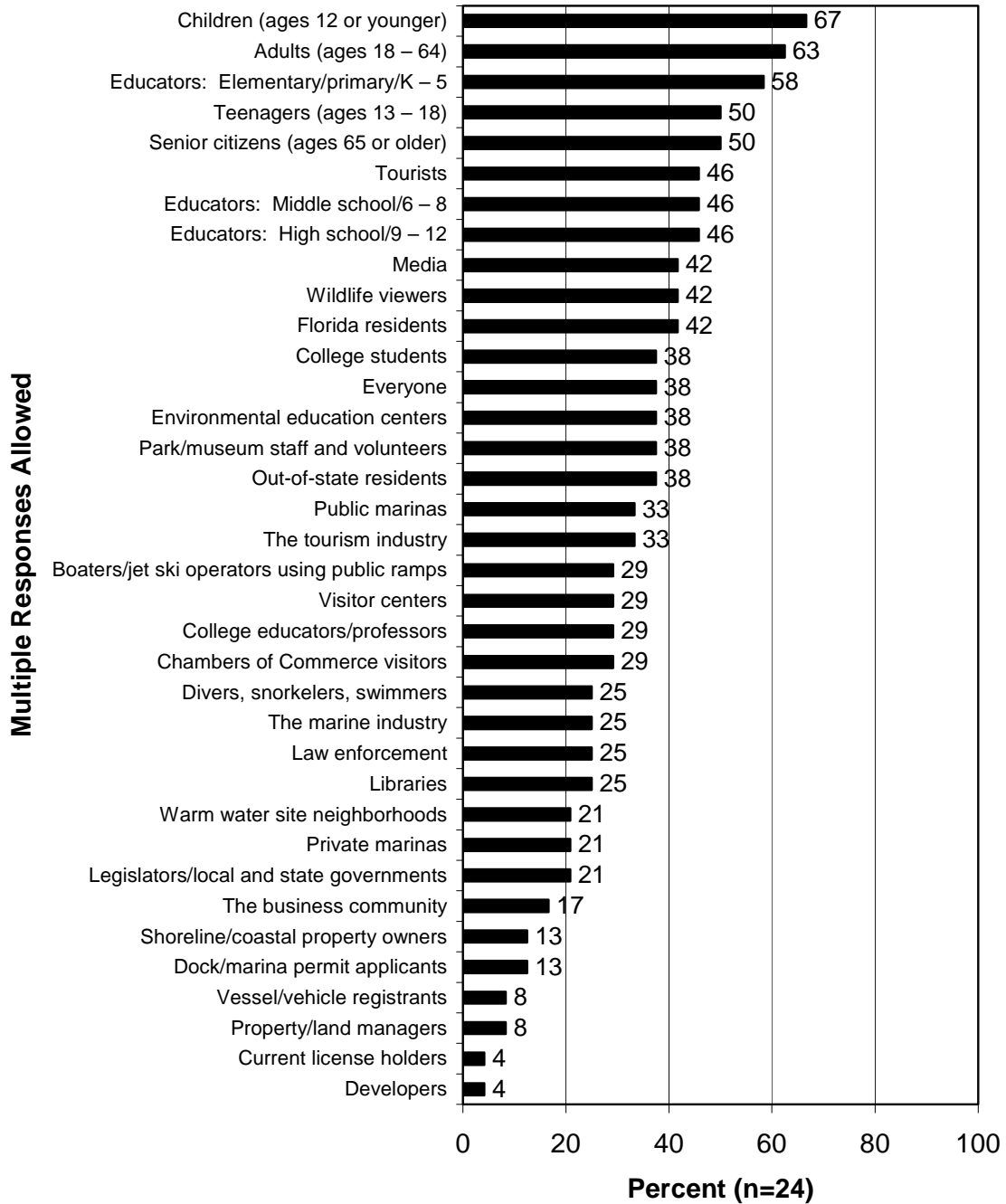
Groups currently targeted a little or not at all for education / outreach by manatee education providers. (Part 2.)



OPINIONS ON GROUPS TARGETED SUCCESSFULLY FOR MANATEE EDUCATION AND OUTREACH

- Children ages 12 and younger (67%), adults ages 18-64 (63%), and elementary/primary/K-5 educators (58%) are the groups that education and outreach providers most commonly say that they reach successfully.
 - Current license plate holders (4%) and developers (4%) are the lowest-ranked among groups education and outreach providers say they target successfully.

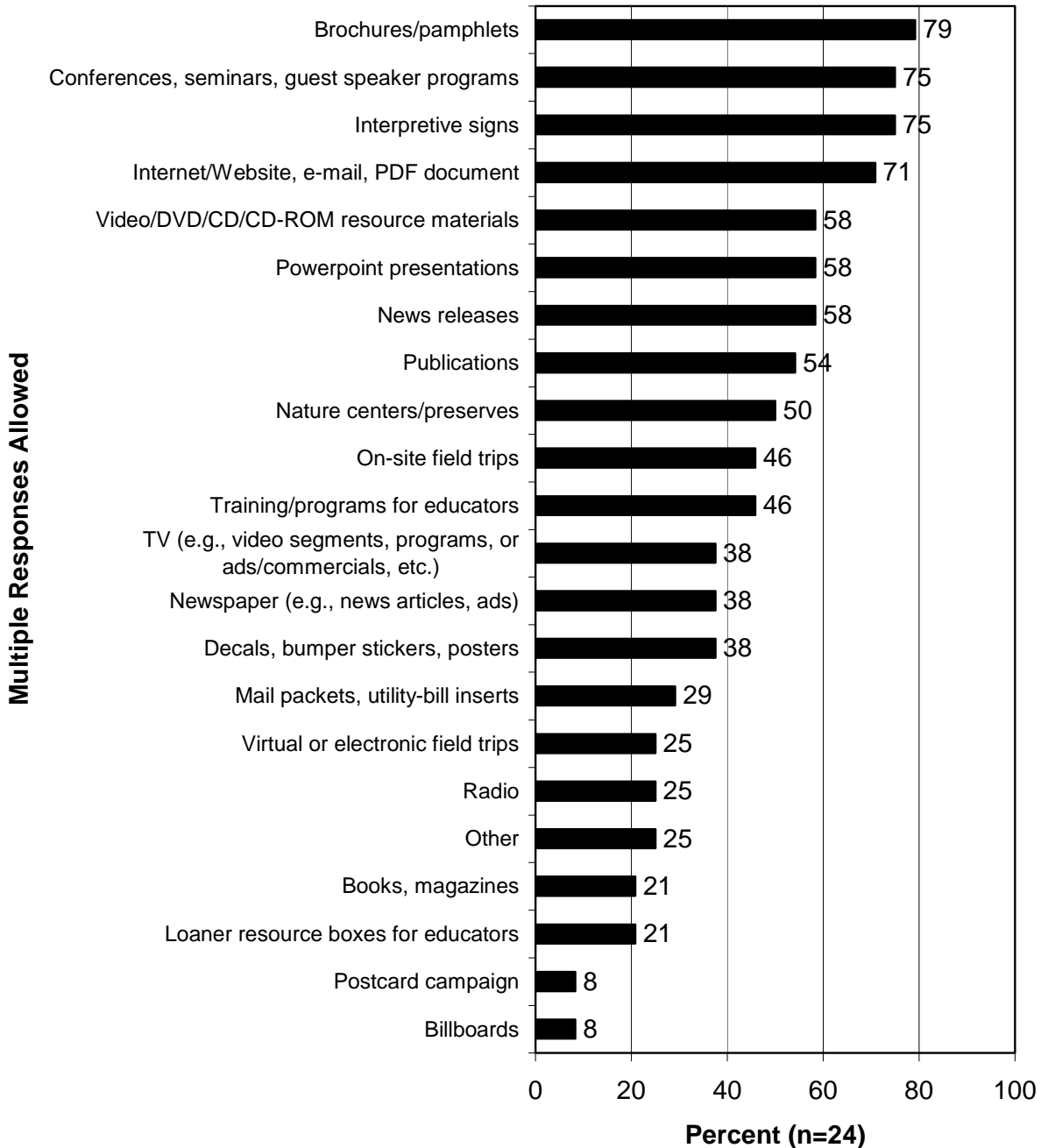
Overall, which target audiences / groups would you say your organization's manatee education / outreach successfully reach?



TYPES AND FORMATS OF MANATEE EDUCATION AND OUTREACH CURRENTLY PRODUCED BY PROVIDERS

- Brochures and pamphlets are the most common type of manatee education/outreach material, with 79% of education providers citing them as a format currently being produced for information delivery.
 - Three-quarters (75%) of manatee education providers currently offer conferences, seminars, and guest speaker programs as ways of providing manatee education.
 - Three-quarters (75%) of manatee educators produce interpretive signs for manatee education and outreach.
 - A substantial percentage of manatee educators (71%) utilizes the Internet, websites, e-mail, and PDF documents as methods for delivering manatee education and outreach.

Please identify the specific types and formats of manatee education / outreach materials currently produced by your organization.

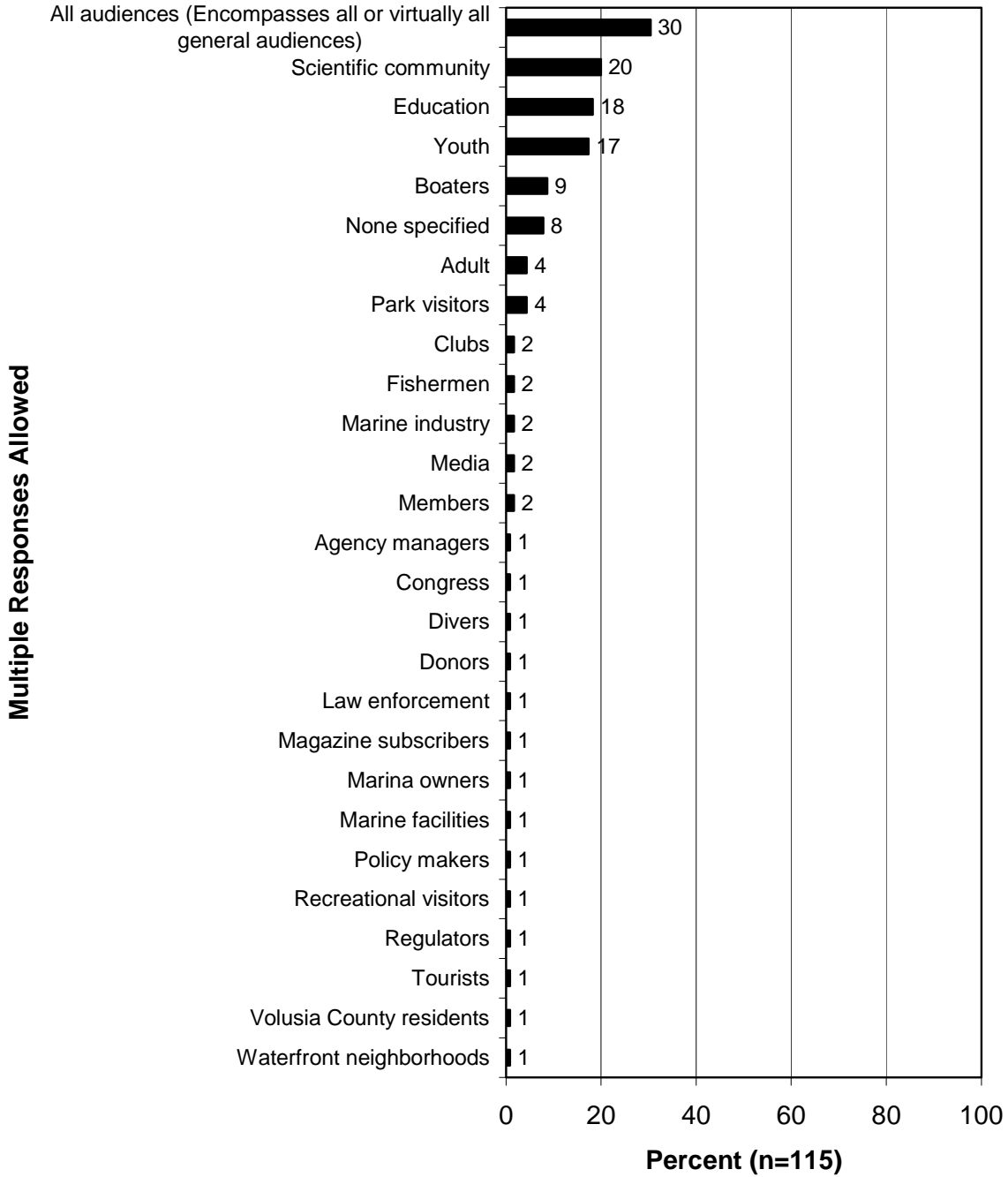


PROGRAMS AND MATERIALS PRODUCED BY MANATEE EDUCATION AND OUTREACH PROVIDERS

- Currently available manatee education and outreach materials and programs are most commonly directed towards all general audiences (30%), while substantial percentages of programs and materials are produced with a focus on the scientific community (20%), those involved in education (18%), and general youth audiences (17%).

- Based on a qualitative analysis of program messages, education and outreach programs and materials communicate a wide range of messages to their target audiences. Most commonly, program messages stress ways to help manatees; the protection of aquatic ecosystems; and the effects of littering (with most of these messages singling out the danger of discarded monofilament line).
 - Less commonly, program messages include some mention of boating regulations, signs, and zones, and how to safely observe manatees in the wild.

Groups targeted by current manatee education and outreach materials and programs.



Programs and materials produced by manatee education and outreach providers.

Education/Outreach Provider	Name(s) of Program or Outreach Material Relating to Manatees
Tampa Bay Estuary Program	<ul style="list-style-type: none"> • Bay Friendly Boater Kits (educational material) • Manatee Friendly Neighborhoods (recognition program for neighborhoods) • A Minute For Manatee (public service message)
FWC Imperiled Species Management	<ul style="list-style-type: none"> • Video Footage • Closer Look At Manatees And The State Of Manatees (film/video/DVD)
Mote Marine Laboratory	<ul style="list-style-type: none"> • Mammals, Mammoths, Manatees (field trip/tour)
The Manatee Man, entertainer and educator	<ul style="list-style-type: none"> • The Manatee Man Music Program (compact disc) • Outreach For Animals (live festival performance)
The Florida Aquarium	<ul style="list-style-type: none"> • Evening Tide Talks
Fish and Wildlife Research Institute, Tequesta Field Station	<ul style="list-style-type: none"> • FWC Manatee Program Outreach (brochure/flyer) • Monofilament Recovery And Recycling Program
Manatee Observation and Education Center	<ul style="list-style-type: none"> • Elementary Education Programs • Brown Bag Lunch Lecture Series • Manatee Facts (brochure/flyer) • How To Look For Manatees (brochure/flyer) • Self-Guided Tour Brochure • Naturalist I And Naturalist II Program • Nature Fest • Various Kayaking Tours • Manatee Trivia Game • Wildlife Boat Tour Brochure • Nature Adventure Camp • Manatee Observation And Education Center Brochure • Manatee Center Calendar Of Events • MOEC Membership Brochure
Manatee Rehabilitation Partnership	<ul style="list-style-type: none"> • Manatee Rehabilitation Partnership (brochure/flyer)
Florida Power and Light, Environmental Services	<ul style="list-style-type: none"> • Manatee Books • Aerial Surveys • Manatee Bumper Sticker
Department of Environmental Protection	<ul style="list-style-type: none"> • A Coloring And Activity Book About Manatees
Marine Mammal Commission	<ul style="list-style-type: none"> • Marine Mammal Commission Annual Report
Sarasota County Natural	<ul style="list-style-type: none"> • Boating Brochures

Resources	<ul style="list-style-type: none"> • Activity Books • Various Brochures
Defenders of Wildlife	<ul style="list-style-type: none"> • Defenders' Magazine • Electronic News And Alerts • Defenders' Plush Toy • Defenders' Websites • PowerPoint Presentations/Slides
Dolphin Research Center	<ul style="list-style-type: none"> • Manatee Lab • Manatee Fun Facts Sheet • Manatee Seminars • Manatee Signage • Manatee Outreach (seminar/class)
Chassahowitzka National Wildlife Refuge	<ul style="list-style-type: none"> • Manatee Outreach Bin • Manatee Manners (film/video/DVD) • Crystal River National Wildlife Refuge Tear Sheets • Manatee Telemetry (outreach program) • Crystal River NWR Brochure
Miami Dade Police Department Marine Patrol	<ul style="list-style-type: none"> • Manatee Zone Pamphlets • Speed Zone Cards
Volusia County Environmental Management	<ul style="list-style-type: none"> • Bilge Sock Distribution Program • Monofilament Recovery And Recycling Program • Manatee Teacher Curriculum • Manatee Educational Packets • Clean Marina (brochure/flyer) • Manatee Watch (orientation/training session) • Manatee Protection Plan, Phase I (study/workshop) • Manatee Protection Plan, Phase II (study/workshop) • Manatee Educational Display Boards • EnviroNet Newsletter • Habitat Enhancement (brochure/flyer)
Homosassa Springs Wildlife State Park	<ul style="list-style-type: none"> • Manatee Programs Given 3 Times Daily • Outreach Programs On Manatees • Adopt A Manatee Program • Manatee Watch Program • Educator's Guides And Materials • Observations On The Birth And Early Life Of Captive West Indian Manatee • Study Of Coccidian Protozoa In Manatees • Manatee Behavior • Contribution Of Manatee Perioral Bristles During Feeding • A Study Of Manatee Leukocytes Using Peroxidase Stain • Frequency Of Vocalizations Of The West Indian

	<p>Manatee</p> <ul style="list-style-type: none"> • Voice Signatures In The West Indian Manatee In Reference To Cow-Calf Vocalizations • Manatee Feeding And Exploratory Behavior: An Anatomical And Behavioral Perspective • Manatee Reproductive Hormone Study • Manatee Cerebral Cortex: Cytoarchitecture Of The Caudal Region In Trichechus Manatus Latirostris • Geographical And Individual Variation Of The Acoustical Repertoire In The Antillean Manatee • Food Preferences Of Captive Florida Manatees (Trichechus Manatus Latirostis) And Its Relation To Freshwater Plant Nutrient Composition • Distribution And Innervation Of The Facial Bristles And Hairs In The Florida Manatee • The Muscular Hydrostat Of The Florida Manatee: A Functional Morphological Model Of Perioral Bristle Use • Prehensile Use Of Perioral Bristles During Feeding And Associated Behaviors Of The Florida Manatee • Cutaneous Viral Papillomatosis In Manatees • Formulated Manatee Feed • Animal Husbandry Of Captive Manatees • Evaluation Of Body Condition Assessment Techniques And Their Application To Released Manatees: A Tool For Successful Rehabilitation And Release • Immune Functional Responses Of The Florida Manatee To Environmental Stress • Manatee Cold-Stress Immunology Papilloma Vaccine Trial
Blue Spring State Park	<ul style="list-style-type: none"> • Manatees Of Blue Spring (film/video/DVD) • Manatee Yearly Attendance (brochure/flyer) • Blue Spring State Park Brochure • Most Often Asked Manatee Questions
Lee County Parks and Recreation	<ul style="list-style-type: none"> • Coloring And Activity Book • Habits And Habitats Curriculum Guide • The Florida Manatee, Manatee Anatomy Facts • All About Manatees Presentation
The Cincinnati Zoo	<ul style="list-style-type: none"> • Wildlife Explorer For Kids - North American Wildlife (activity booklet) • Conservation Activity Guide • Edzoocation (field trip/tour) • Sleep With The Manatees (field trip/tour) • Earth Expeditions – Belize (field trip/tour)

	<ul style="list-style-type: none"> • Meet Stoneman And Douglas (seminar/class)
SeaWorld	<ul style="list-style-type: none"> • Manatee Rescue (live animal display, graphics/video) • SeaWorld/Busch Gardens Animals (website) • Siren's Song: The Story Of Manatees • Saving A Species: The Manatee Story • Saving A Species Tour • Florida Friends Outreach (seminar/class) • Fabulous Florida Keys/Keys To Conservation
Palm Beach County Department of Environmental Resources	<ul style="list-style-type: none"> • Manatee Brochure • PowerPoint Presentations • Speed Zone Map/Kiosk Display • Natural Restoration Area Outreach (field trips, presentations, brochures)

Main messages communicated by education and outreach providers through programs/materials.

Education/Outreach Provider	Main Message(s) Communicated To Target Audience Through Programs/Materials
Tampa Bay Estuary Program	<ul style="list-style-type: none"> • Please obey manatee speed zones. • Manatees are an invaluable component of our overall quality of life. • Boat safely around manatees.
FWC Imperiled Species Management	<ul style="list-style-type: none"> • Coexist with manatees.
Mote Marine Laboratory	<ul style="list-style-type: none"> • We need to help protect manatees.
The Manatee Man, entertainer and educator	<ul style="list-style-type: none"> • People are the answer--we can share these environments carefully. • Man and manatees can share the same environment with education. • Mankind can be vigilant and save compromised animals due to cold weather.
The Florida Aquarium	<ul style="list-style-type: none"> • Be aware of the issues.
Fish and Wildlife Research Institute, Tequesta Field Station	<ul style="list-style-type: none"> • Obey speed zones; call 24-hour FWC dispatch number; do not feed or water manatees. • Recycle your fishing line!

Manatee Observation and Education Center	<ul style="list-style-type: none"> • Have awareness and knowledge of manatees. • Preservation of manatees and how unique they are. • What people can do to help manatees and to teach them about manatees. • Manatees are enjoyable to watch. • How to get the most out of their Manatee Center experience. • Know your environment--our actions affect all living things. • It is important to help maintain the delicate ecosystems in our area. • The beauty of manatees and other lagoon wildlife, and preservation. • Realize how unique and interesting manatees are. • Education about conservation of the Indian River Lagoon and its • inhabitants. • Familiarity with the environment and interaction with animals. • Variety and range of exhibits and information available at the Manatee Center. • Various activities are designed to educate the public about all types of manatee issues. • How their support will help host educational programs about the Treasure Coast
Manatee Rehabilitation Partnership	<ul style="list-style-type: none"> • It's important to track some released manatees.
Florida Power and Light, Environmental Services	<ul style="list-style-type: none"> • Conservation, protection.
Marine Mammal Commission	<ul style="list-style-type: none"> • Recent development in manatee issues.
Sarasota County Natural Resources	<ul style="list-style-type: none"> • Protect the manatee with various information regarding boating and manatee awareness. • Protect the manatee and manatee awareness. • Protect the manatee and manatee awareness.
Defenders of Wildlife	<ul style="list-style-type: none"> • Protect wildlife. • Protect wildlife and habitat.

<p>Dolphin Research Center</p>	<ul style="list-style-type: none"> • Conservation. • Conservation and awareness.
<p>Chassahowitzka National Wildlife Refuge</p>	<ul style="list-style-type: none"> • We can all help reduce the challenges that manatees are facing today. • When entering the manatees' habitat, you are in their home and must follow the rules. • Crystal River NWR is established as a haven for 20% of the manatee population in the Gulf of Mexico. • By using radio telemetry, biologists can study migration patterns, foraging habits and may also track injured manatees. • Crystal River NWR was established as a haven for 20% of the manatee population in the Gulf of Mexico.
<p>Miami Dade Police Department Marine Patrol</p>	<ul style="list-style-type: none"> • Awareness of slow and idle speed zones in the county. • Awareness of sign meanings.
<p>Volusia County Environmental Management</p>	<ul style="list-style-type: none"> • Importance of waterway and aquatic life protection. • Recycle fishing line instead of throwing it away in trash cans or in the waterway. • Manatee education and conservation. • Public knowledge and awareness is one of the key factors for manatee survival. • Habitat protection by marina facilities is good stewardship and good business. • Manatees utilize many of our waterways, and these waterways are worth protecting. • Ensure the long-range protection of manatees and their habitat. • Provide critical protection for important manatee areas and other environmentally sensitive areas while creating a funding source for additional law enforcement education initiatives. • Manatee protection. • Good stewardship of our environment. • Shoreline protection.

Homosassa Springs Wildlife State Park	<ul style="list-style-type: none"> • General manatee information, Park's role in caring for manatees, what people can do to protect manatees, etc. • General information about manatees, the park's manatee program and the need to protect manatees. • Manatee protection and education. • Respect and protect manatees. • Learn about protecting manatees. • Learn more about birth and early life of captive-born manatees. • New information about manatee behavior. • Increase knowledge of contribution of manatee perioral bristles in feeding. • To learn more about manatee feeding behavior. • Learn about manatee reproductive hormones. • Information learned about the manatee cerebral cortex. • New information on variations in acoustical repertoire • of manatees. • New information on manatees' food preferences in freshwater plants. • New information regarding facial bristles and hairs in manatees. • New information on muscular hydrostat of Florida manatee. • New information about how manatees feed. • New information about viral papillomatosis. • To learn more about animal husbandry of captive manatees. • How best to evaluate body condition of released manatees. • New information about manatee feeds for captive manatees. • To learn more about immune functional responses of manatees to environmental stress. • New information learned about cold-stress immunology in manatees. • Learn more about vaccines for papilloma in manatees.
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<p>Blue Spring State Park</p>	<ul style="list-style-type: none"> • Manatees need help. • Increasing manatees at Blue Spring. • Blue Springs is vital to manatees for warmth in the winter. • Manatees are complex animals.
<p>Lee County Parks and Recreation</p>	<ul style="list-style-type: none"> • Manatee education and awareness. • Mammal characteristics of manatees, interaction with human beings. • Awareness of the anatomy of the manatee, including digestive tract. • Awareness of manatee protection.
<p>The Cincinnati Zoo</p>	<ul style="list-style-type: none"> • Manatees need our help to ensure that they have a future in the wild. • Florida manatees need warm water to survive; they are well-adapted to swim and find their food. • Manatees are special and worth protecting. • Scientific research can be done by students through inquiry. • Manatees are cool animals!
<p>SeaWorld</p>	<ul style="list-style-type: none"> • Awareness of conservation. • General information and conservation.
<p>Palm Beach County Department of Environmental Resources</p>	<ul style="list-style-type: none"> • Speed zone compliance. • Importance of local efforts. • Awareness of speed zone locations. • Restoration benefits habitats and endangered species.

Typical locations of education and outreach materials and programs.

Education/Outreach Provider	Typical Location(s) of Materials or Programs (only among those providers that listed program locations)
Tampa Bay Estuary Program	<ul style="list-style-type: none"> • Distributed in Pinellas / Hillsborough / Polk / Pasco Counties • At TBEP office • Coast Guard Auxiliary flotillas
FWC Imperiled Species Management	<ul style="list-style-type: none"> • Classroom setting
The Manatee Man, entertainer and educator	<ul style="list-style-type: none"> • Schools, manatee festivals, sanctuaries • Festivals and elementary schools
The Florida Aquarium	<ul style="list-style-type: none"> • The Florida Aquarium
Fish and Wildlife Research Institute, Tequesta Field Station	<ul style="list-style-type: none"> • Tequesta Field Station • Participating tackle shops and organizations
Manatee Observation and Education Center	<ul style="list-style-type: none"> • Manatee Observation and Education Center • Manatee Observation and Education Center classroom • At front door of Manatee Center • At front door and observation deck of Manatee Center • Front desk of Manatee Center • Manatee Center and field trips to various ecosystems • Manatee Observation and Education Center • Various locations in the Indian River Lagoon • Manatee Center classroom, school classrooms • The Indian River Lagoon and the Ft. Pierce Inlet • Field trips and MOEC • At the Manatee Center and other area attractions • Manatee Center • In the Center and at the gift shop
Florida Power and Light, Environmental Services	<ul style="list-style-type: none"> • All over Florida • FPL and Mote Laboratory
Marine Mammal Commission	<ul style="list-style-type: none"> • Agency bookshelves and libraries, Internet and websites
Sarasota County Natural Resources	<ul style="list-style-type: none"> • In a storage area
Dolphin Research Center	<ul style="list-style-type: none"> • South Florida Keys to Crystal Springs • On site or outreach • On grounds of facility • Schools, libraries, state parks

Chassahowitzka National Wildlife Refuge	<ul style="list-style-type: none"> • Crystal River NWR Headquarters • Crystal River
Miami Dade Police Department Marine Patrol	<ul style="list-style-type: none"> • Marina / police boats
Volusia County Environmental Management	<ul style="list-style-type: none"> • Marinas, bait shops, fish camps • Within school system • Festivals, shows, activities, events • All over the county along various waterways • Online (county website), in libraries • Workshops, boat shows, schools, fairs, science expos • Various shoreline locations
Homosassa Springs Wildlife State Park	<ul style="list-style-type: none"> • Alongside mainspring • Wherever group meets, classroom, etc. • Five manatees in program reside at Park • Blue Waters area • Park office and Children's Education Center • Homosassa Springs
Blue Spring State Park	<ul style="list-style-type: none"> • Room seating about 100 people • Program room, entrance station • Ranger Station, concession area • Podium program room, entrance gate
Lee County Parks and Recreation	<ul style="list-style-type: none"> • Visitor Center, classrooms, events, etc. • Lee County Manatee Park Amphitheater
The Cincinnati Zoo	<ul style="list-style-type: none"> • Schools • Cincinnati Zoo • Belize
SeaWorld	<ul style="list-style-type: none"> • Online • SeaWorld gift shops • Schools • Backstage support area • Manatee rescue attraction
Palm Beach County Department of Environmental Resources	<ul style="list-style-type: none"> • Outreach events • Civic group meetings • Boat ramps • On-site

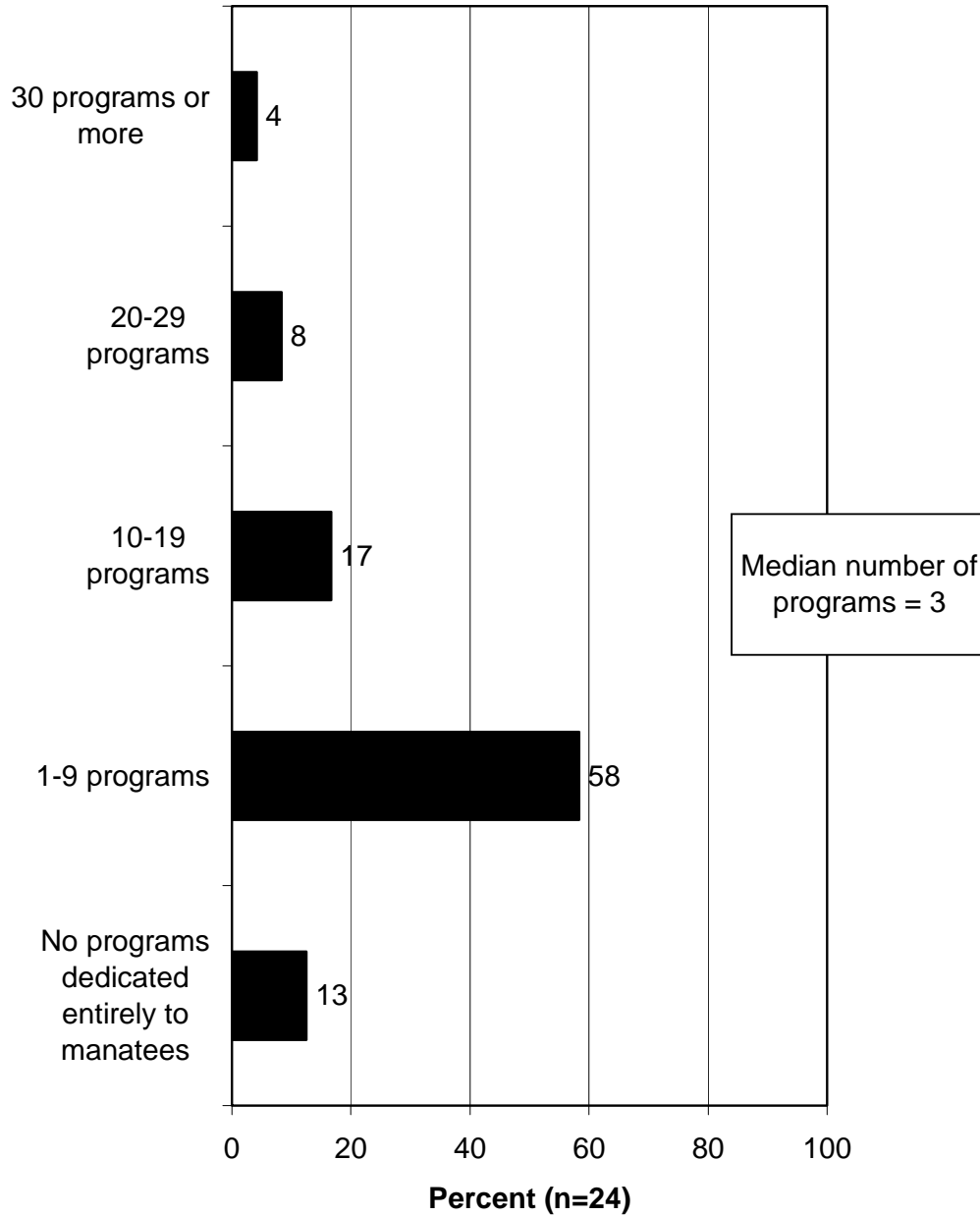
MATERIALS DEDICATED SPECIFICALLY AND PARTIALLY TO MANATEE EDUCATION AND OUTREACH

- Most manatee educators (58%) produce fewer than nine materials and/or programs dedicated entirely to manatees.
 - A small percentage of organizations (12%) participating in manatee education and outreach produce 20 or more materials or programs dedicated entirely to manatees.

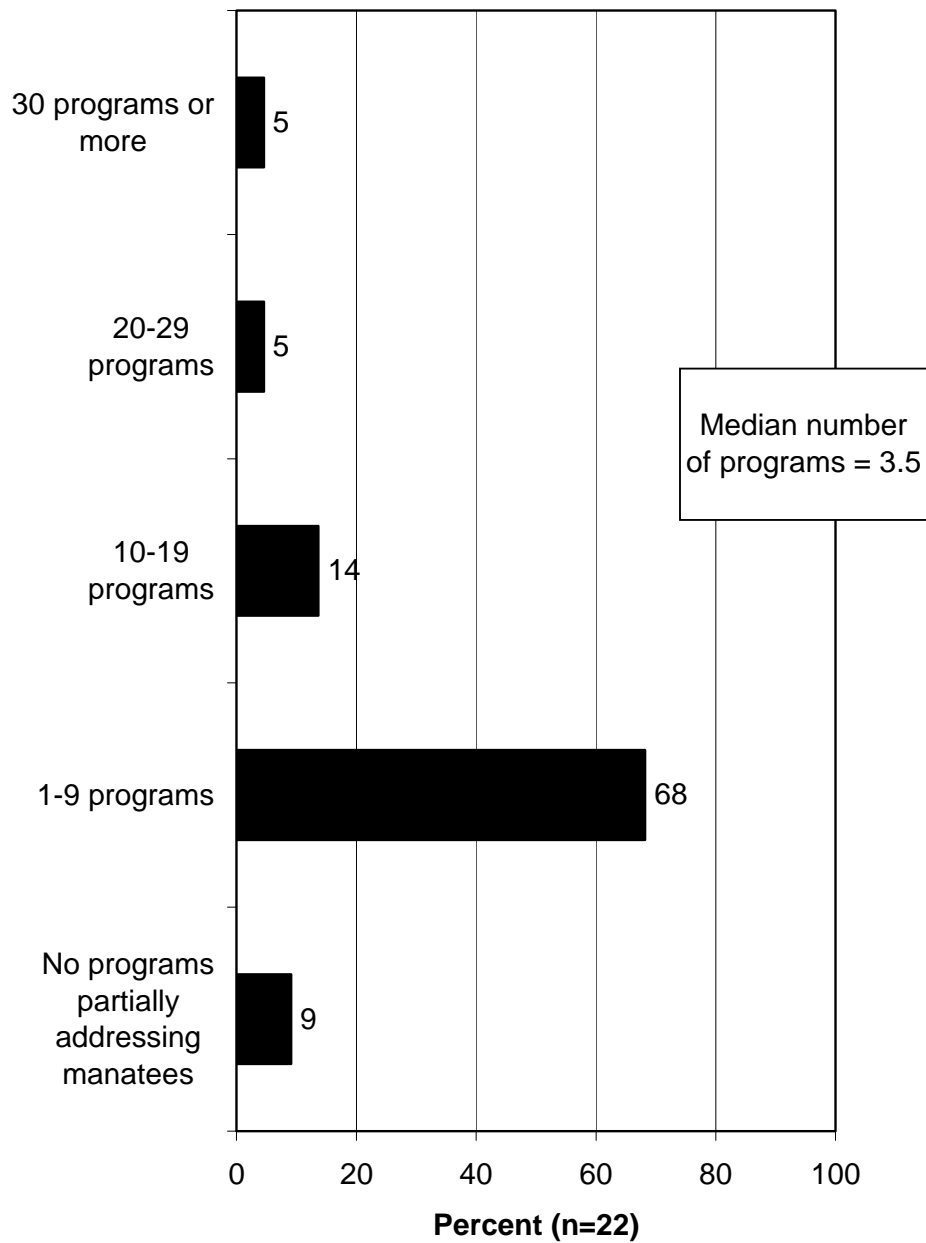
- Over two-thirds of manatee education organizations (68%) produce fewer than nine materials and/or programs that *partially* address manatees, such as overarching material and activities on marine life that only peripherally regard manatees.
 - A small percentage of manatee educators (10%) produce 20 or more materials or programs that partially address manatees.

- Many organizations address issues that do not pertain to manatees, as shown in the last graph in this section.

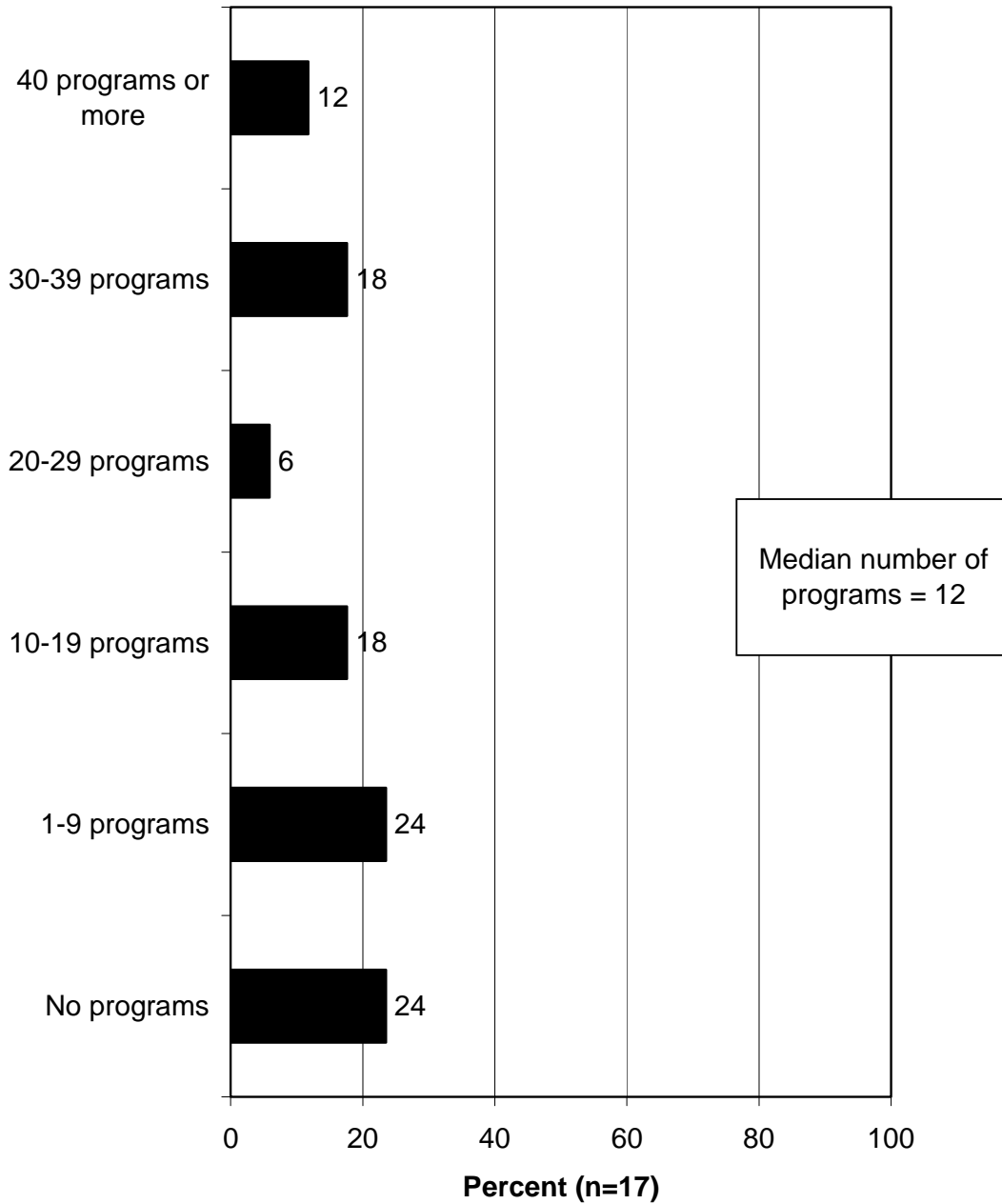
Please estimate the number of materials and / or programs currently produced by your organization that are dedicated entirely to manatees.



Please estimate the number of materials and / or programs currently produced by your organization that partially address manatees.



Please estimate the number of materials and / or programs currently produced by your organization that do not address manatees at all.

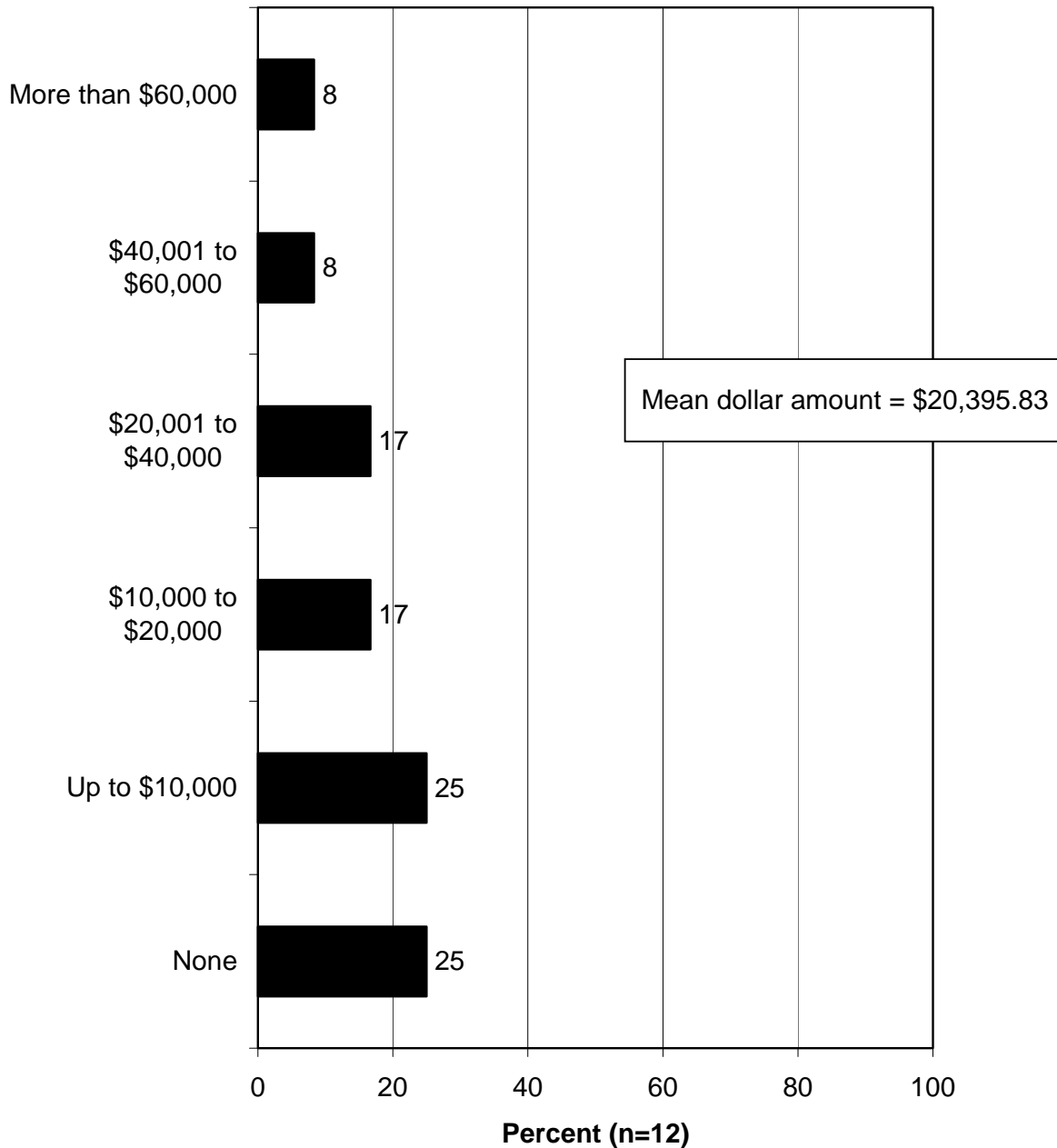


EDUCATION BUDGETS OF MANATEE EDUCATION AND OUTREACH PROVIDERS

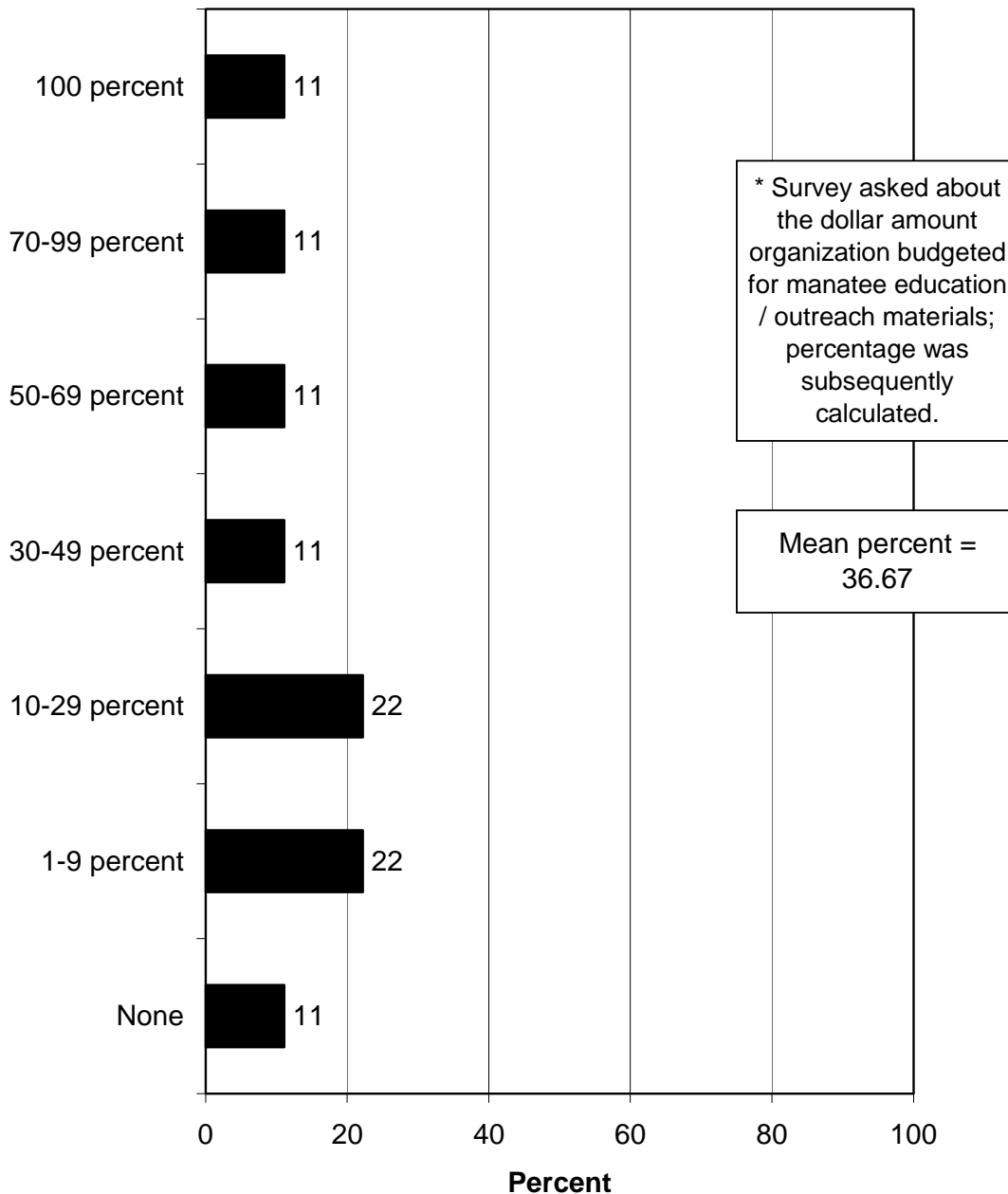
- The mean dollar amount budgeted by a manatee education provider is \$20,395.83. Over two-thirds (67%) of the manatee education providers in the survey budget less than \$20,000 specifically for manatee education and outreach.
 - A quarter (25%) of education providers do not budget any funds specifically for use in manatee education and outreach efforts.
 - Just two education providers have yearly budgets over \$40,000, while only one organization spends more than \$80,000 per year on manatee education and outreach.

- The mean percentage budgeted for manatee education by education providers is 36.67%. Funds budgeted specifically for manatee education and outreach account for at least 50% of the total education budgets in 33% of education providers.
 - A majority of the education budgets (55%) among the providers surveyed allocate less than 30% of funds toward manatee education and outreach.

Please estimate the yearly dollar amount budgeted by your organization specifically for manatee education / outreach materials and programs.



What percentage of your organization's education budget does [amount spent on manatee education / outreach materials*] represent?



Sources of funding for education and outreach materials and programs.

Education/Outreach Provider	Sources of Funding for Education and Outreach Materials and Programs (only among those providers that listed sources of funding)
Tampa Bay Estuary Program	<ul style="list-style-type: none"> • TBEP Outreach budget
FWC Imperiled Species Management	<ul style="list-style-type: none"> • Reuse of footage and materials • Grants
Mote Marine Laboratory	<ul style="list-style-type: none"> • Grants
The Manatee Man, entertainer and educator	<ul style="list-style-type: none"> • CD sales • Outreach for Animals
The Florida Aquarium	<ul style="list-style-type: none"> • Wachovia Grant
Fish and Wildlife Research Institute, Tequesta Field Station	<ul style="list-style-type: none"> • FWRI educational expenses • Grants and donations
Manatee Observation and Education Center	<ul style="list-style-type: none"> • St. Lucie County School Board • Lecturer donates time and materials for use in presentation • Donations, admission fees, gift shop sales • Memberships • Fees paid by participants
Manatee Rehabilitation Partnership	<ul style="list-style-type: none"> • Contributions from partners primarily
Florida Power and Light, Environmental Services	<ul style="list-style-type: none"> • Privately funded • Florida Power and Light
Department of Environmental Protection	<ul style="list-style-type: none"> • Office of Environmental Education and DEP
Marine Mammal Commission	<ul style="list-style-type: none"> • Part of Commission's annual budget
Sarasota County Natural Resources	<ul style="list-style-type: none"> • Available budget • Grant funding • Multi-agency requests for materials
Defenders of Wildlife	<ul style="list-style-type: none"> • Memberships
Dolphin Research Center	<ul style="list-style-type: none"> • Tuition • By organization (DRC)
Chassahowitzka National Wildlife Refuge	<ul style="list-style-type: none"> • Friends group • USFWS budget
Miami Dade Police Department Marine Patrol	<ul style="list-style-type: none"> • FWC
Volusia County Environmental Management	<ul style="list-style-type: none"> • Grants • County • FWC • Per-slip mitigation fee

Homosassa Springs Wildlife State Park	<ul style="list-style-type: none"> • Save the Manatee Club adoption fees • Training provided by USFWS • University of Windsor • F.I.T. • University of Florida • Harbor Branch Oceanographic Institute • University of Central Florida • Texas A&M University
Blue Spring State Park	<ul style="list-style-type: none"> • State park funds • Park budget
Lee County Parks and Recreation	<ul style="list-style-type: none"> • Grant-funded • Lee County Parks and Recreation • FWC and volunteer donations
The Cincinnati Zoo	<ul style="list-style-type: none"> • Sponsorship by Ashland • Toyota Manufacturing of North America • Zoo revenue • Course fees
SeaWorld	<ul style="list-style-type: none"> • SeaWorld Orlando • BEC
Palm Beach County Department of Environmental Resources	<ul style="list-style-type: none"> • State grant • Ad valorem

MISSIONS, STAFF SIZES, AND LEVELS OF INVOLVEMENT BY MANATEE EDUCATION AND OUTREACH PROVIDERS

- Mission statements of education and outreach providers are listed on the first table in this section.

- Most manatee educators indicated relatively small staff sizes for their entire organizations, with 30% citing a staff size of just one to nine people.
 - A majority (65%) of manatee educators and outreach providers cited a staff size below 1,000 people, while just one education provider occupied a high-end of around 4,000 staff members in the organization. Naturally, these figures do not necessarily reflect the actual numbers of staff members devoted only to manatee issues.

- Department/division staff sizes of manatee educators are most commonly between one and nine people, with 62% of manatee education providers having department/divisions of fewer than 50 people.
 - Two manatee education providers reported department/division sizes of 1,000 or more people.

- Most manatee education providers (57%) do not dedicate any full-time employees specifically to manatee education programs; however, 43% do.

- Most manatee education and outreach providers have full-time employees involved in, but not specifically dedicated to, manatee education programs.
 - Nearly three-quarters (72%) of manatee education providers have fewer than 10 full-time employees involved in manatee education programs.
 - The greatest number of full-time employees involved in manatee education at the organizations surveyed is 62 employees.

- A substantial percentage (46%) of manatee educators say that their organization places a lot of emphasis on developing and providing education and outreach addressing manatees.

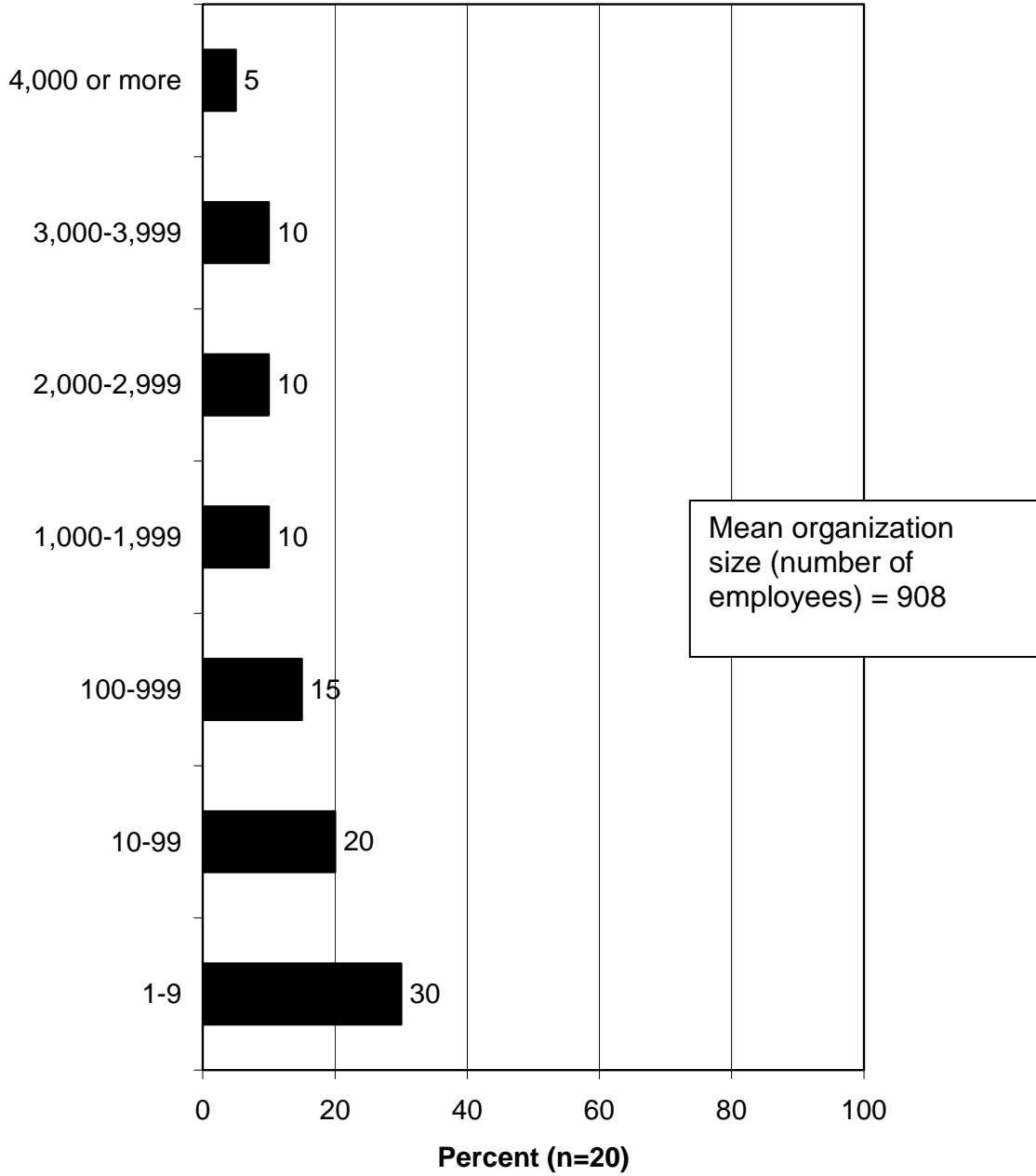
- A large majority of organizations (84%) place at least some emphasis on manatee education and outreach.

Mission statements of education and outreach providers.

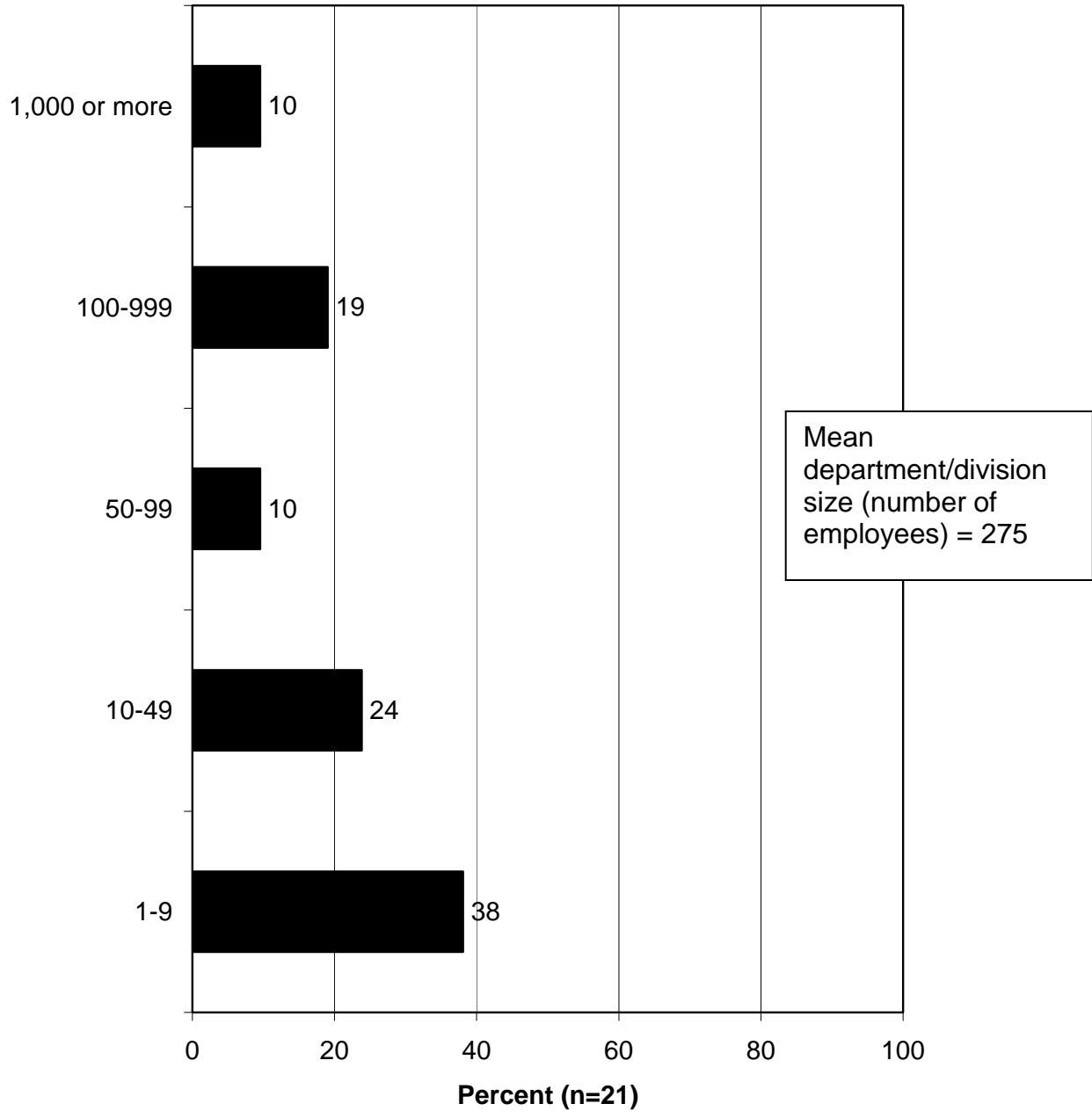
Education/Outreach Provider	Missions of Education and Outreach Providers (only among those providers that listed mission statements)
Tampa Electric Company Manatee Viewing Center	To provide residents and visitors an opportunity to view manatees in the wild.
FWC Imperiled Species Management	Manage fish and wildlife resources for their long-term well-being and the benefit of the people.
The Manatee Man, entertainer and educator	To sing our many manatee songs to as many children and adults as we can. Music is a wonderful way to say important things to people to increase learning and retention.
The Florida Aquarium	To entertain, educate, and inspire stewardship about our natural environment.
Manatee Observation and Education Center	To promote understanding and responsible actions for the protection of the Treasure Coast's fragile ecosystems and their inhabitants.
Manatee Rehabilitation Partnership	Tracking the fate and health of rehabilitated and released manatees to determine the successful contribution of the rehabilitation program to the recovery of the Florida Manatee populations.
Florida Power and Light, Environmental Services	To provide clean, safe, dependable power while protecting the environment.
Marine Mammal Commission	Review and provide advice on marine mammal protection issues.
Sarasota County Natural Resources	To protect, conserve and enhance our natural resources by blending the needs of today with a vision of tomorrow.
Defenders of Wildlife	Defenders of Wildlife is dedicated to the protection of all native wild animals and plants in their natural communities.
Dolphin Research Center	Teaching, learning and caring about marine mammals and the environment we share.
Chassahowitzka National Wildlife Refuge	To administer a national network of lands and waters for conservation management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of Americans.
Miami Dade Police Department Marine Patrol	Search and rescue, boater education, waterway law enforcement.
Homosassa Springs Wildlife State Park	To provide resource-based recreation while preserving, interpreting and restoring our natural and cultural resources.
Blue Spring State Park	Preserve some part of original Florida.
Lee County Parks and Recreation	To provide safe, clean and functional Parks and Recreation facilities. To provide programs and services that add to the quality of life for all Lee County residents and visitors.
The Cincinnati Zoo	Creating adventure, conveying knowledge, conserving

	nature, serving community.
SeaWorld	To create happiness and memories.
Palm Beach County Department of Environmental Resources	Environmental restoration and management.

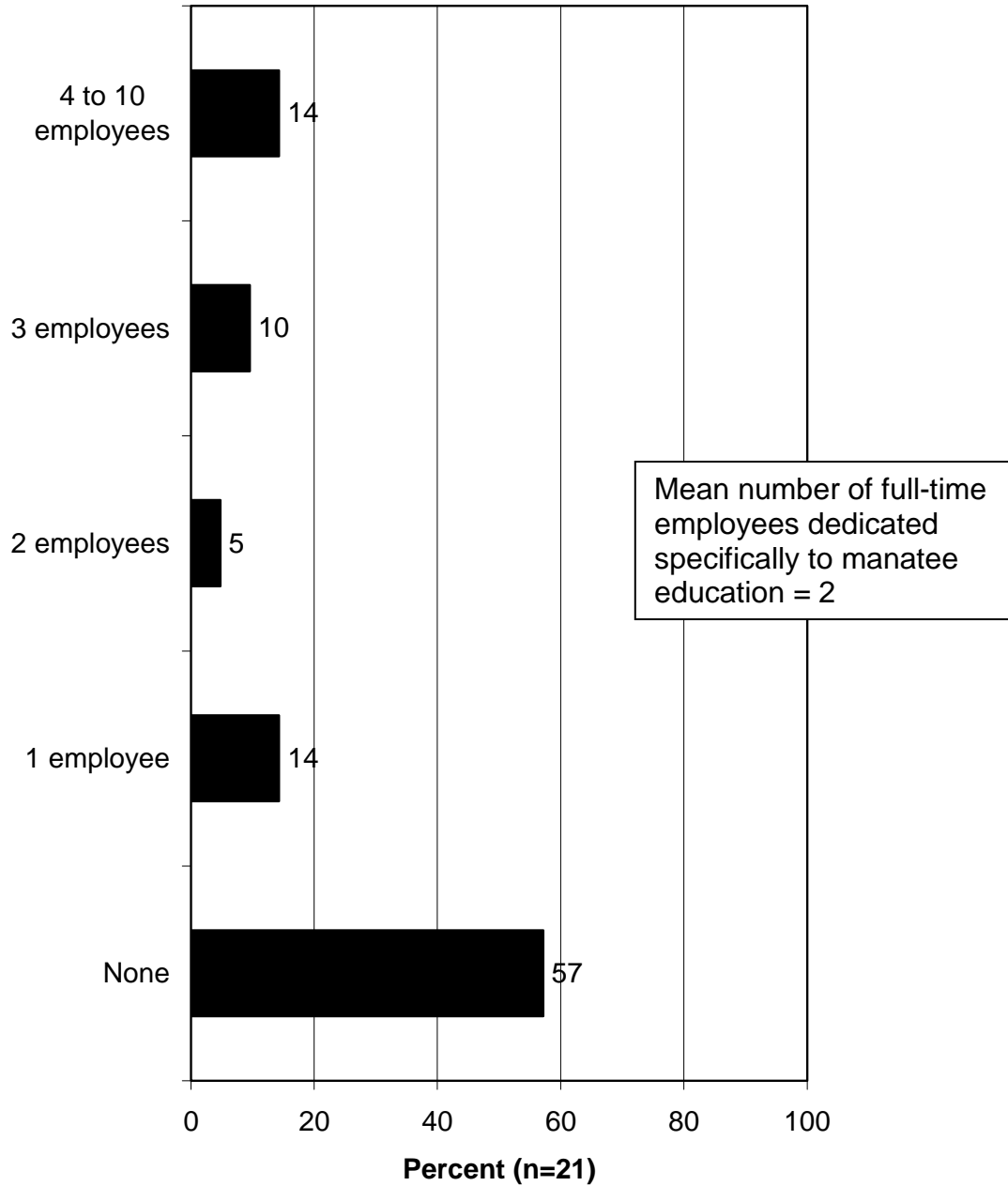
What is your organization's staff size (how many employees)?



**What is your department's / division's staff size
(how many employees)?**



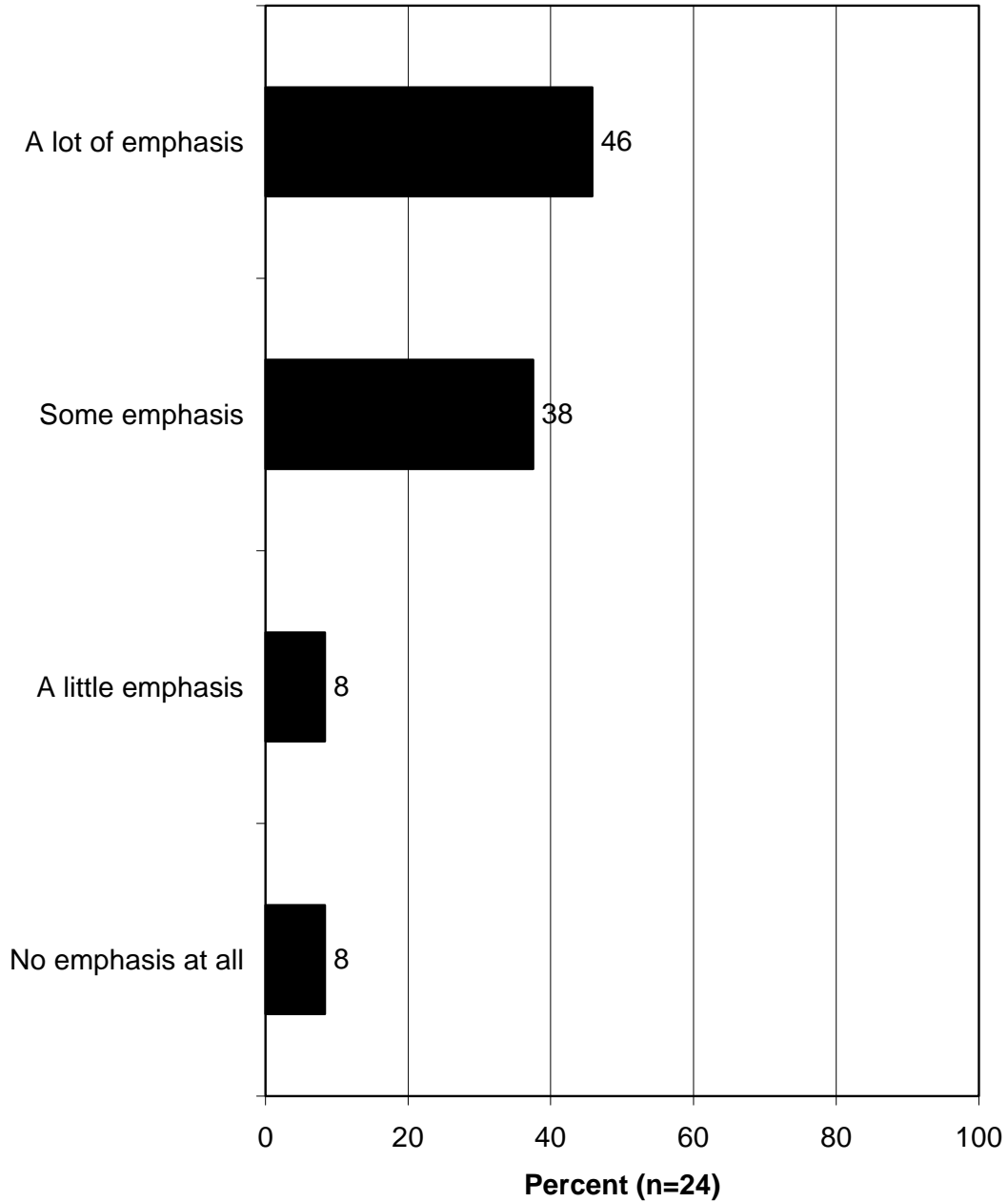
How many full-time employees does your organization dedicate specifically to manatee education programs?



How many full-time employees in your organization are involved in, but not specifically dedicated to, manatee education programs?



Relative to your organization's focus and goals, how much emphasis is placed on developing and providing education / outreach addressing manatees?



OPINIONS ON EXISTING MANATEE EDUCATION AND OUTREACH

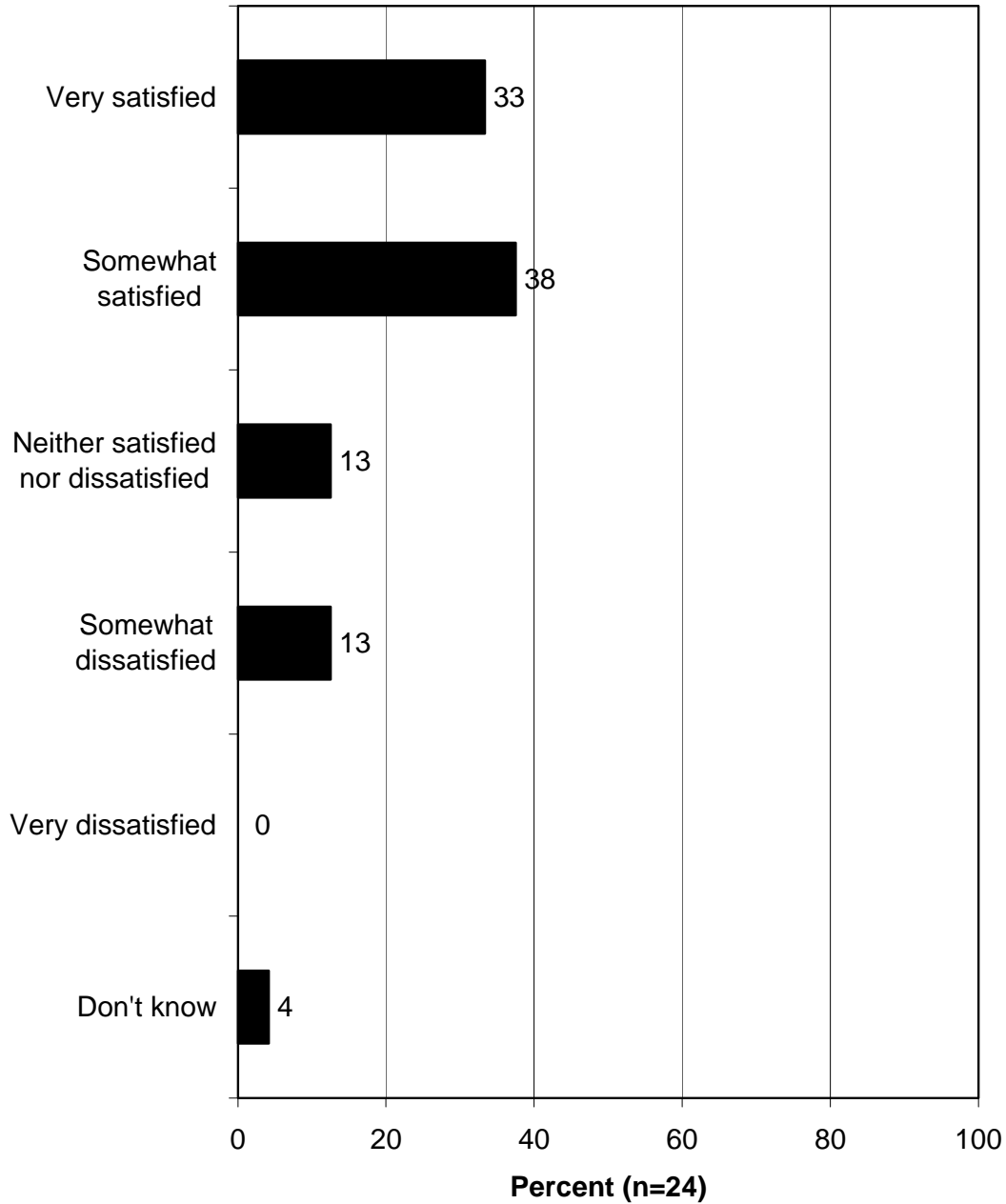
- A substantial majority (71%) of manatee educators and outreach providers are satisfied with the amount of time and resources their organization spends on manatee education and outreach, with a third (33%) of manatee educators *very* satisfied.

- Three-quarters (75%) of manatee educators and outreach providers agree that there is enough manatee education and outreach offered by their organization as a whole.
 - Most education and outreach providers (58%) that agree with this only *moderately* agree.

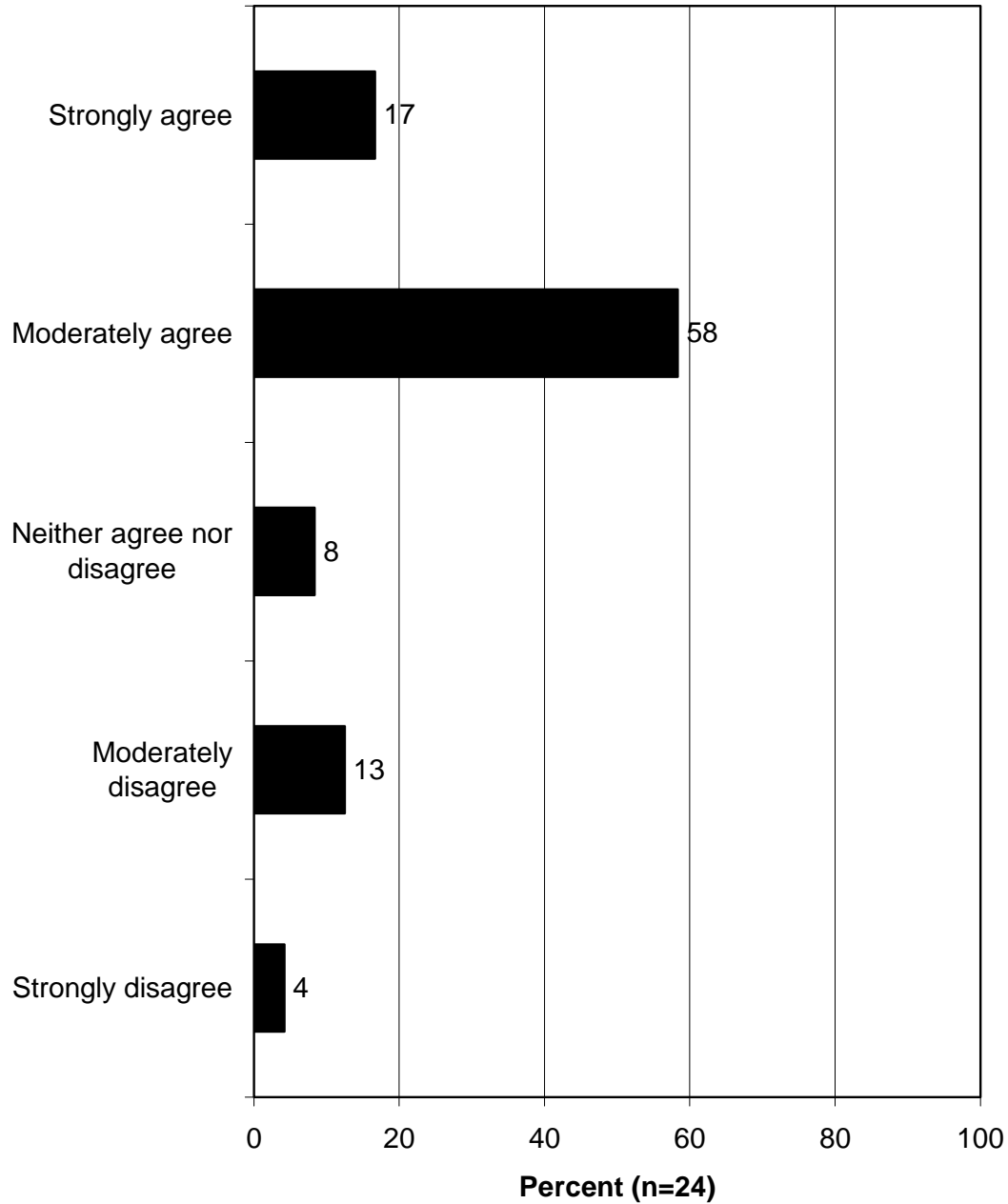
- The overwhelming majority of manatee educators (88%) consider manatee education and outreach to be very (63%) or somewhat important (25%) within their respective organizations.

- Most manatee education and outreach providers (88%) are aware of the manatee education and outreach offered by *other* organizations, with 46% *very* aware.

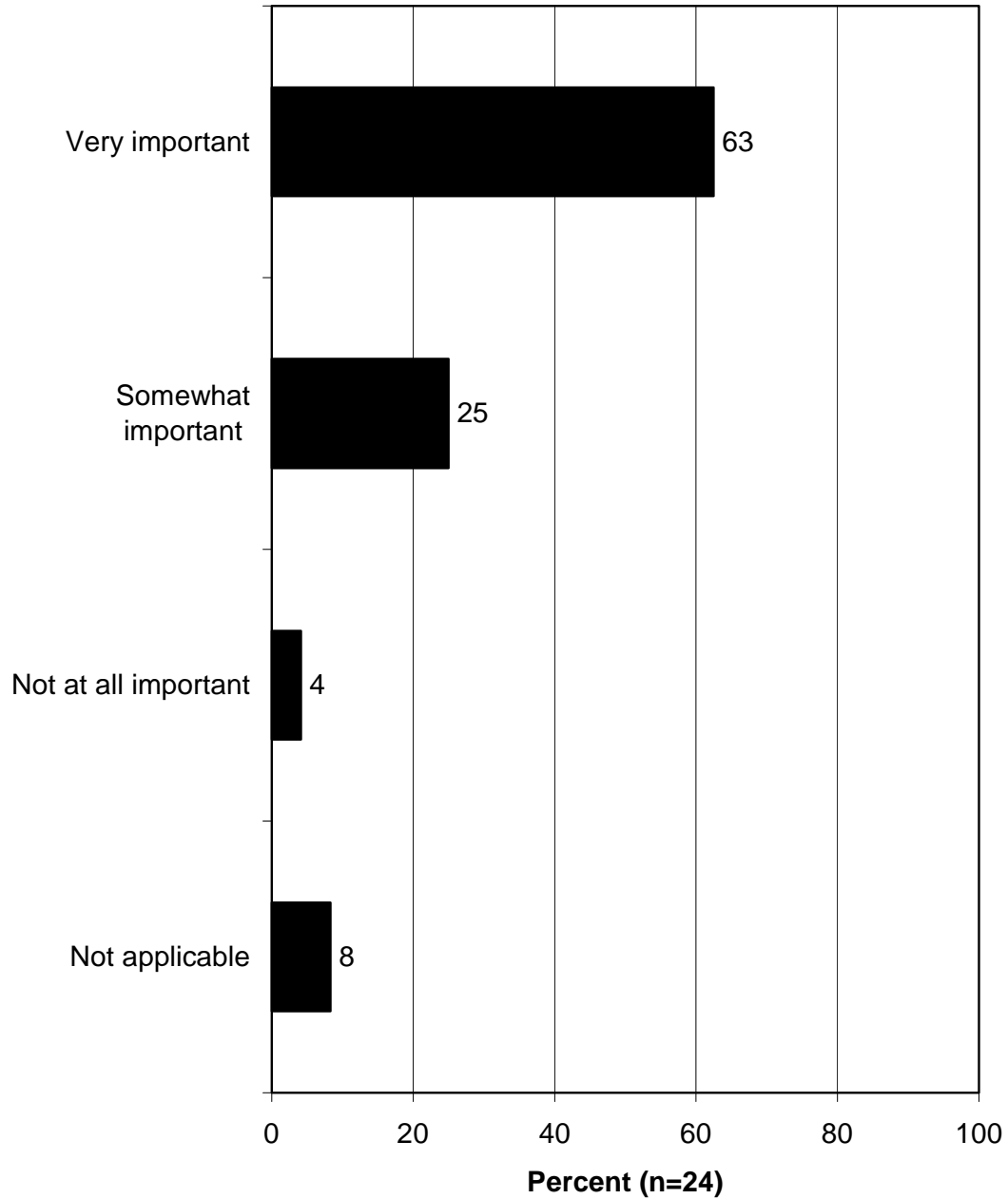
How satisfied or dissatisfied would you say you are with the amount of time and resources your organization spends on manatee education / outreach?



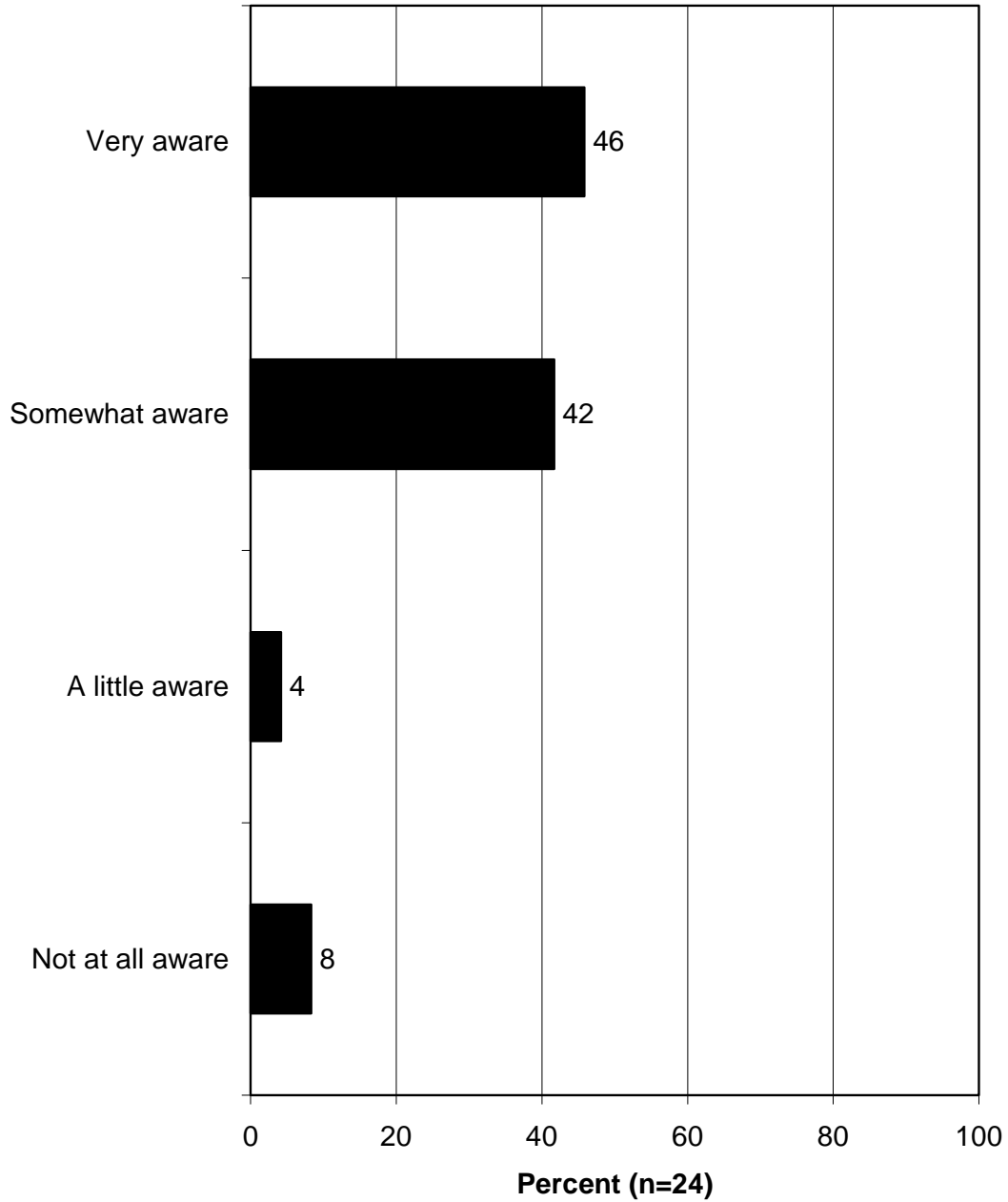
Overall, do you agree or disagree that there is enough manatee education / outreach offered by your organization as a whole?



Compared to other education programs in your organization, how important would you say manatee education / outreach is?



How aware would you say you are of other organizations' manatee education / outreach?

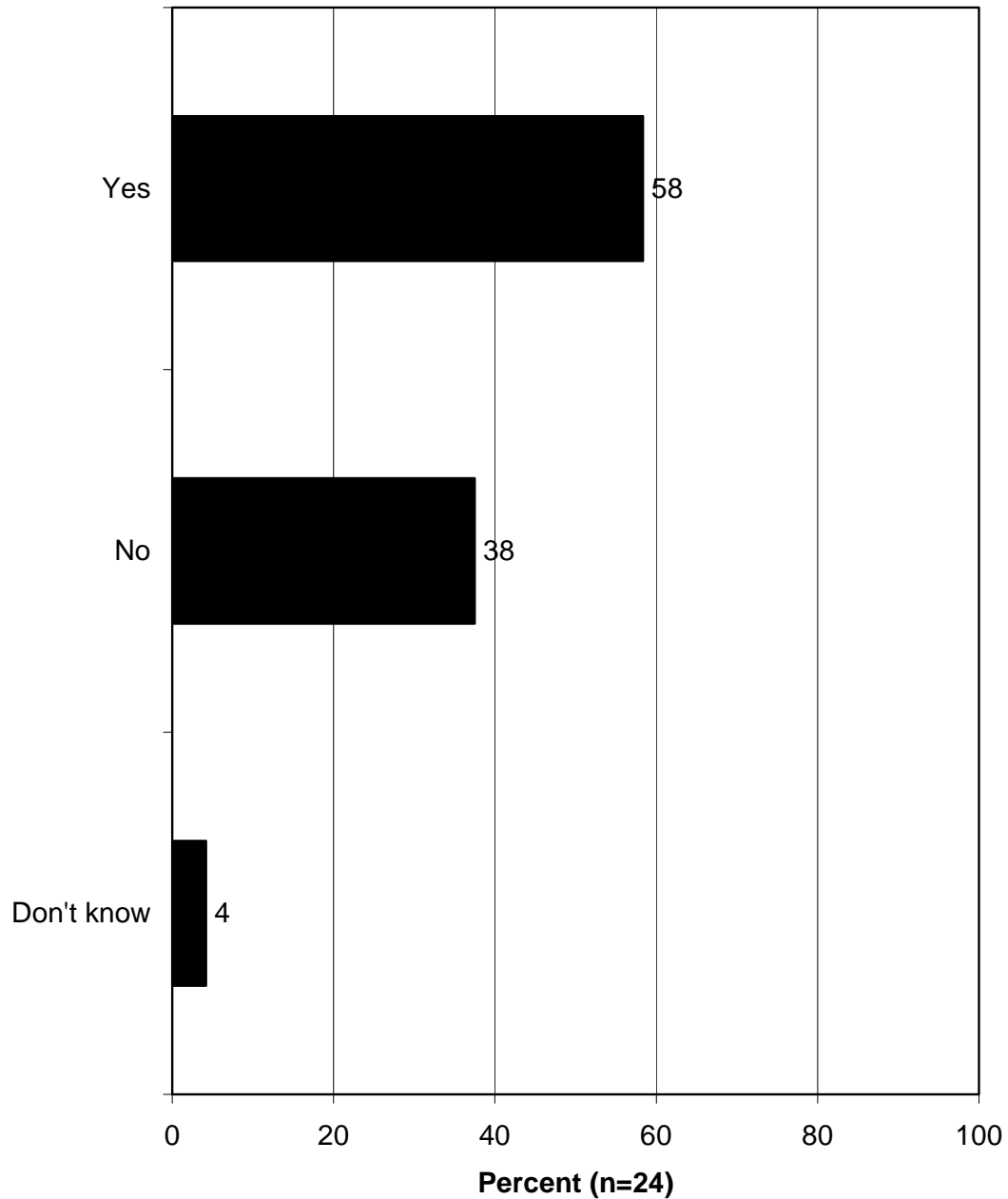


BARRIERS TO PROVIDING MORE MANATEE EDUCATION AND OUTREACH

- A majority of manatee educators (58%) indicated that there are barriers preventing their organizations from providing more manatee education and outreach.
 - Budgets/funding, staff, and time were the three most commonly cited barriers preventing additional manatee education and outreach (see table).
 - The most commonly proposed solutions to barriers preventing more education include additional funding sources (such as grants) and increased staffing (see table).

- Over two-thirds (67%) of manatee education providers chose funding on a multiple-response list of factors that would potentially allow increased manatee education and outreach.
 - The next most common response on the multiple-response list of needs was employees (58%).

**Are there any barriers preventing your organization
from providing more manatee education /
outreach?**



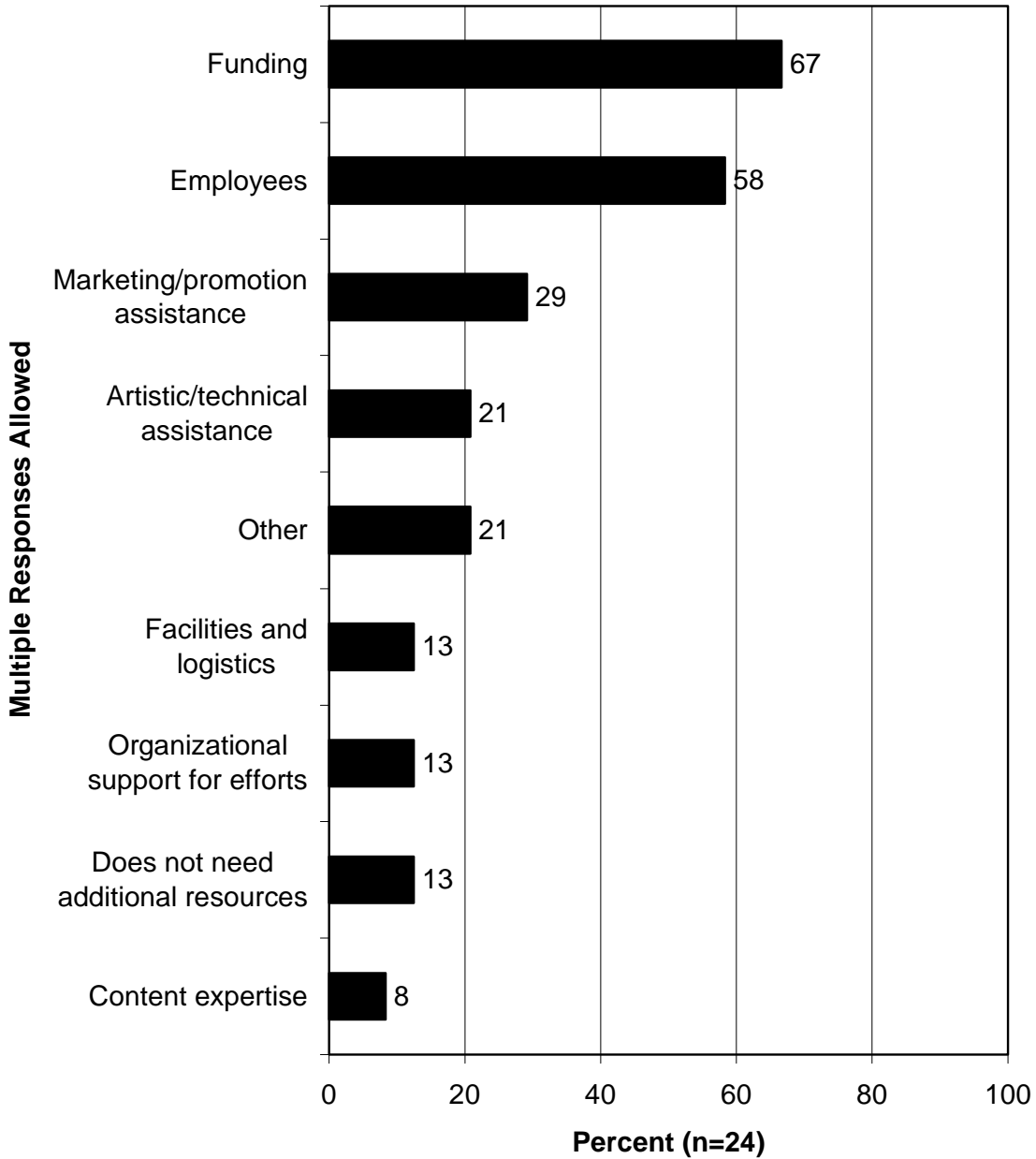
Barriers preventing more education and outreach.

Education/Outreach Provider	Barrier or Other Explanation Named
Tampa Electric Company Manatee Viewing Center	Budget, and we are not a traditional advocacy-based organization. We exist solely for educational purposes.
Tampa Bay Estuary Program	Staff constraints, time and funding.
FWC Imperiled Species Management	Staff (one person for the state), time (split time with other species), funding (limited education budget), marketing (limited resources available in a Fish and Wildlife agency), program sharing (support needed in other agency programs).
Mote Marine Laboratory	A lot of boaters in Florida are very sensitive to the idea of manatee education and awareness. They think we are taking away the waterways from them.
The Manatee Man, entertainer and educator	Simply said, just time and money. We would like to do so much more! We'd like to provide manatee education full-time. We have written and produced a great deal of material. We now have more than 50 copyrighted songs about manatees.
Fish and Wildlife Research Institute, Tequesta Field Station	Funding for manatee programs, funding and volunteers (MRRP).
Manatee Observation and Education Center	Funding, size of building, staff size.
Sarasota County Natural Resources	Budget restraints and time factors.
Defenders of Wildlife	Funding for staffing, materials, dissemination of materials.
Dolphin Research Center	Money/funding, resources (staff), time.
Chassahowitzka National Wildlife Refuge	Federal budget cuts, lack of public use, staff.
Blue Spring State Park	Staffing. We have manatees in the spring run in winter but few people available to be out with the public along the run.
Lee County Parks and Recreation	Field staff for Interpretive Programs.
The Cincinnati Zoo	Time and money are generally limited. There are also many other species included in the education programs at the Zoo. Manatees receive more attention in the education/outreach efforts than do many other species at the Zoo.
Palm Beach County Department of Environmental Resources	Staff, time.

Solutions named by education and outreach providers for overcoming barriers to providing more education and outreach.

Education/Outreach Provider	Solution or Other Explanation Named
Tampa Electric Company Manatee Viewing Center	Have considered asking for donations through a "Friends of the Manatee Viewing Center" organization that would be separate from TECO.
FWC Imperiled Species Management	Other funding sources to provide staff support, partnership with other agencies, support from public services for media messages, agency support between programs.
The Manatee Man, entertainer and educator	Everything that we've done so far has been at our own expense and we don't have a problem with that because we have a mission: we want to take manatee awareness to a higher level. If we work together we might accomplish so much more!
Fish and Wildlife Research Institute, Tequesta Field Station	Grants (manatee program), grants and donations (MRRP).
Manatee Observation and Education Center	Having more grants available. User tax or fee to establish state fund, expand building.
Sarasota County Natural Resources	Seek funding (i.e., grant funds); time for more research for free outreach materials. Setting a goal to create an area-specific piece on manatees.
Defenders of Wildlife	Grants, benefactor, manatee expert stable volunteer, in-house Defenders fellow.
Dolphin Research Center	Grants.
Chassahowitzka National Wildlife Refuge	More volunteer participation.
Lee County Parks and Recreation	More staff; more volunteer staff.
Palm Beach County Department of Environmental Resources	Increased staffing or contract out tasks.

What does your organization need to be able to provide more manatee education / outreach?



PRIORITY RATINGS FOR GROUPS TARGETED FOR EDUCATION AND OUTREACH

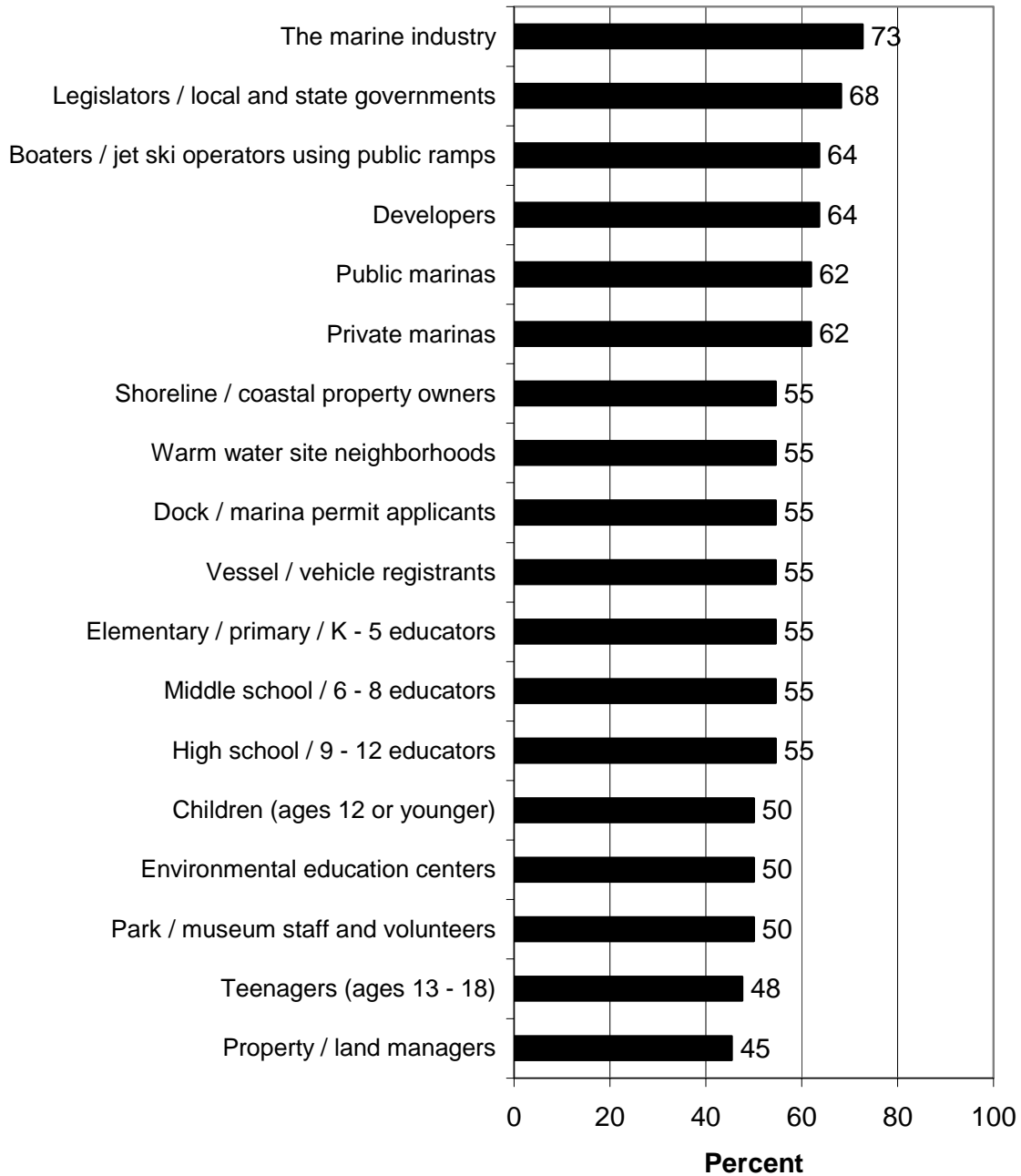
- The survey asked how much of a priority education providers thought it *should be* to target 36 different audiences and markets for manatee education. Most commonly, manatee education and outreach providers cited the marine industry (73%) and legislators/local and state governments (68%) as groups having an extremely high priority for manatee education and outreach efforts. Other groups named by manatee education and outreach providers as extremely high priorities for manatee education and outreach were boaters and jet ski operators using public ramps (64%) and developers (64%).

- Four groups were identified as *high* or *extremely high* priorities for manatee education by 95% of respondents: boaters and jet ski operators using public ramps; the marine industry; public marinas; and private marinas.

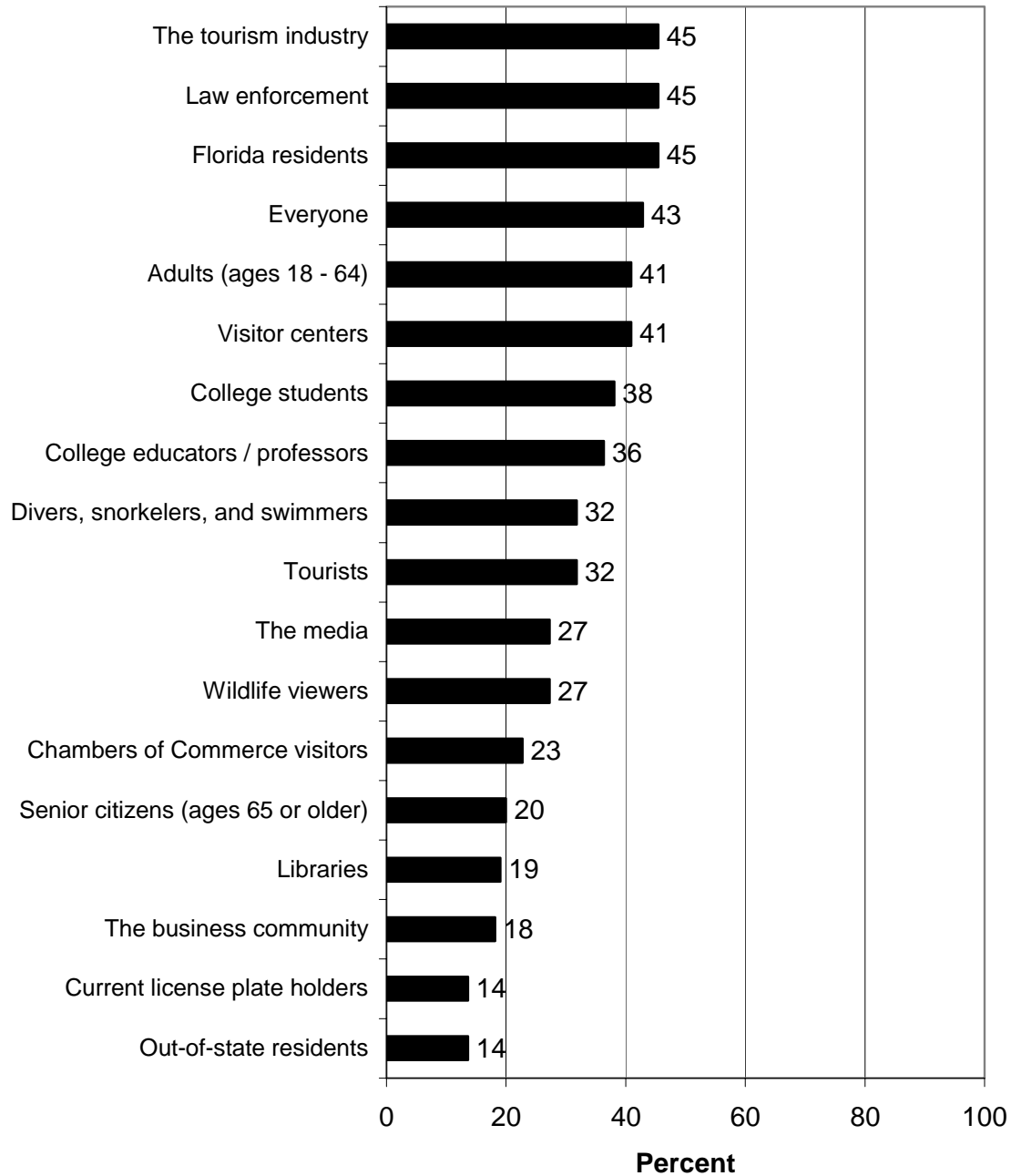
- The lowest-ranked groups for manatee education and outreach were senior citizens (25%) and elementary/primary/K – 5 educators (23%).

- A notable percentage of manatee education providers (18%) rated each of the following groups as low priorities or not priorities at all for education efforts: the business community, Chambers of Commerce visitors, and current license plate holders.

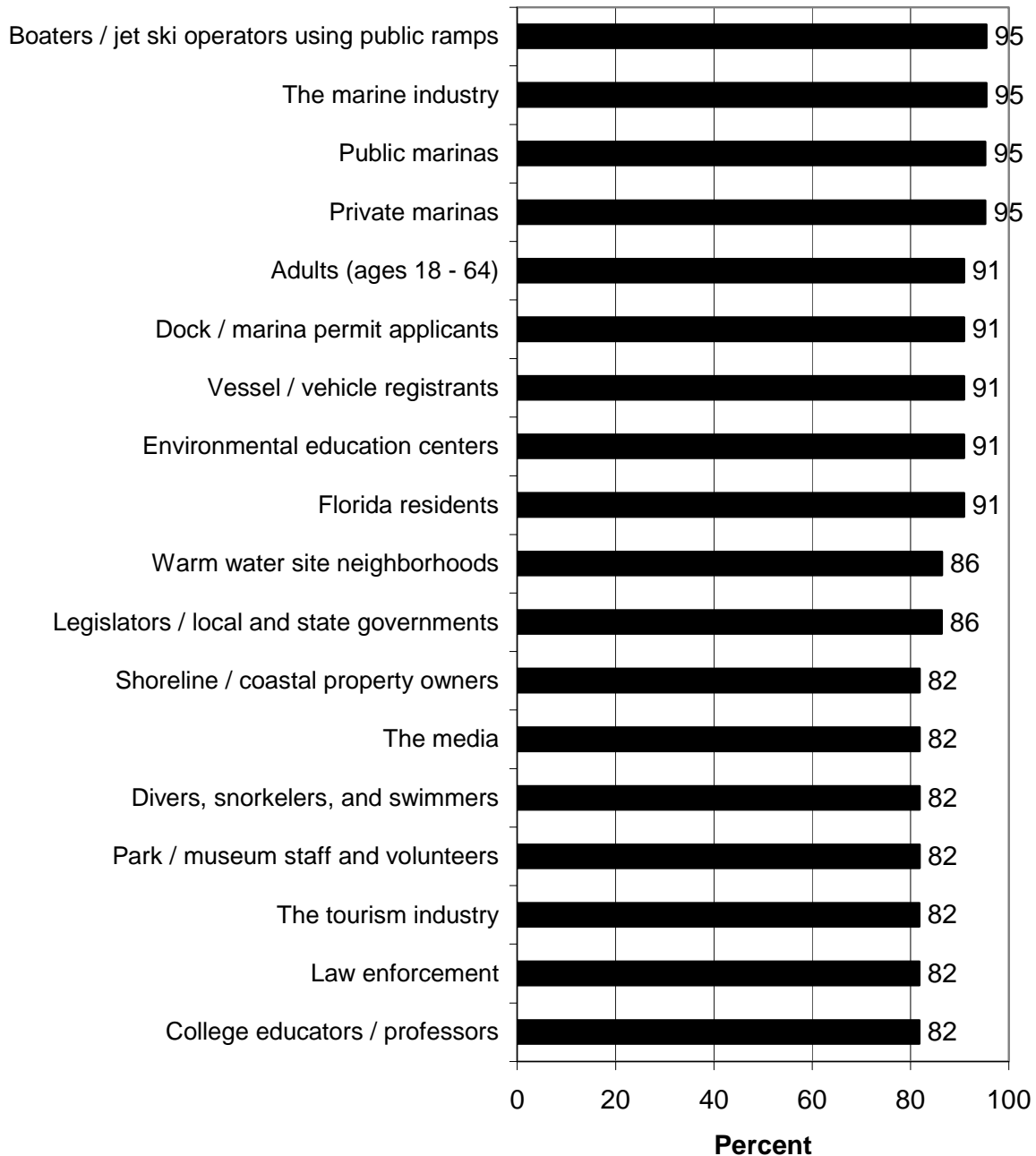
**Percent who think the following groups are
extremely high priorities for education / outreach.
(Education and Outreach Market Inventory.)
(Part 1.)**



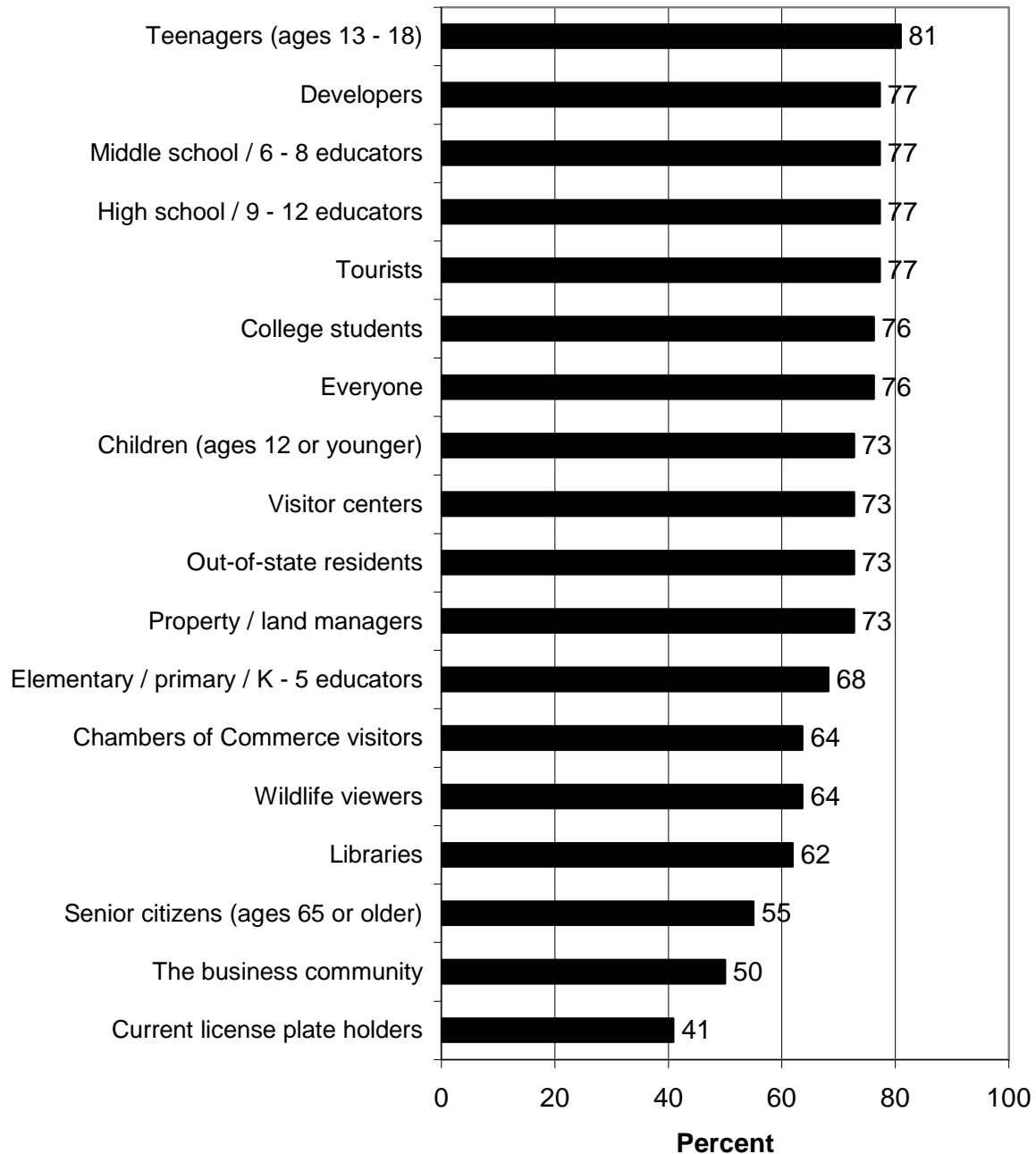
**Percent who think the following groups are
extremely high priorities for education / outreach.
(Education and Outreach Market Inventory.)
(Part 2.)**



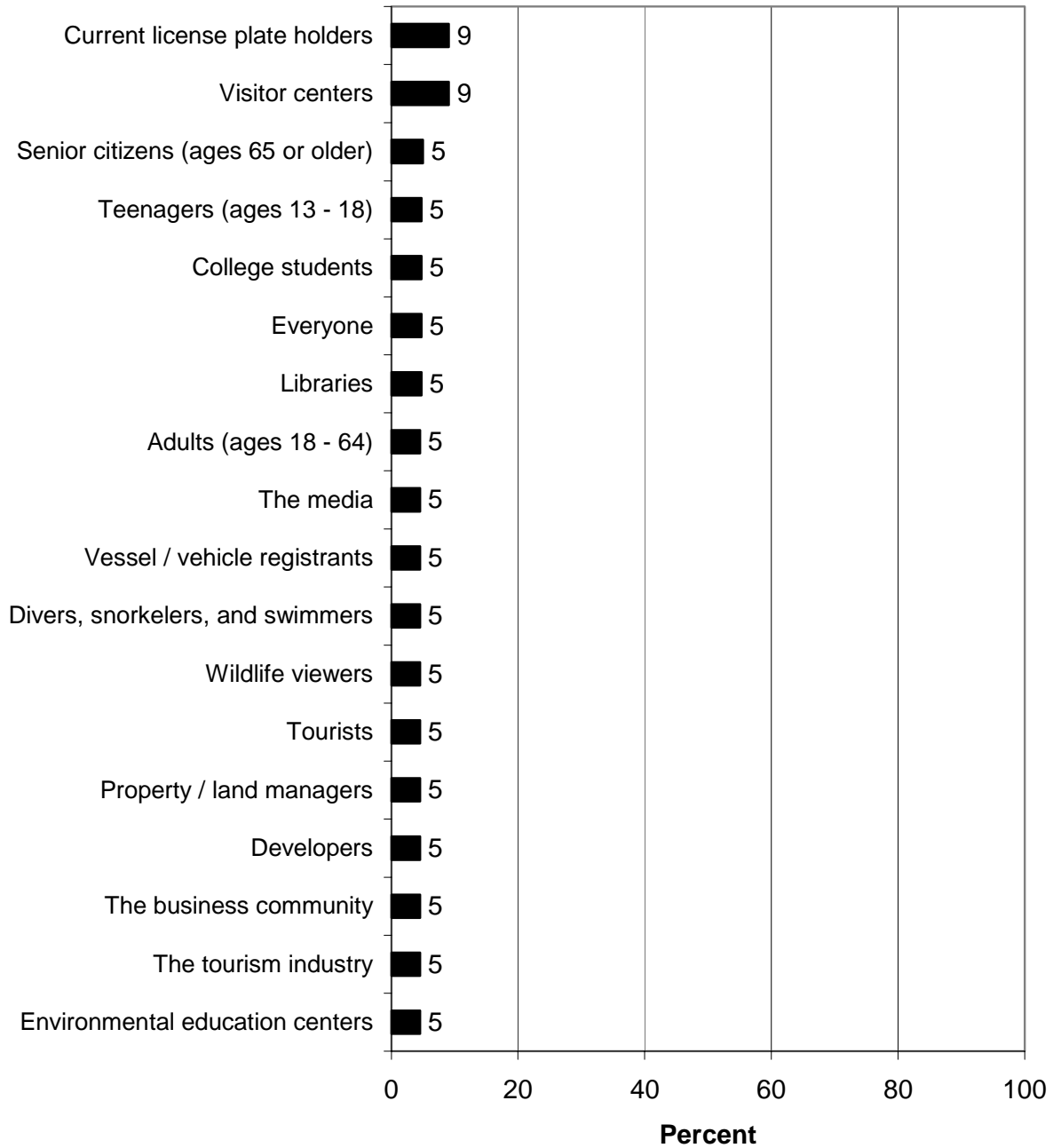
Percent who think the following groups are extremely high or high priorities for education / outreach. (Education and Outreach Market Inventory.) (Part 1.)



Percent who think the following groups are extremely high or high priorities for education / outreach. (Education and Outreach Market Inventory.) (Part 2.)

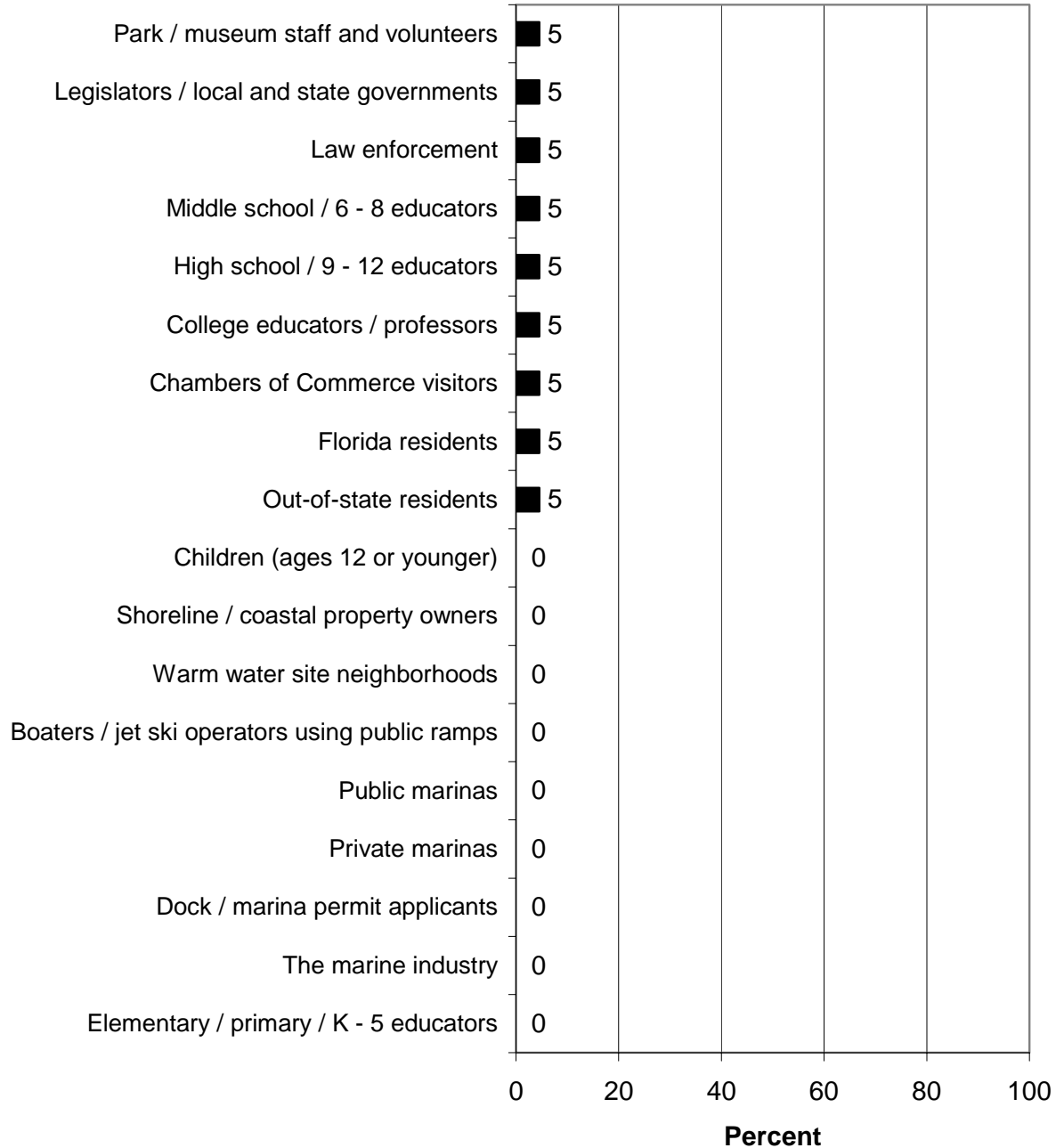


Percent who think the following groups are not priorities at all for education / outreach. (Education and Outreach Market Inventory.)
(Part 1.)

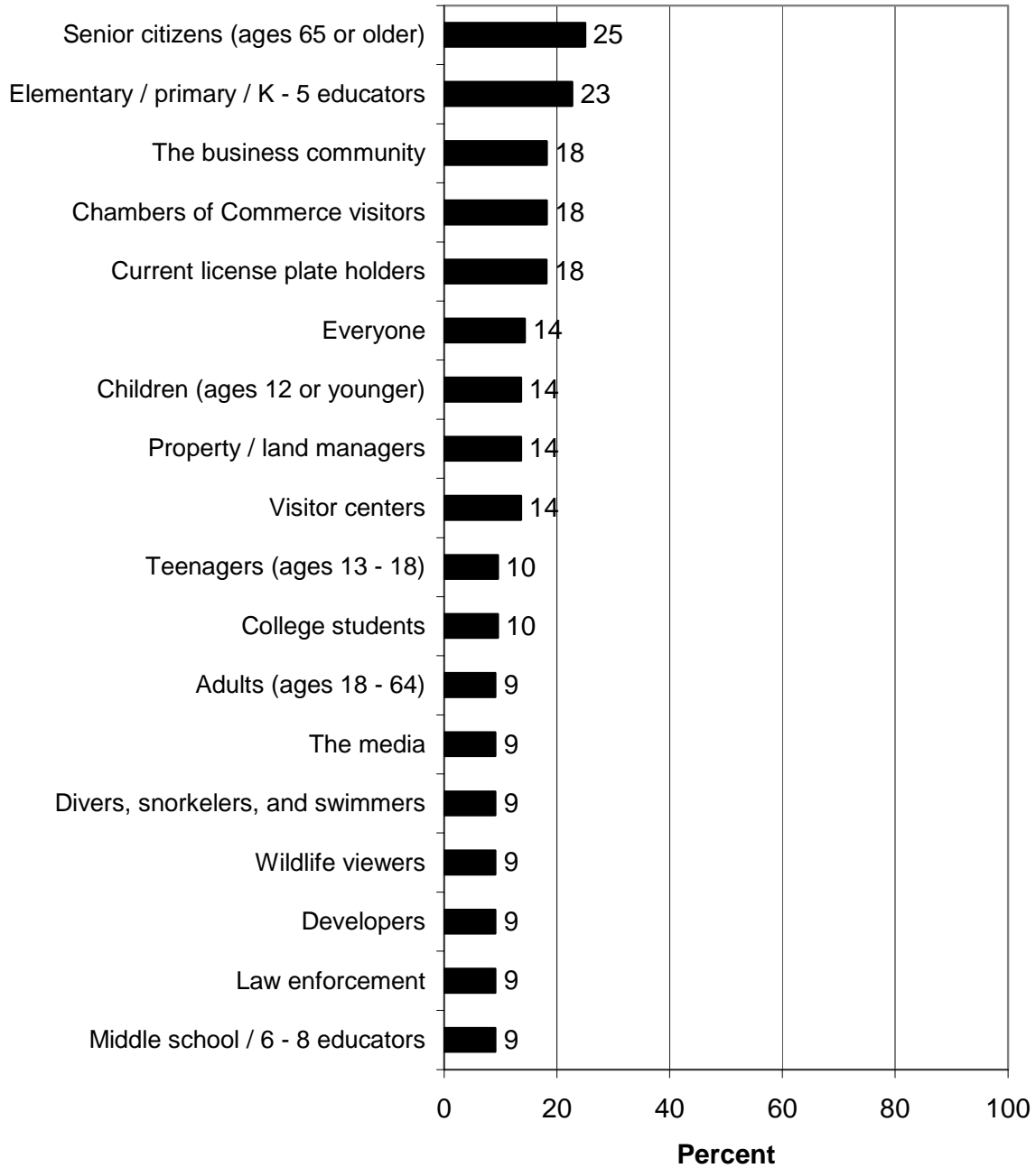


Percent who think the following groups are not priorities at all for education / outreach. (Education and Outreach Market Inventory.)

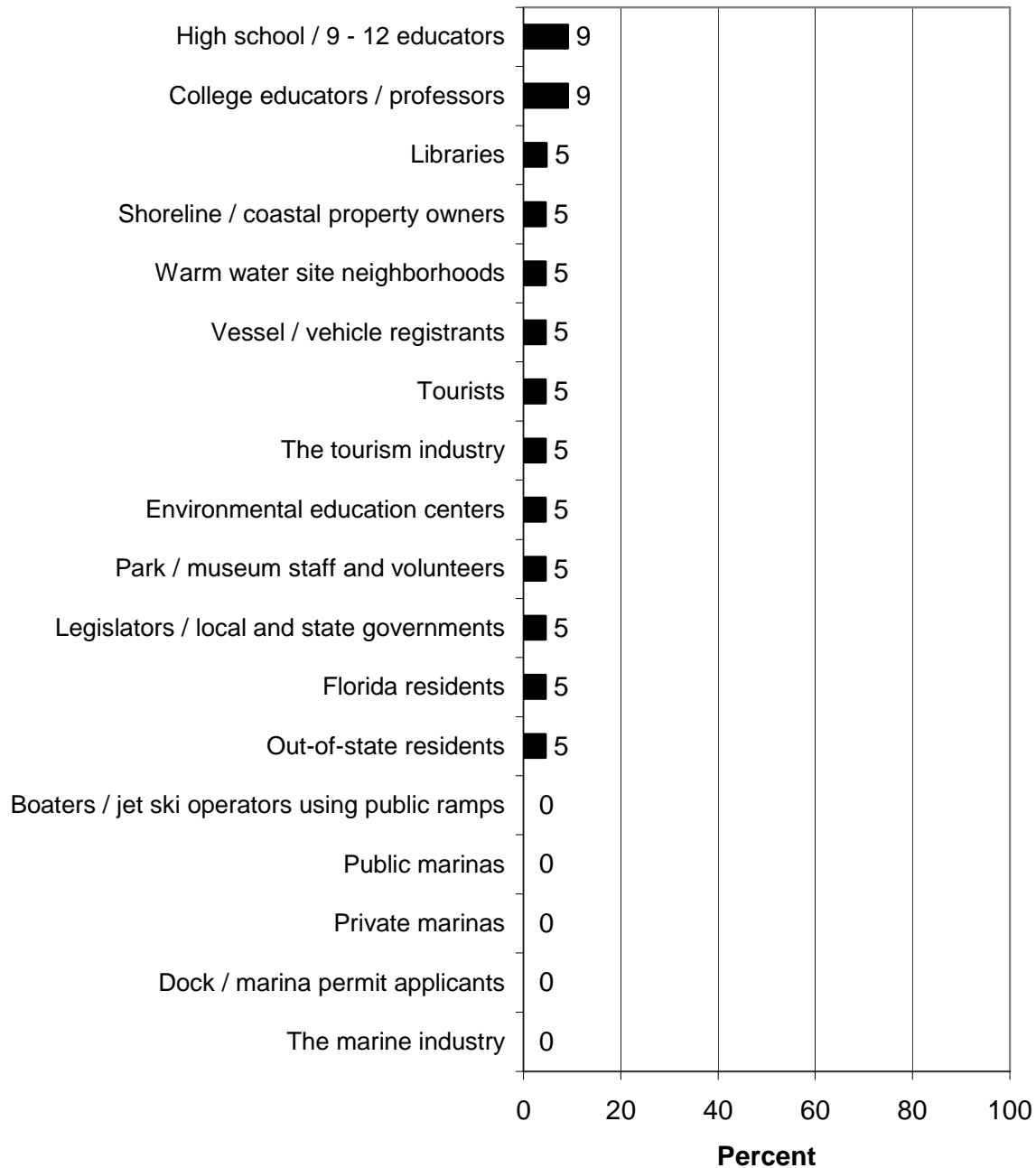
(Part 2.)



Percent who think the following groups are low priorities or not priorities at all for education / outreach. (Education and Outreach Market Inventory.) (Part 1.)



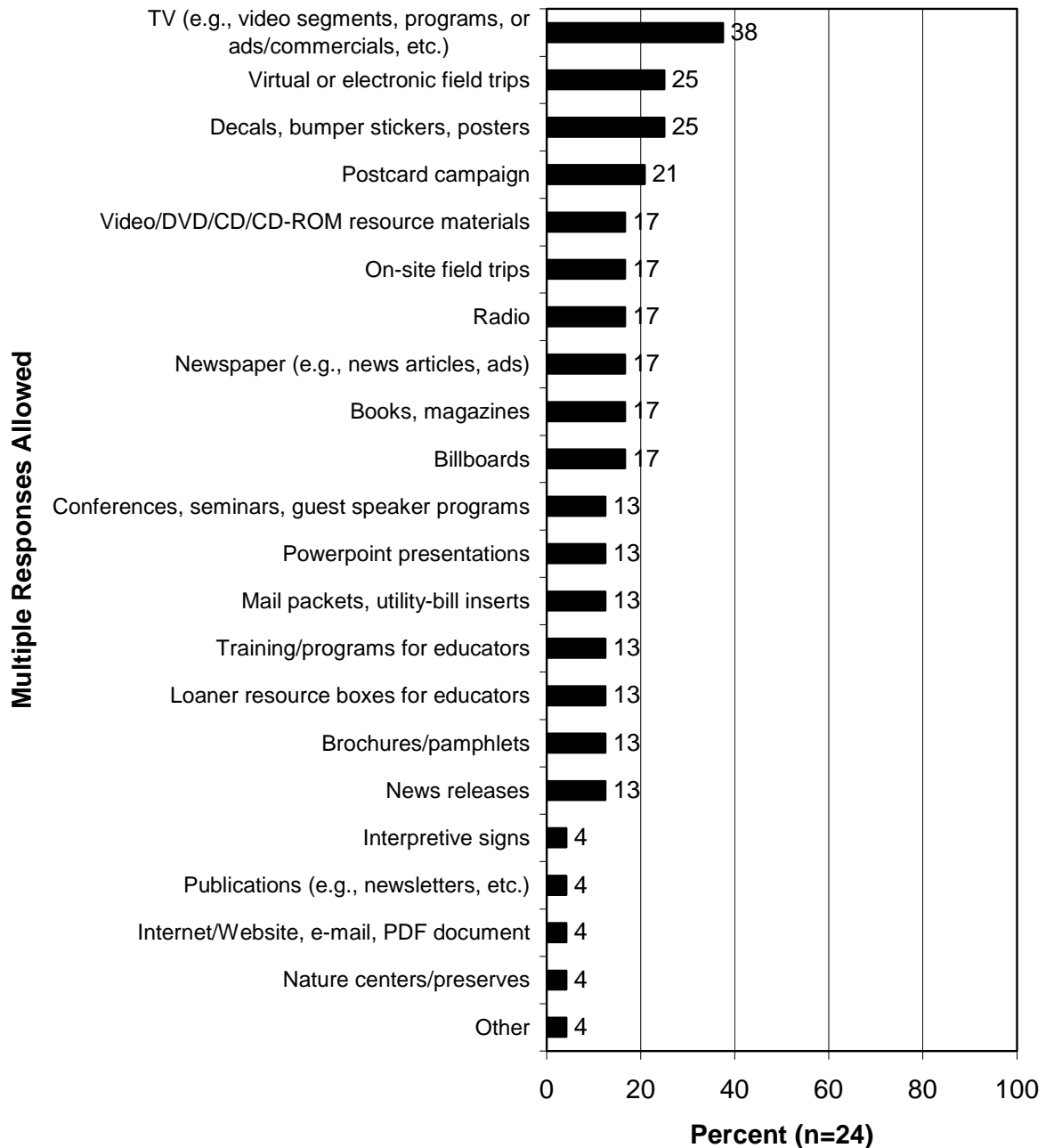
Percent who think the following groups are low priorities or not priorities at all for education / outreach. (Education and Outreach Market Inventory.) (Part 2.)



DEMAND FOR TYPES AND FORMATS OF MANATEE EDUCATION AND OUTREACH NOT CURRENTLY OFFERED

- The greatest amount of demand among manatee educators for a format not currently offered by their organization but which they would like their organization to offer is television, including video segments, programs, and ads/commercials: 38% of manatee organizations would like to see their organization use television in future educational efforts.
 - A quarter (25%) of education providers would like to see virtual or electronic field trips used in manatee education programs, while the same percentage (25%) would like their organization to offer decals, bumper stickers, and posters in future efforts.
 - Just over a fifth (21%) of education providers expressed interest in postcard campaigns as a format for delivering manatee education in the future.

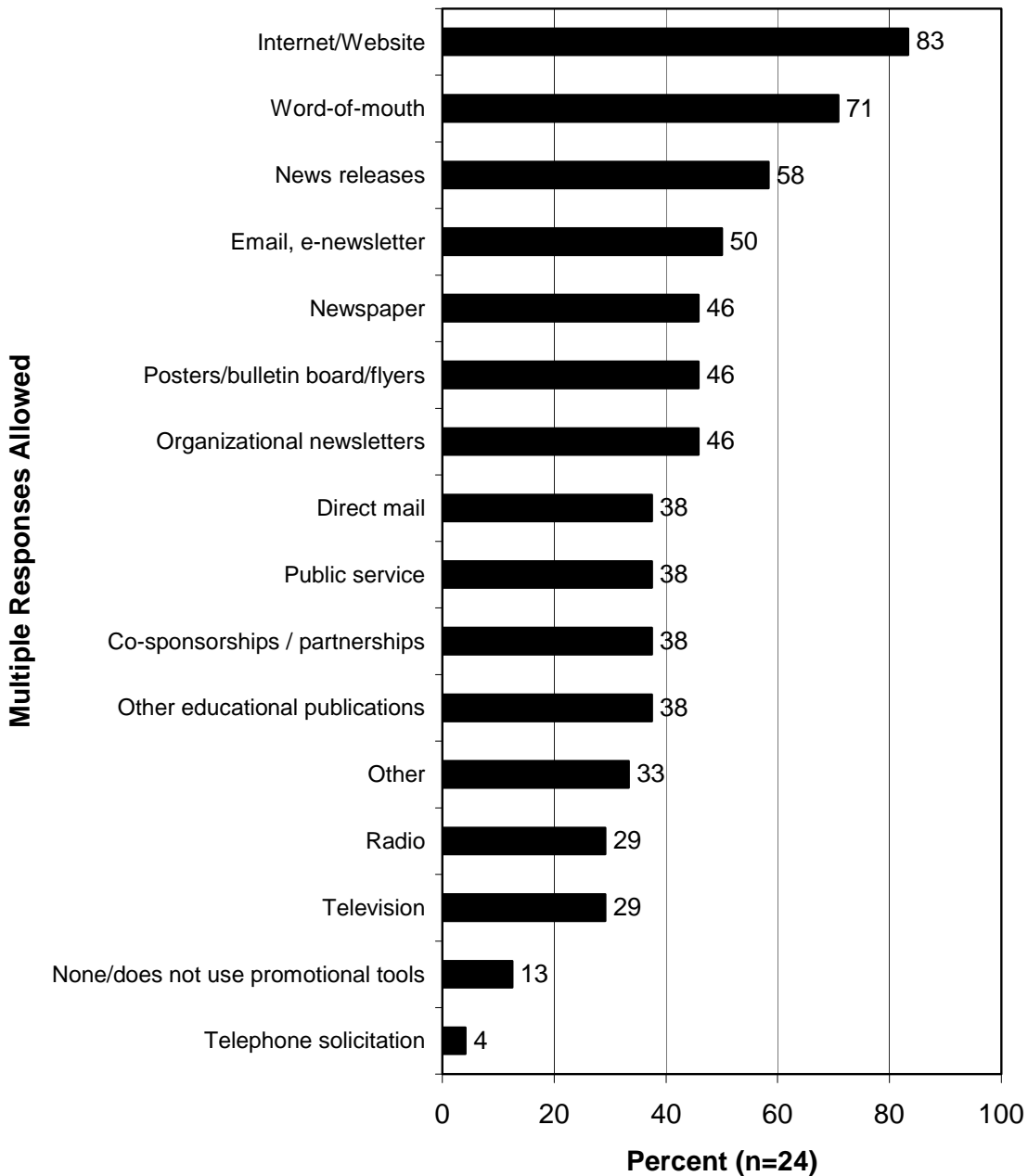
Are there any types of formats for manatee education / outreach that your organization does not currently offer that you would like to offer?



PROMOTIONAL TOOLS USED TO ADVERTISE MANATEE EDUCATION AND OUTREACH

- Websites and the Internet are the promotional tools used most commonly among manatee education providers to advertise the availability of manatee education and outreach materials: 83% of education providers reported having used the Internet.
 - A substantial percentage (71%) of manatee education and outreach providers cited word-of-mouth as a promotional tool used frequently, followed by news releases (58%) to promote their materials.

Which of the following promotional tools does your organization use to advertise the availability of manatee education / outreach materials and programs?

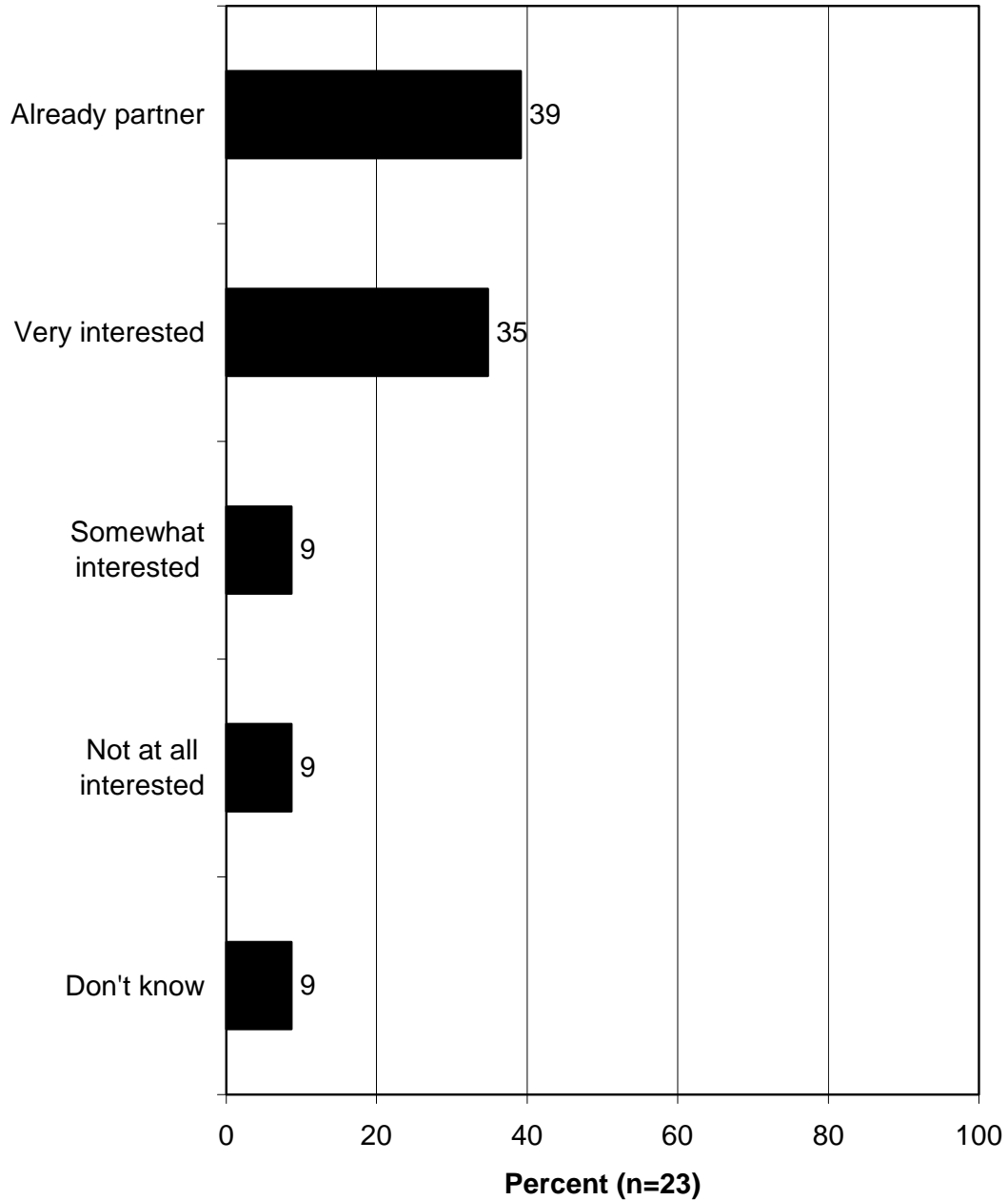


INTEREST IN PARTNERSHIPS AMONG MANATEE EDUCATION AND OUTREACH PROVIDERS AND BARRIERS PREVENTING PARTNERSHIPS

- A substantial percentage (39%) of manatee education providers already partner with other organizations to provide manatee education and outreach. A further 44% of the educational organizations surveyed do not currently partner but are interested in forming partnerships, with most of those organizations being *very* interested.

- Nearly a third (32%) of manatee education providers reported that there are barriers preventing their organization from partnering with other organizations to provide more manatee education and outreach.
 - Time, staffing needs, and funding are the most common responses when manatee education providers are asked about the barriers preventing partnerships (see table).
 - Not surprisingly, additional funding and staffing (including volunteer workforces) are the solutions commonly proposed by manatee education providers (see table).

How interested are you in having your organization partner or more actively partner with other organizations to provide manatee education / outreach?



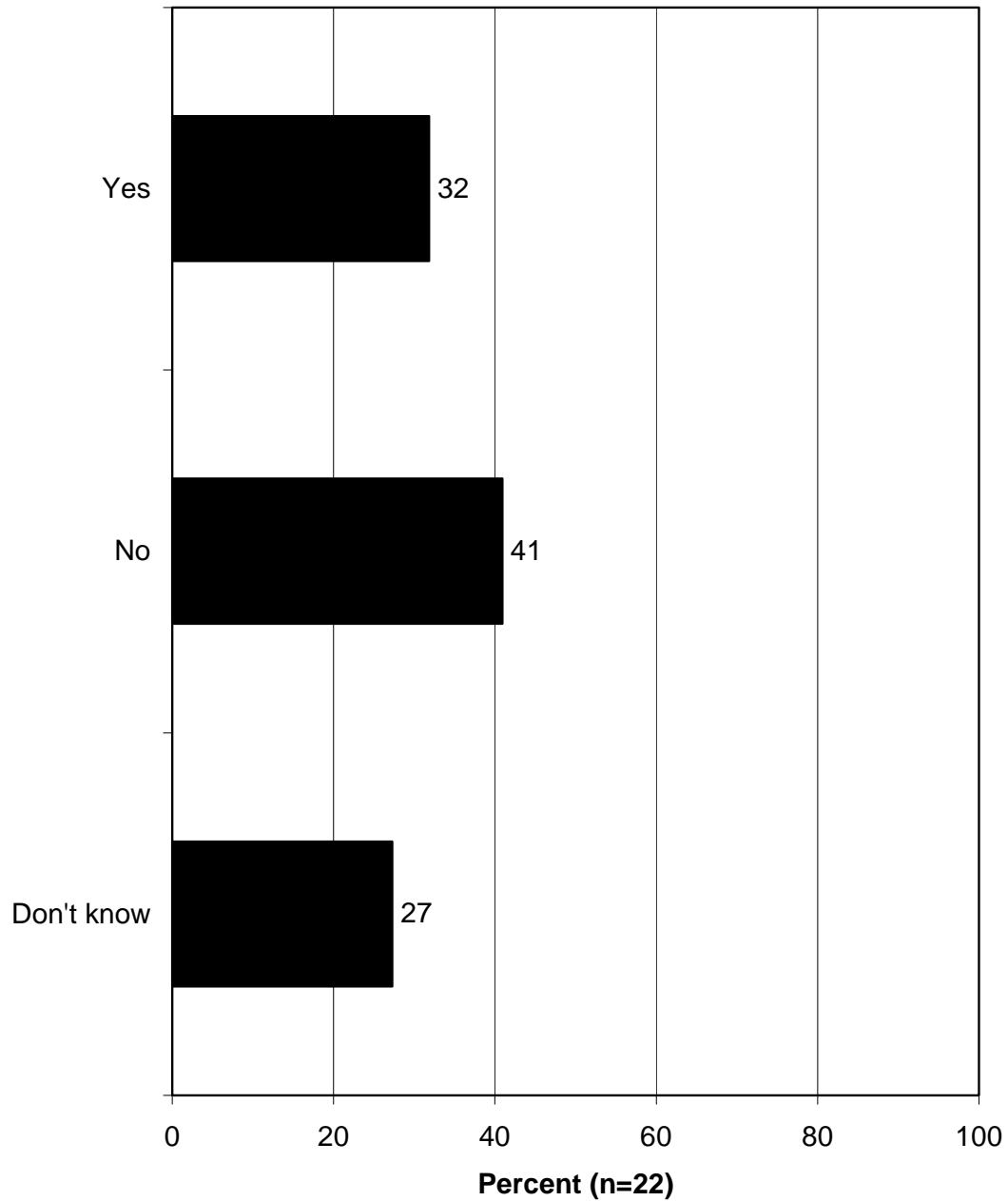
Partners of and contributors to education and outreach providers.

Education/Outreach Provider	Name(s) of Program or Outreach Material Partners and Contributors (only among those providers that listed program partners and contributors)
Tampa Bay Estuary Program	<ul style="list-style-type: none"> • Entire Manatee Awareness Group
The Manatee Man, entertainer and educator	<ul style="list-style-type: none"> • Save the Manatee Club: Nancy Sadusky, Helen Spivey • Florida Fish and Wildlife Conservation Commission: Bonnie Abellera • Wild about Manatees: Tim Harrison; Dayton and Cincinnati Manatee Recovery Programs
The Florida Aquarium	<ul style="list-style-type: none"> • Wachovia Bank
Fish and Wildlife Research Institute, Tequesta Field Station	<ul style="list-style-type: none"> • FWC • Ocean Conservancy • USFWS • Sea Grant • Save the Manatee Club • Dolphin Research Center • Brevard County Natural Resources • NOAA • University of Central Florida
Manatee Observation and Education Center	<ul style="list-style-type: none"> • Manatee Observation and Education Center and 20+ exhibitors • Swampland Tours • Art in Nature Camp • Photo Safari Camp
Manatee Rehabilitation Partnership	<ul style="list-style-type: none"> • All partners of the Manatee Rehabilitation Partnership
Florida Power and Light, Environmental Services	<ul style="list-style-type: none"> • Florida Power and Light Company • Mote Marine Laboratory
Department of Environmental Protection	<ul style="list-style-type: none"> • NFRPC • DEP
Sarasota County Natural Resources	<ul style="list-style-type: none"> • Save the Manatee Club • TECO • FPL • EPA • Florida Fish and Wildlife Research Institute
Chassahowitzka National Wildlife Refuge	<ul style="list-style-type: none"> • USFWS • Friends of Chassahowitzka NWR
Miami Dade Police Department	<ul style="list-style-type: none"> • FWC Boat Smart program

Marine Patrol	
Volusia County Environmental Management	<ul style="list-style-type: none"> • Ponce de Leon Inlet and Port District • Berkeley Fishing Company, County volunteers • Volusia County School District • FWCC • DEP, local marinas • Volusia County Environment volunteers • FWC, Save the Manatee Club • Environmental Management staff and consultants
Homosassa Springs Wildlife State Park	<ul style="list-style-type: none"> • Park Rangers and trained volunteers • Park staff or Friends of HSWSP, Inc. • Save the Manatee Club • USFWS • Save the Manatee Club, Park and other agency publications, etc. • Dale Woodyard, Ph.D., Assoc. Prof. • Dan K. Odell, Ph.D. • H. Dale Woodyard, Ph.D., Assoc. Prof., Dept. of Psychology, Univ. of Windsor, Ontario, Canada • Christopher Marshall, College of Veterinary Medicine, Dept. of Physiological Sci., Univ. of FL. • A.R. Keihl, C.A. Schiller, Dr. Mark Lowe • W. Randolph Warner, Karen G. Warner • Robert J. Stewart, F.I.T. Melbourne, FL • Christopher D. Marshall, College of Veterinary Science, Department of Physiological Sciences, University of Florida • Iske Vandavelde, College of Veterinary Medicine, Dept. of Physiological Medicine, University of Florida • C.D. Marshall, R.L. Reep, College of Veterinary Medicine, Dept. of Physiological Sciences, University of Florida • Jose A. Alicea, Moss Landing Marine Laboratories, Moss Landing, CA • Wanda Jones, University of Florida • R.L. Reep, C.D. Marshall, M.L. Stoll, D.M. Whitaker, College of Veterinary Medicine, Department of Physiological Sciences, University of Florida • C.D. Marshall, L.A. Clark, R.J. Reep, College of Veterinary Medicine, Dept. of Physiological Sciences, University of Florida • C.D. Marshall, G.D. Huth, College of Veterinary Medicine, Department of Physiological Sciences,

	<p>University of Florida</p> <ul style="list-style-type: none"> • G.D. Bossart, R.Y. Ewing, M. Lowe, M. Sweat • Paul T. Cardeilhac, University of Florida, College of Veterinary Med. • Iskande L.V. Larkin, Chifuyu Horikoshi, University of Florida • Nicole Browning, Graham A.J. Worthy, Physiological Ecology and Bioenergetics Lab, Department of Biology, University of Central Florida • Paul T. Cardeilhac, University of Florida College of Veterinary Medicine, Barbara C. Gutierrez, Department of Biology, College of Arts and Sciences, University of Central Florida • Cathy Walsh, Ph.D., Dr. Tracy Romano (Texas A&M U), Marine Immunology Program Mote Marine Laboratory • Kendal E. Jarr, C.V.M., Ms, DACVP, Associate Director Aquatic Animal Health Clinical Asst. Prof. Coll. of Vet. Med. U of Fl. • Greg Bossart, Harbor Branch Oceanographic Institute
Lee County Parks and Recreation	<ul style="list-style-type: none"> • West Coast Inland Navigation District, FWC • Lee County Environmental Education • FWC and Save the Manatee Club • Manatee Park staff and USFWS staff
The Cincinnati Zoo	<ul style="list-style-type: none"> • Cincinnati Zoo and Botanical Garden • Edzoo curriculum guide, "Manatee Winter" book, schools in Cincinnati • Miami University • Wildlife Trust
SeaWorld	<ul style="list-style-type: none"> • Busch Entertainment Group • Florida Fish and Wildlife Conservation Commission • Busch Gardens Conservation Fund
Palm Beach County Department of Environmental Resources	<ul style="list-style-type: none"> • Manatee Talk • FL DEP • South Florida Water Management District

Are there any barriers preventing your organization from partnering with other organizations to provide more manatee education / outreach?



Barriers preventing partnerships between education and outreach providers.

Education/Outreach Provider	Barrier Preventing Partnerships with Other Education Providers
Tampa Bay Estuary Program	Lack of interest and participation from marine industry representatives, and representatives from boating and angling groups. They talk about supporting education but rarely follow through with action.
FWC Imperiled Species Management	Knowing who to ask or partner with.
Sarasota County Natural Resources	Time to meet and organize, or apply for grants.
Defenders of Wildlife	Inadequate staffing and funds; competing priorities.
Dolphin Research Center	Funding, time, staff available.
Miami Dade Police Department Marine Patrol	Trying to get new manatee signs installed since hurricanes.
Lee County Parks and Recreation	Communication between agencies, time.
The Cincinnati Zoo	Staff time and other priorities.
Palm Beach County Department of Environmental Resources	Time and contracting complications.

Ways to overcome barriers preventing partnerships.

Education/Outreach Provider That Named a Barrier Preventing Partnerships	Solution or Other Explanation Named
Tampa Bay Estuary Program	We're stumped! We've tried over and over to get these groups involved in a non-contentious partnership directed at education, but participation is still lousy. We don't know what else to try, but would love some ideas.
FWC Imperiled Species Management	Try to support others in manatee-related organizations.
Sarasota County Natural Resources	Time management and perhaps reach out to sign up volunteers for help.
Defenders of Wildlife	Staffing, funding, stable volunteer assistant.
Dolphin Research Center	More funding, grants.
Miami Dade Police Department Marine Patrol	Call and let us know of problems.
Palm Beach County Department of Environmental Resources	Contract work out to specialists, or hire.

COMPARISON OF EDUCATION WORKING GROUP SURVEY AND MARKET INVENTORY

This section compares the results of the needs assessment (completed by Education Working Group members) with the results of the market inventory (completed by manatee education and outreach providers). The purpose of this comparison is to examine the areas in which deficits and additional needs exist in manatee education and outreach efforts.

TOPIC AREAS RATED AS HIGH PRIORITIES AND TOPIC AREAS ON WHICH EDUCATION AND OUTREACH ARE TYPICALLY PROVIDED

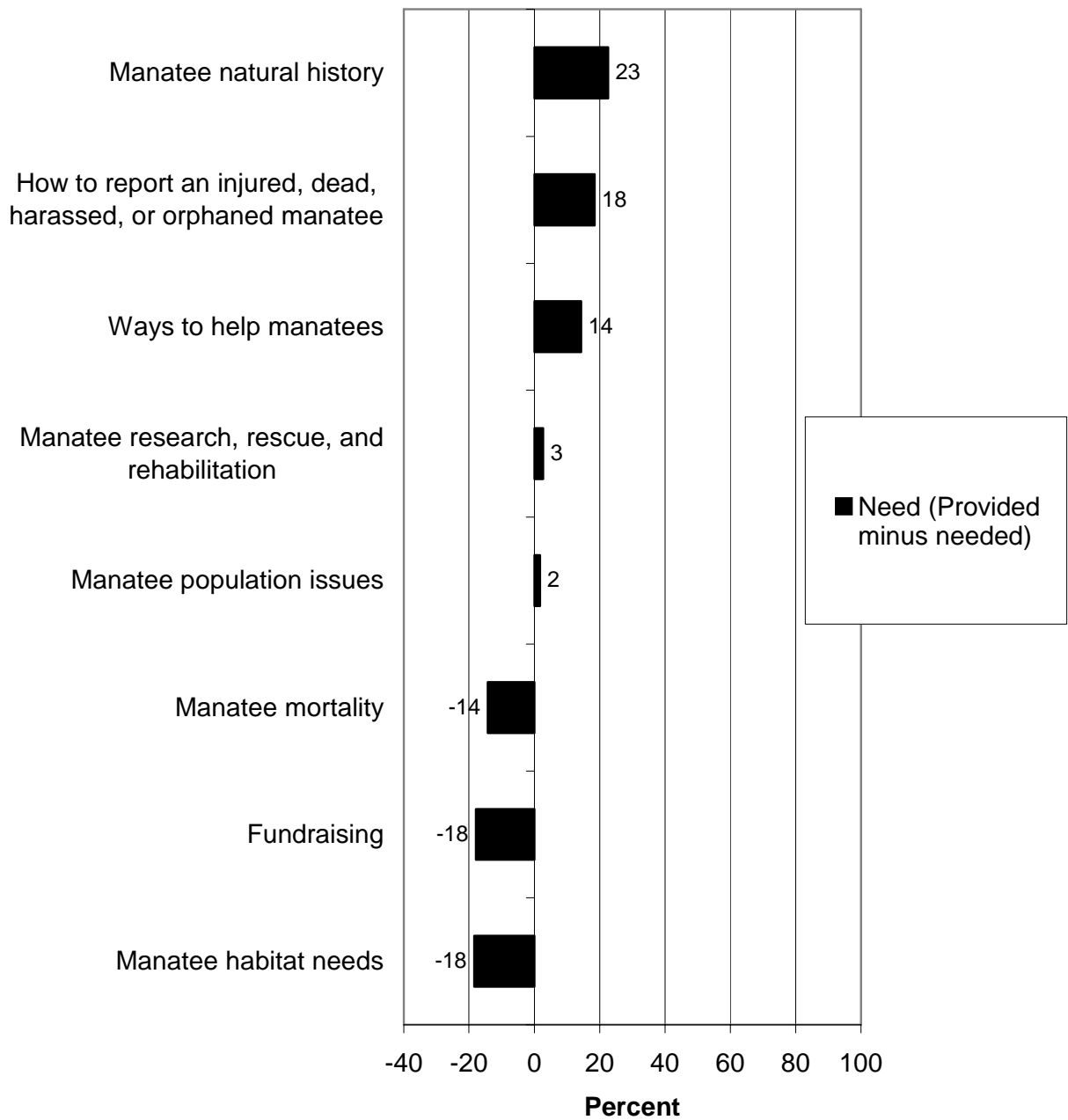
- Topic areas for manatee education and outreach rated by Education Working Group members as extremely high or high priorities were compared to topic areas on which manatee education and outreach providers focus a great deal. This was determined by subtracting the topic areas rated by Education Working Group members as extremely high or high priorities from the topic areas on which manatee education and outreach providers focus a great deal.

- In order of greatest amount of surplus (i.e., overabundance of focus), these are the topic areas on which more emphasis may not be necessary, or for which overlaps in education efforts may presently exist:
 - Manatee natural history
 - How to report an injured, dead, harassed, or orphaned manatee
 - Ways to help manatees
 - Manatee research, rescue, and rehabilitation
 - Manatee population issues

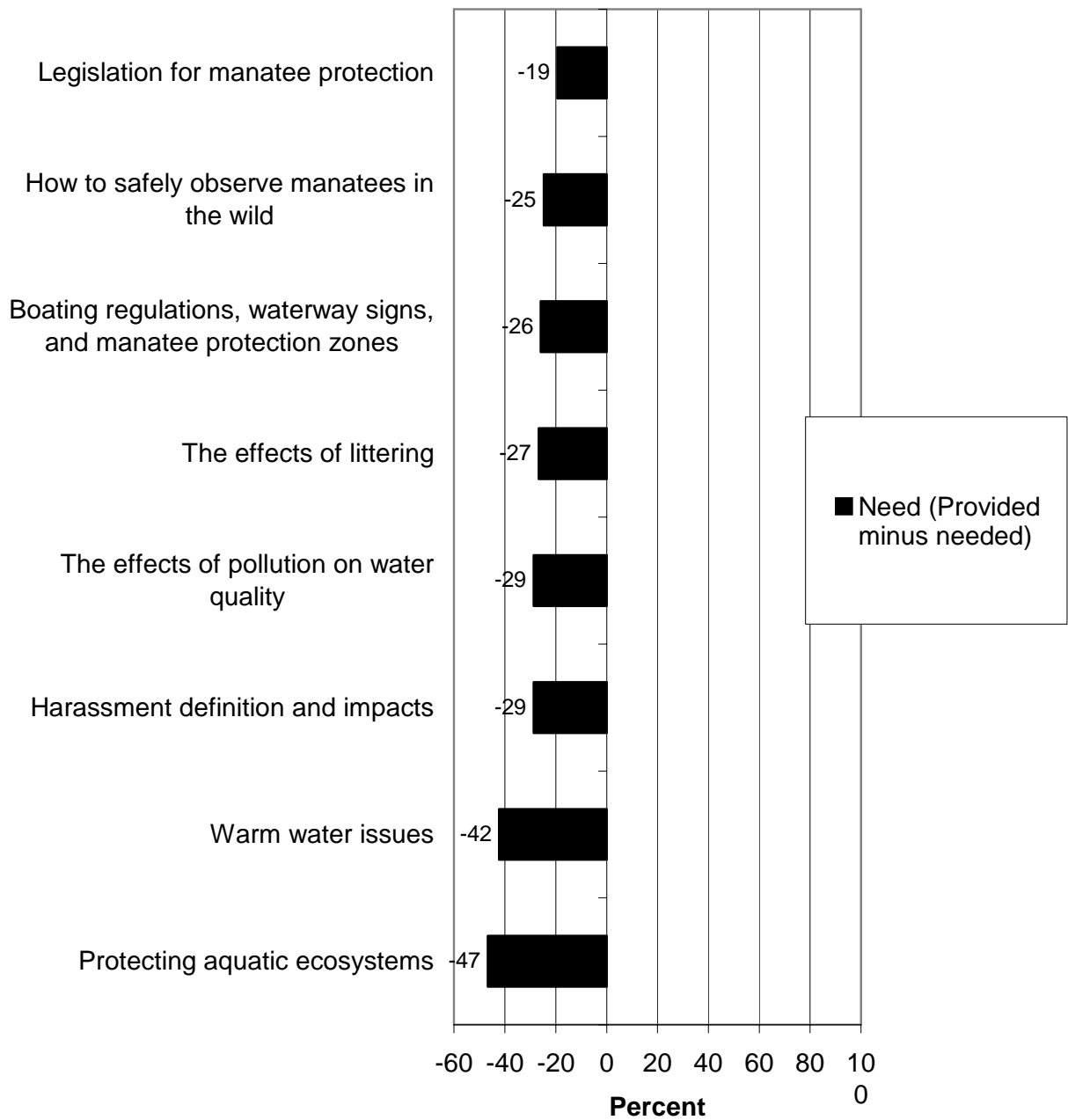
- Based on the analysis, there appear to be deficits in the amounts of focus given to the other 11 topic areas for manatee education and outreach by education providers. In order of greatest deficit (i.e., a need for additional or increased education and outreach), these are the topic areas on which more emphasis might be placed:
 - Protecting aquatic ecosystems
 - Warm water issues
 - Harassment definition and impacts

- The effects of pollution on water quality
- The effects of littering
- Boating regulations, waterway signs, and manatee protection zones
- How to safely observe manatees in the wild
- Legislation for manatee protection
- Manatee habitat needs
- Fundraising
- Manatee mortality

**Topic areas on which manatee education and outreach providers focus a great deal minus topic areas rated by Education Working Group members as extremely high or high priorities.
(Part 1.)**



**Topic areas on which manatee education and outreach providers focus a great deal minus topic areas rated by Education Working Group members as extremely high or high priorities.
(Part 2.)**



GROUPS RATED AS HIGH PRIORITIES FOR EDUCATION AND OUTREACH AND GROUPS TYPICALLY TARGETED FOR EDUCATION AND OUTREACH

- Groups rated as high priorities for manatee education and outreach were compared to the groups typically targeted for education and outreach. Possible levels of future education and outreach by providers were determined by subtracting the groups currently targeted a great deal by education providers from the groups rated by education providers as extremely high priorities for future education. A positive value indicates a possible future increase in education and outreach for a group, while a negative value is indicative of a possible future decrease for the group. (Note that while follow-up questions address groups targeted according to Education Working Group priorities, this question only addressed groups targeted according to the priorities of the education providers themselves.)

- Based on this analysis, just six groups of the 36 different groups of audiences and markets for manatee education and outreach have negative values, indicating possible decreases in the amounts of manatee education and outreach directed toward these groups by providers in the future. From greatest possible future decrease, they include:
 - Senior citizens ages 65 or older
 - Adults ages 18-64
 - Tourists
 - Out-of-state residents
 - “Everyone”
 - Children ages 12 or younger

- Current education and outreach efforts by providers were compared to the priorities of Education Working Group members. This was determined by subtracting the groups currently targeted a great deal by manatee education providers from groups rated by Education Working Group members as extremely high priorities for education. Here, positive values indicate an ample supply of education and outreach effort, while negative values show deficits in the amounts of education and outreach directed at a group.

- Based on this analysis, three groups have notable positive values, indicating likely overabundances in current education and outreach efforts for these groups. They are, from greatest amount of surplus:
 - Senior citizens ages 65 or older
 - “Everyone”
 - Children ages 12 or younger

- 18 groups (half the total number of audiences and markets for manatee education and outreach) currently show deficits in the amounts of manatee education and outreach Education Working Group members would like them to receive. In order of greatest amount of education and outreach deficit, the groups are:
 - Dock/marina permit applicants
 - Vessel/vehicle registrants
 - Boaters/jet ski operators using public ramps
 - Private marinas
 - The marine industry
 - Public marinas
 - Law enforcement
 - Legislators/local and state governments
 - Developers
 - Shoreline/coastal property owners
 - Property/land managers
 - The media
 - The tourism industry
 - Divers, snorkelers, and swimmers
 - The business community
 - Current license plate holders
 - Florida residents
 - Libraries

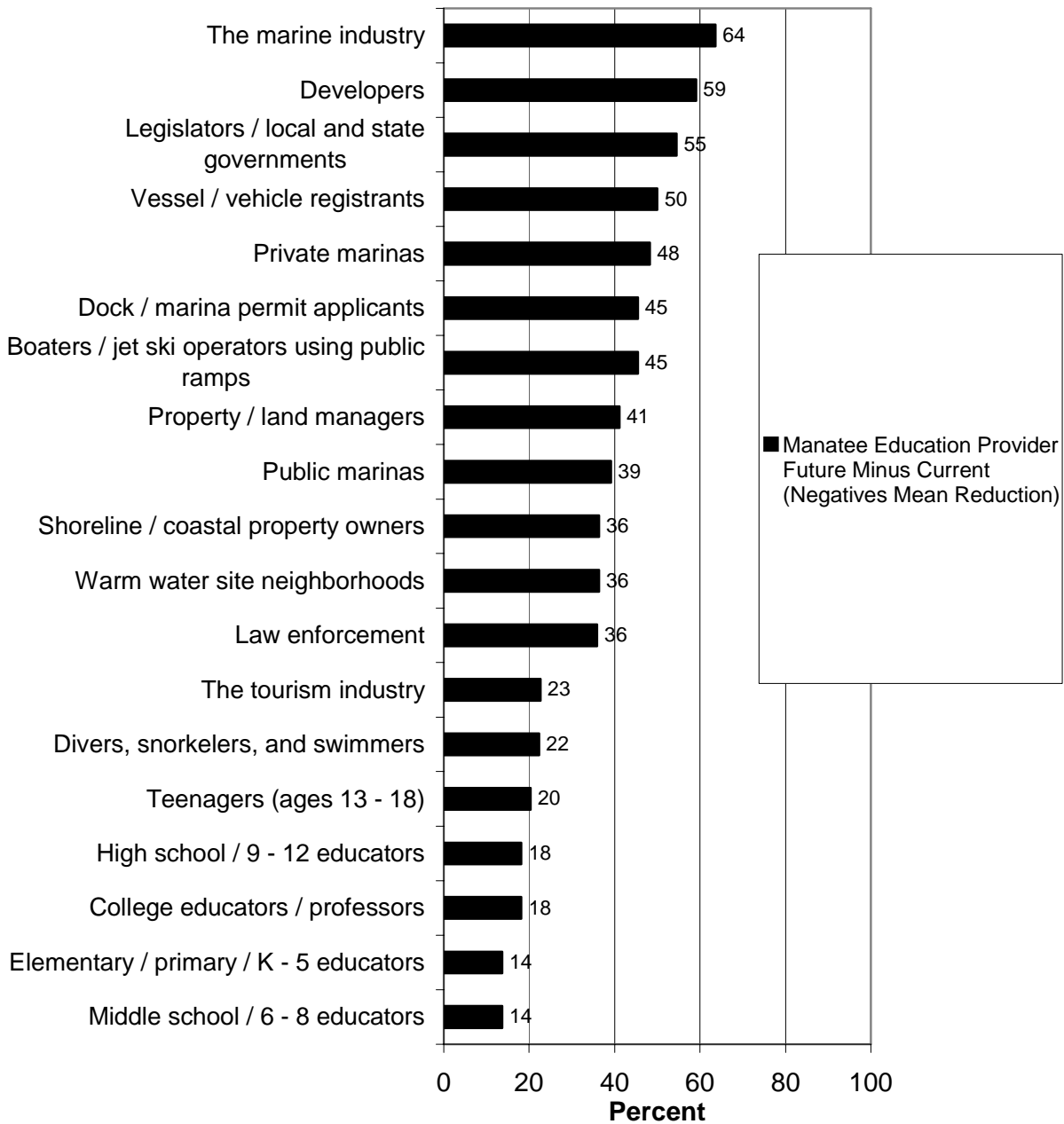
- Additionally, providers' likely future education and outreach efforts were compared to the groups rated by Education Working Group members as extremely high priorities. This was determined by subtracting the groups *to be* targeted a great deal by education providers from the groups rated by Education Working Group members as extremely high priorities for future education. Once again, a positive value indicates a possible future increase in education and outreach for a group, while a negative value is indicative of a possible future decrease.

- Based on this analysis, eight groups have negative values, indicating possible future decreases in education and outreach efforts focused on these groups. They are:
 - Dock/marina permit applicants
 - The media
 - Vessel/vehicle registrants
 - Boaters/jet ski operators using public ramps
 - Tourists
 - Public marinas
 - Law enforcement
 - Out-of-state residents

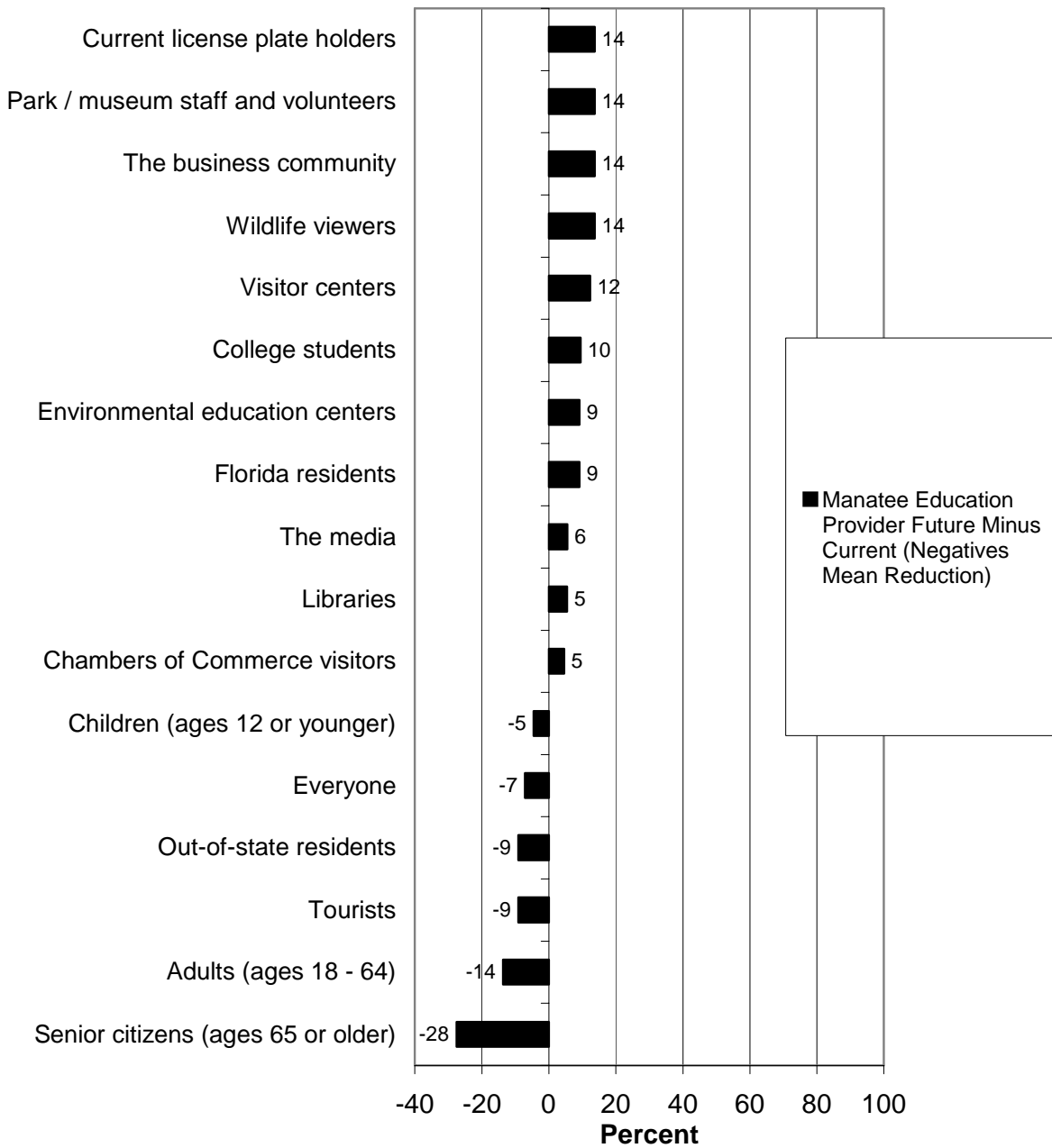
- (Note that this analysis addresses possible future levels of education and outreach focus according to groups rated as extremely high priorities by Education Working Group members, as opposed to groups rated by the education providers themselves, as in the first analysis in this section.)

- The scatter plot (the last graph in this section) shows the relationship between Education Working Group needs (y-axis) and the future plans of education providers (x-axis). Only those categories of group needs that were negative are included on the graph. Education providers plan to do more work in every area for which there exists a deficit in education and outreach focus.

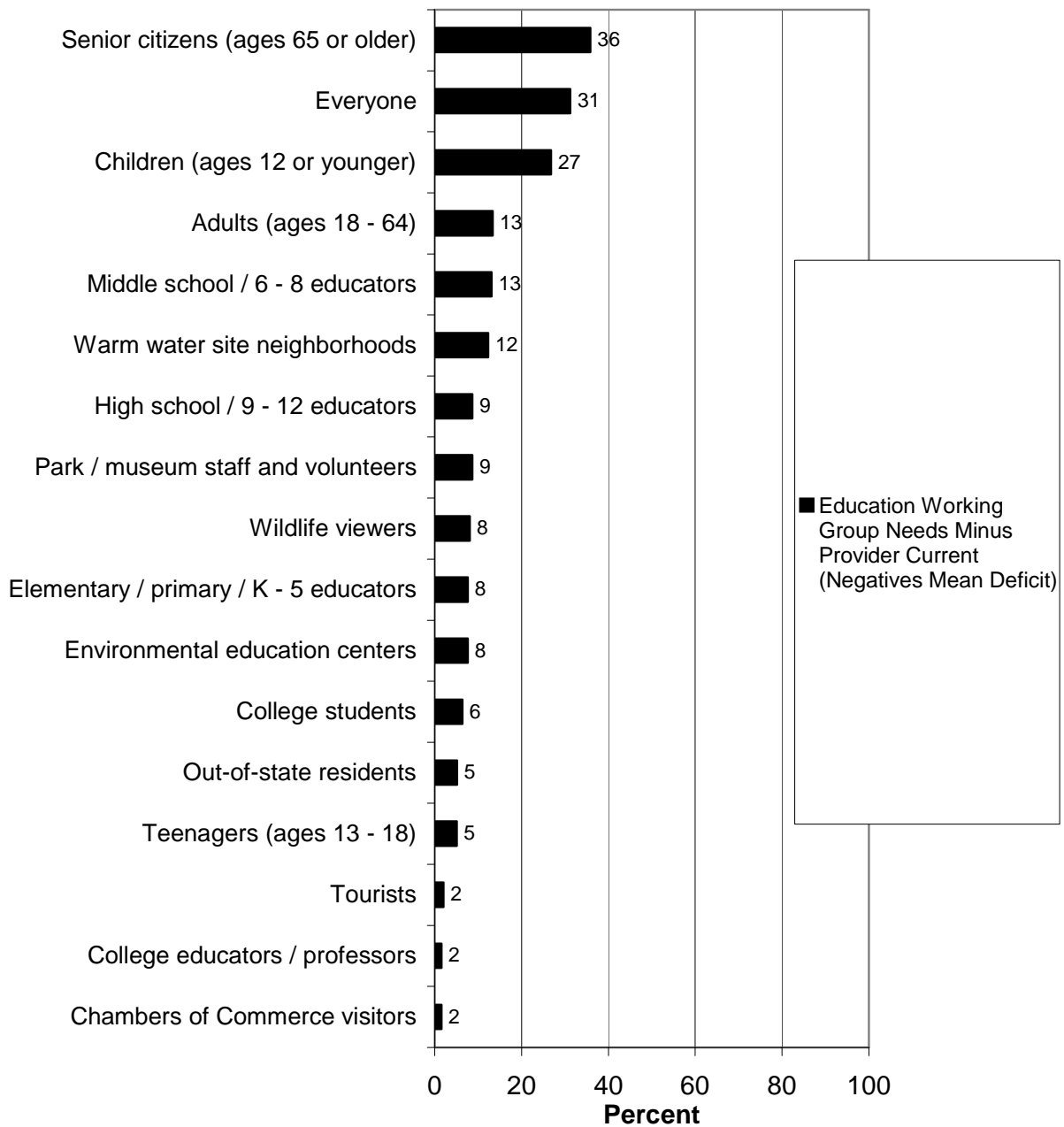
Groups rated by education providers as extremely high priorities for future education minus groups currently targeted a great deal by manatee education providers. (Positive values show future increases and negative values show future decreases.) (Part 1.)



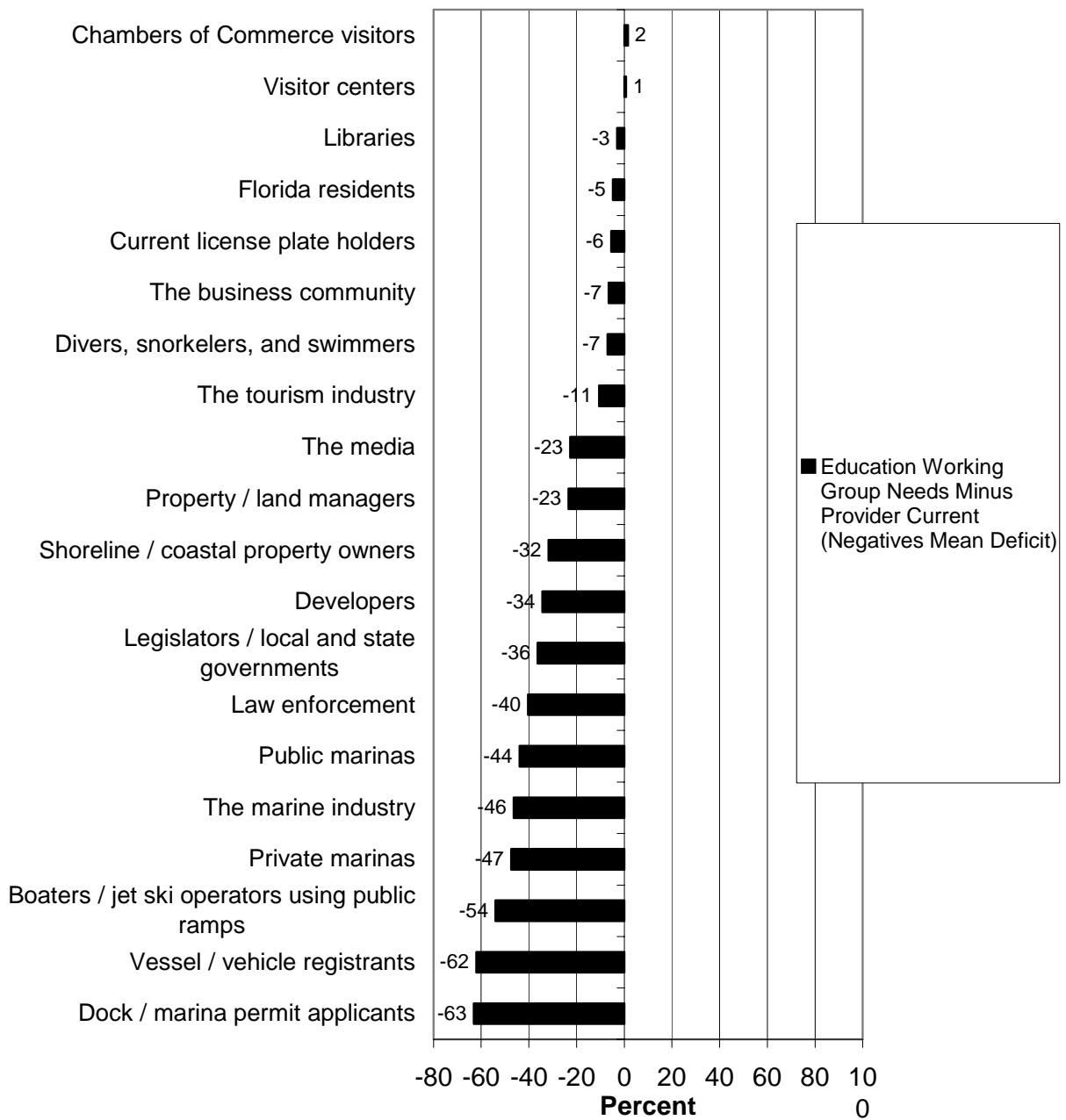
Groups rated by education providers as extremely high priorities for future education minus groups currently targeted a great deal by manatee education providers. (Positive values show future increases and negative values show future decreases.) (Part 2.)



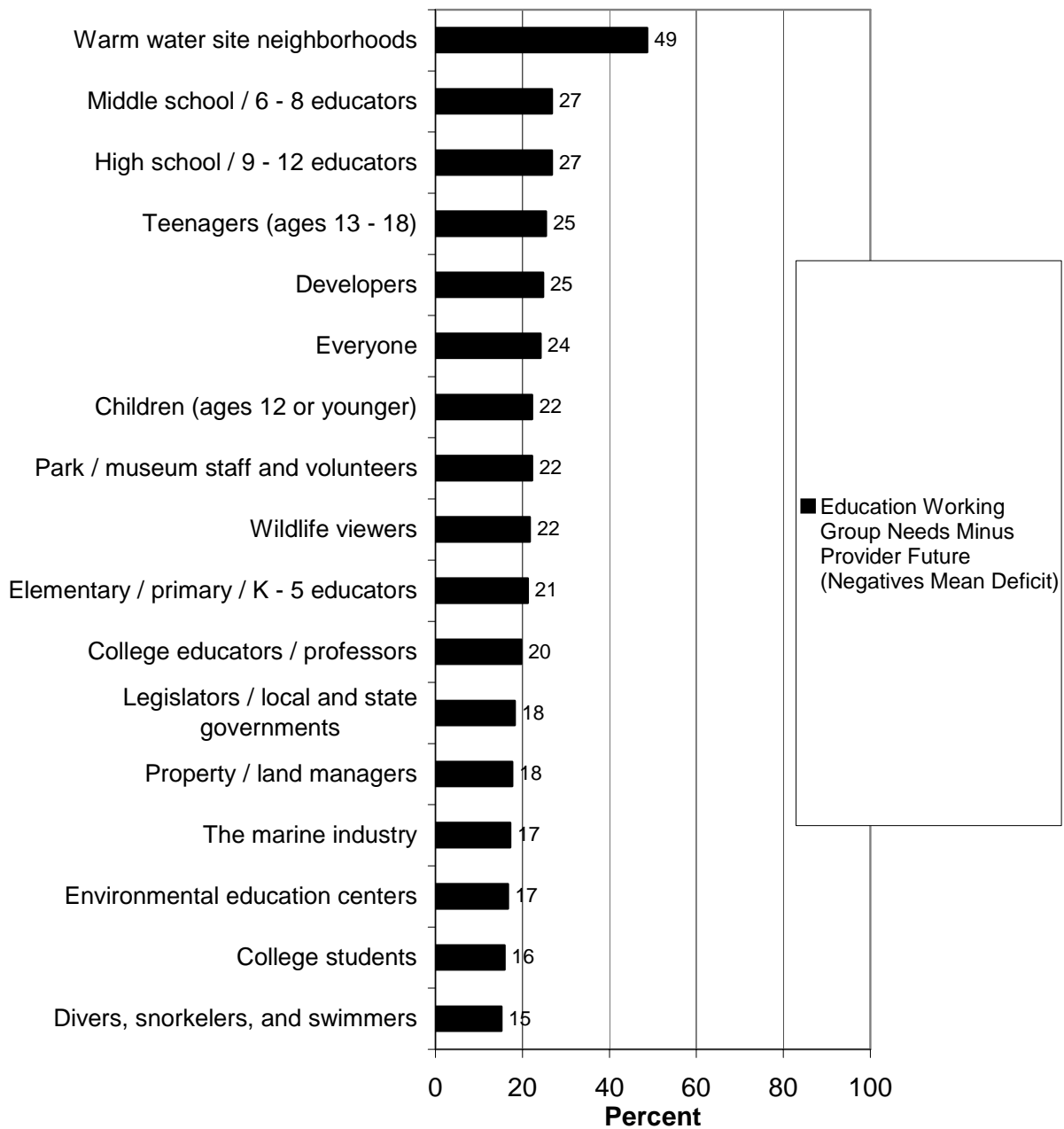
Groups rated by Education Working Group members as extremely high priorities for education minus groups currently targeted a great deal by manatee education providers. (Positive values show ample supply and negative values show deficits in supply.) (Part 1.)



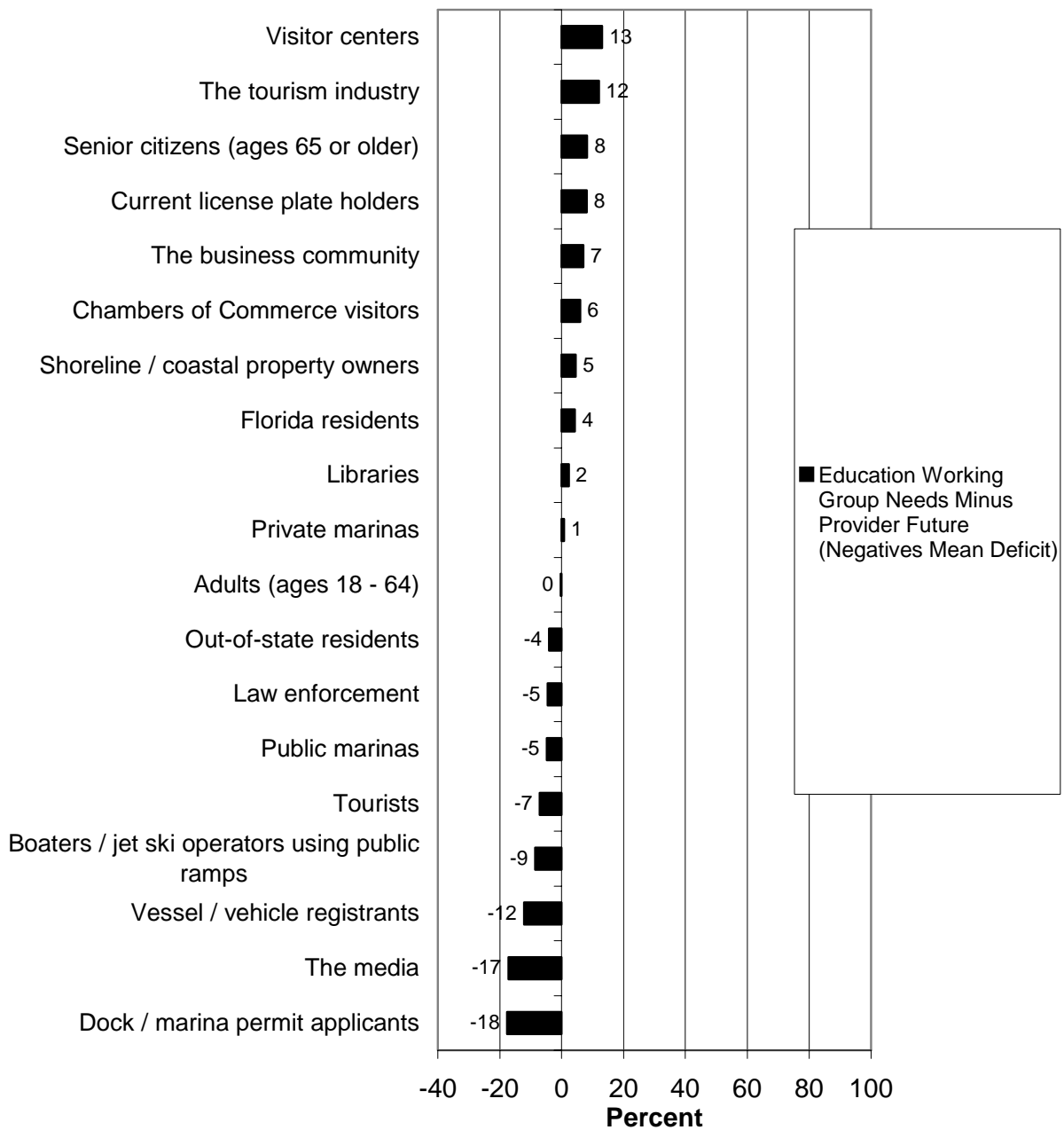
Groups rated by Education Working Group members as extremely high priorities for education minus groups currently targeted a great deal by manatee education providers. (Positive values show ample supply and negative values show deficits in supply.) (Part 2.)



Groups rated by Education Working Group members as extremely high priorities for education minus groups to be targeted a great deal by manatee education providers. (Positive values show ample supply and negative values show deficits in supply.) (Part 1.)

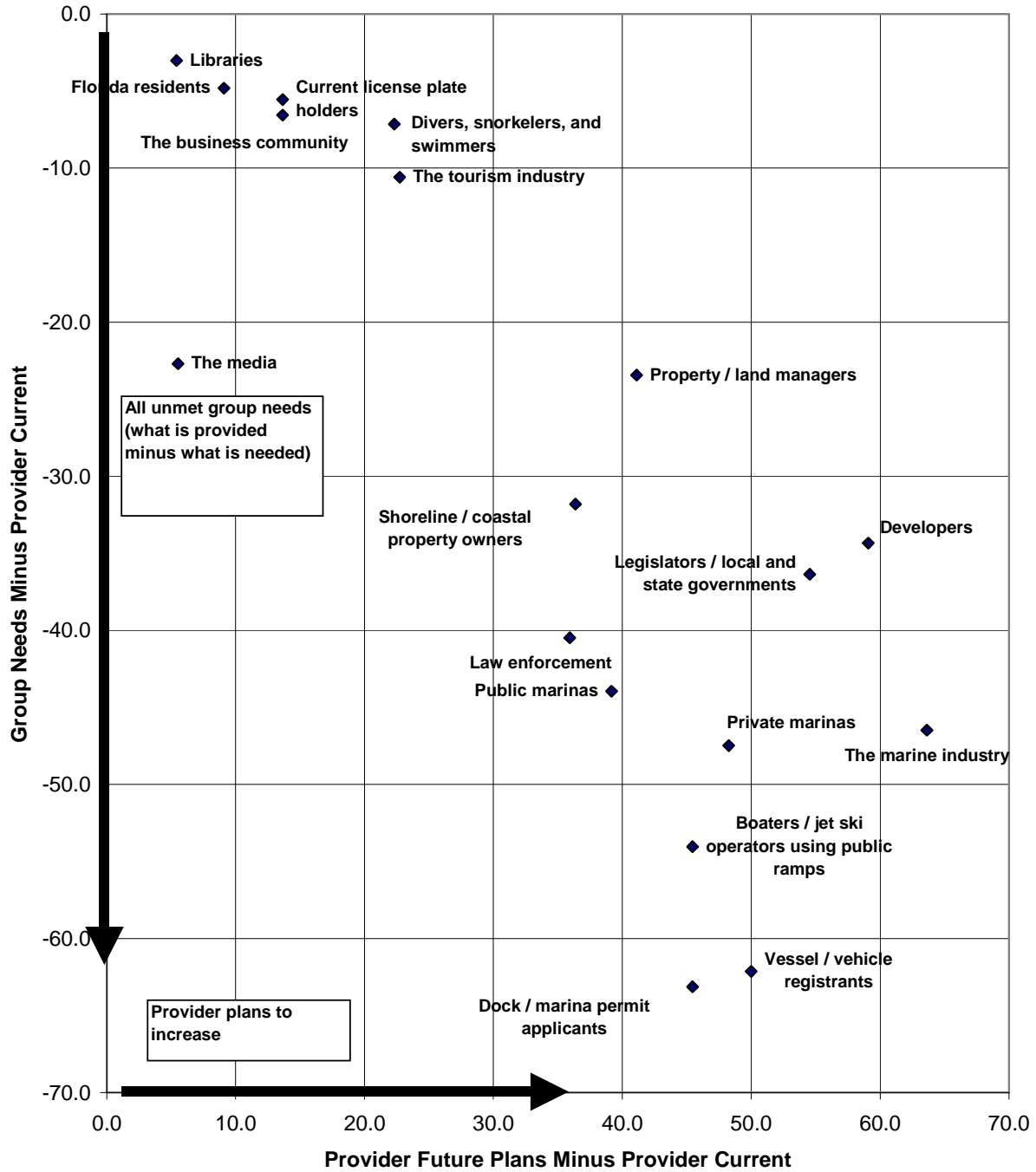


Groups rated by Education Working Group members as extremely high priorities for education minus groups to be targeted a great deal by manatee education providers. (Positive values show ample supply and negative values show deficits in supply.) (Part 2.)



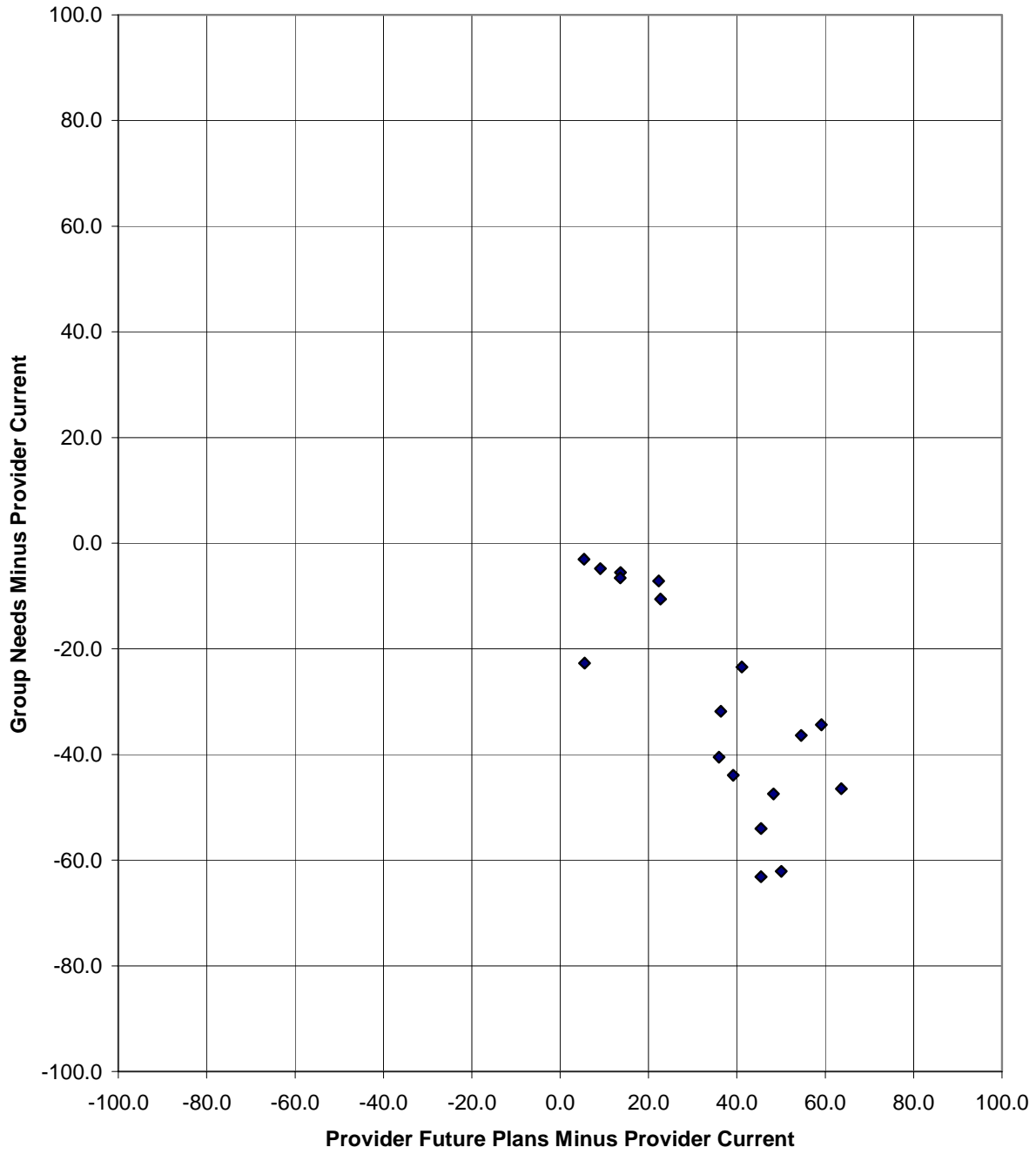
Comparison of ratings of group needs and provider plans for future increases.

(Not graphed to scale for display purposes.)



Comparison of ratings of group needs and provider plans for future increases.

(Graph is correctly scaled.)

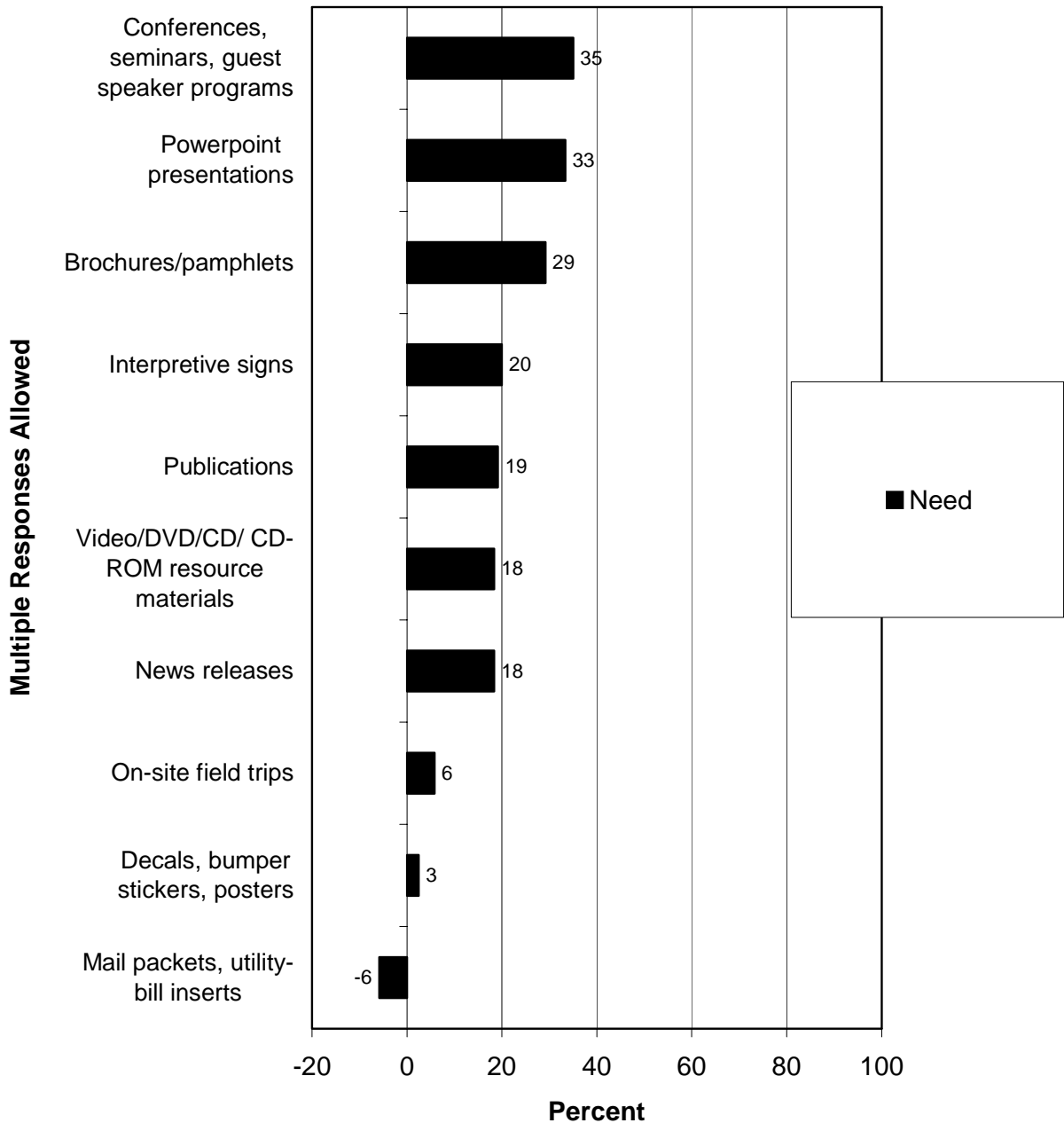


PREFERRED TYPES AND FORMATS OF MANATEE EDUCATION AND OUTREACH AND TYPES AND FORMATS TYPICALLY OFFERED

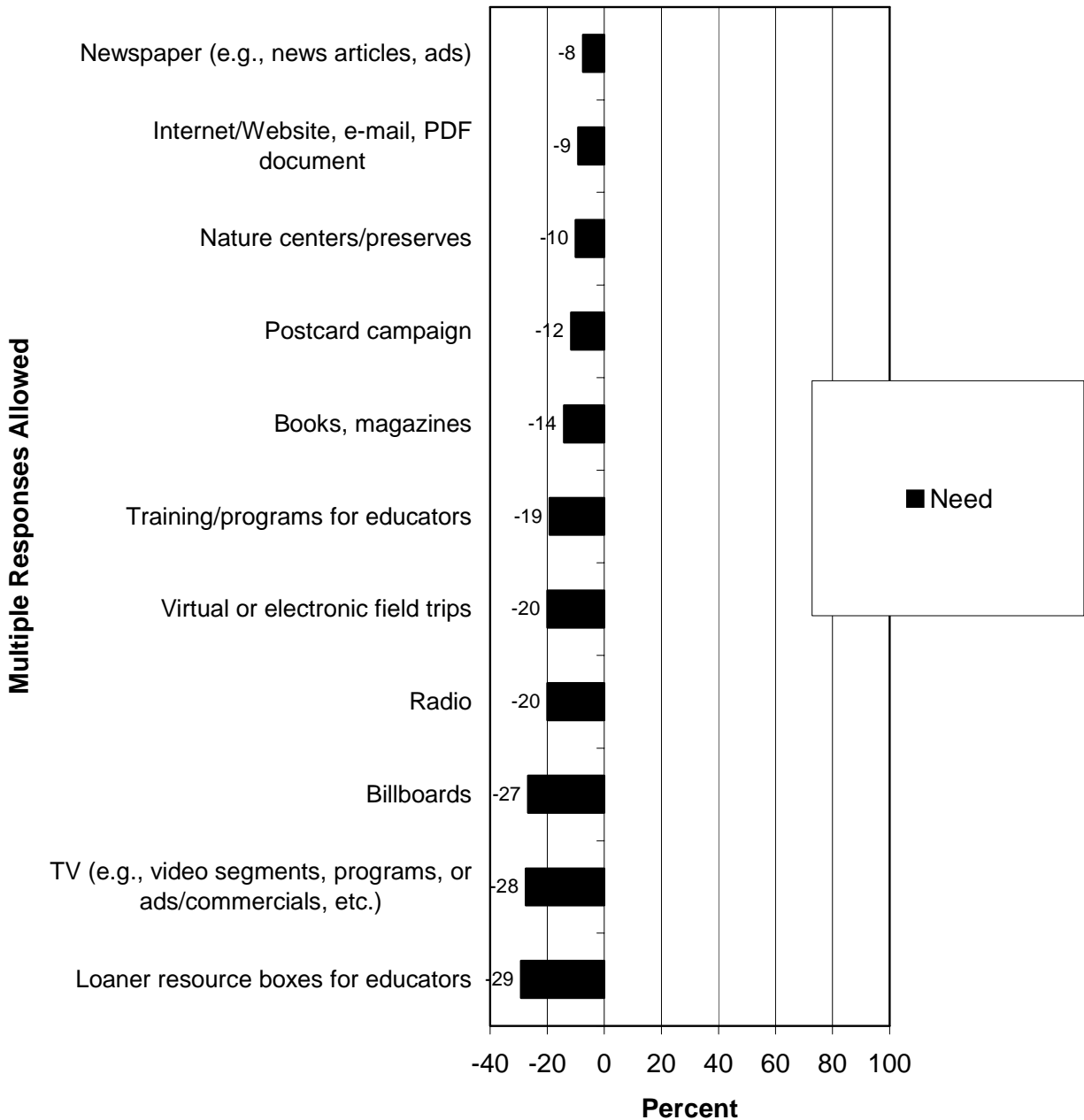
- Types and formats of manatee education and outreach currently produced by education providers were compared with the types and formats rated by Education Working Group members as being effective.

- Based on this analysis, twelve different formats viewed by Education Working Group members as being effective are either under-utilized or are not currently utilized by education and outreach providers. They are, in order from least-utilized:
 - Loaner resource boxes for educators
 - TV (e.g., video segments, programs, or ads/commercials, etc.)
 - Billboards
 - Radio
 - Virtual or electronic field trips
 - Training/programs for educators
 - Books and magazines
 - Postcard campaigns
 - Nature centers/preserves
 - Internet/Website, e-mail, PDF documents
 - Newspapers (e.g., news articles, ads)
 - Mail packets and utility-bill inserts

Types and formats currently produced by manatee education providers / types and formats of education and outreach materials rated by Education Working Group members as being effective. (Part 1.)



Types and formats currently produced by manatee education providers / types and formats of education and outreach materials rated by Education Working Group members as being effective. (Part 2.)



OVERVIEW AND RECOMMENDATIONS

BROAD, OVERALL ACTIONS

- This manatee education and outreach assessment documented that a plethora of manatee education and outreach programs and materials are available. Numerous topic areas and audiences are covered and various media are utilized to distribute these education and outreach efforts.

- An important aspect of this project was to compare the priorities of the Education Working Group with the educational actions and efforts actually taking place among manatee education and outreach providers. Evaluated in this way, a realignment of topic areas, audiences and media outlets should be considered to bring the supply of education and outreach topic areas, target audiences and media in line with the professional opinion of the Education Working Group. The Education Working Group should work to educate providers on the possible surplus and deficits of manatee education and outreach with the goal of having a coordinated and holistic manatee education and outreach effort. Organizations should develop education and outreach efforts with their own expertise and needs, but the cumulative effect should be the result of a comprehensive effort.

- When possible, manatee education materials and programs should be produced, distributed and marketed to the narrowest possible intended target audience(s) and market(s) without sacrificing the intended overall educational effect. Educational materials and programs are most effective when they are focused and specific to a group.

- When possible, dedicate more employees to manatee education within education-providing organizations. Most organizations do not dedicate full-time employees to manatee education, but even a single employee would help ensure greater focus and expertise in the development of materials and programs for manatee education.

- Providers should address funding, staff needs, and time when developing and producing future materials and programs for manatee education. Funding, staff needs, and time are the recurring barriers inhibiting not only the production and frequency of manatee education but

also the potential for partnerships among education providers. It is therefore reasonable to assume that these factors are common to many manatee education providers, and will continue to be issues in the future.

GROUPS FOR WHICH MANATEE EDUCATION AND OUTREACH SHOULD BE PROVIDED

- Currently, 18 target markets and audiences are not reached by manatee education and outreach as much as Education Working Group members would like them to be. The following groups are effectively in need of manatee education and outreach:
 - Dock/marina permit applicants
 - Vessel/vehicle registrants
 - Boaters/jet ski operators using public ramps
 - Private marinas
 - The marine industry
 - Public marinas
 - Law enforcement
 - Legislators/local and state governments
 - Developers
 - Shoreline/coastal property owners
 - Property/land managers
 - The media
 - The tourism industry
 - Divers, snorkelers, and swimmers
 - The business community
 - Current license plate holders
 - Florida residents
 - Libraries.

- In the future, education and outreach providers plan to lessen their focus on several groups that Education Working Group members consider to be extremely high priorities for education:
 - Dock/marina permit applicants
 - The media
 - Vessel/vehicle registrants
 - Boaters/jet ski operators using public ramps

- Tourists
 - Public marinas
 - Law enforcement
 - Out-of-state residents.
- Additionally, manatee education and outreach providers plan to decrease focus on six groups that have previously been targeted a great deal by providers:
- Senior citizens ages 65 or older
 - Adults ages 18-64
 - Tourists
 - Out-of-state residents
 - “Everyone”
 - Children ages 12 or younger.

Although each of these groups is *currently* being targeted adequately by education providers, they will not be given the same degree of focus by education providers in the future, despite the fact that these six groups will remain high priorities for manatee education among Education Working Group members.

TOPICS ON WHICH MANATEE EDUCATION AND OUTREACH SHOULD BE PROVIDED

- Education and outreach providers should work to diversify the content (i.e., the focus on topic and subject matter) of their materials and programs on manatees. Manatee education and outreach providers should work to focus more on the following topic areas not being addressed adequately in current education and outreach materials:
 - Protecting aquatic ecosystems
 - Warm water issues
 - Harassment definition and impacts
 - The effects of pollution on water quality
 - The effects of littering
 - Boating regulations, waterway signs, and manatee protection zones
 - How to safely observe manatees in the wild
 - Legislation for manatee protection
 - Manatee habitat needs
 - Fundraising
 - Manatee mortality.

MEDIA AND FORMATS TO USE TO REACH AUDIENCES

- Twelve different education and outreach formats are viewed by Education Working Group members as being effective, but are not widely used by education providers. Manatee education and outreach providers should work to implement education and outreach through a wide variety of formats, with special attention paid to the formats below. They include:
- Loaner resource boxes for educators
 - TV (e.g., video segments, programs, or ads/commercials, etc.)
 - Billboards
 - Radio
 - Virtual or electronic field trips
 - Training/programs for educators
 - Books and magazines
 - Postcard campaigns
 - Nature centers/preserves
 - Internet/Website, e-mail, PDF documents
 - Newspapers (e.g., news articles, ads)
 - Mail packets and utility-bill inserts.

SUCCESSFUL PROGRAM ELEMENTS

Through the years, Responsive Management has identified the elements of successful wildlife and conservation education and outreach programs. Following are the steps that have led to successful wildlife and conservation education and outreach initiatives. Based on this manatee education and outreach assessment, the first step is for the Education Working Group to develop a written education and outreach plan that considers the following elements of a successful program.

- Step 1: *Identify and Prioritize Conservation Issues.* The first step in education and outreach planning is the challenging task of identifying and prioritizing the issues most important to the organization regarding conservation.
- Step 2: *Identify and Prioritize Education, and Outreach Issues.* The next step is to understand and identify the education and outreach goals and priorities of the organization staff. This assessment is an important first step.
- Step 3: *Define Goals and Set Measurable Education and Outreach Objectives.* The next step is to define specific goals and set measurable objectives. Goals define the management philosophy within which objectives will be pursued. They are general and often lofty statements about the outcome desired for a program or initiative. Objectives are directed toward the accomplishment of goals and are specific and measurable statements of what, when, and how much will be achieved.
- Step 4: *Identify, Define, and Target Publics.* To develop effective and successful education and outreach programs, managers need to identify and classify different user groups and discern their socio-demographic characteristics.
- Step 5: *Understand the Audience.* Understanding how people relate to conservation issues is an important foundation upon which education and outreach efforts can be built and can determine how the Education Working Group approaches target groups. Three major aspects of understanding how people relate to conservation and other issues include understanding public opinion, attitudes, and level of awareness or readiness stage.
- Step 6: *Identify, Define, and Test the Message.* Research clearly indicates that some messages will resonate with various target audiences while others will not.

The final steps in marketing, publicizing, and advertising the education and outreach product, program, or service are to choose the appeal(s) or motivator, and develop and pretest the education and outreach program. Several considerations when developing projects and programs to create positive actions and behaviors include: appealing to people's emotions, creating programs that are locally based, making programs convenient for people, and reminding people of results and benefits. The final step is to pretest and evaluate the product, program, or service. Pretest programs, products, and messages on the target audience for which they have been designed. Incorporate feedback into the program. Repeat the exercise until the program produces the desired results.

- *Step 7: Consider Demographic, Social, Economic, and Political Trends.* Identifying and incorporating changing societal factors into education and outreach programs allows organizations to become proactive, rather than reactive, to external forces. Information on societal makeup and change also can be used in conjunction with market segmentation, target marketing, and target group segmentation.
- *Step 8: Getting the Message Across: A Marketing and Advertising Approach.* The next step in bringing an organization's message or program to target groups is to select the appropriate medium. The decision should be based on the target group – where they live; where, when and how often the organization wants to reach them; and how much communications promotions cost.
- *Step 9: Internal Considerations.* There are many internal issues that education and outreach specialists should be aware of that can make the difference between successful and unsuccessful programs. For example, communications efforts will not work if there are not appropriate resources committed to the effort. Internal awareness and acceptance must be created as well.
- *Step 10: Project Evaluation.* Evaluation is one of the most important components of a communications program because it will answer the fundamental question, "Did the program work?" Evaluation of education and outreach programs should be based on the goals and objectives initially set.

APPENDIX A: SPECIFIC ISSUES RELATED TO MANATEE TOPIC AREAS NAMED BY EDUCATION WORKING GROUP MEMBERS

QUESTION NUMBERING

1. What specific issue related to MANATEE HABITAT NEEDS is the most important issue for manatee education/outreach efforts?
2. What specific issue related to the EFFECTS OF POLLUTION is the most important issue for manatee education/outreach efforts?
3. What specific issue related to the EFFECTS OF LITTERING is the most important issue for manatee education/outreach efforts?
4. What specific issue related to MANATEE NATURAL HISTORY is the most important issue for manatee education/outreach efforts?
5. What specific issue related to MANATEE POPULATIONS is the most important issue for manatee education/outreach efforts?
6. What specific issue related to the WAYS TO HELP MANATEES is the most important issue for manatee education/outreach efforts?
7. What specific issue related to REGULATIONS, SIGNS AND ZONES is the most important issue for manatee education/outreach efforts?
8. What specific issue related to MANATEE MORTALITY is the most important issue for manatee education/outreach efforts?
9. What specific issue related to OBSERVING MANATEES IN THE WILD is the most important issue for manatee education/outreach efforts?
10. What specific issue related to MANATEE RESEARCH, RESCUE AND REHABILITATION is the most important issue for manatee education/outreach efforts?
11. What specific issue related to LEGISLATION FOR MANATEE PROTECTION is the most important issue for manatee education/outreach efforts?
12. What specific issue related to FUNDRAISING is the most important issue for manatee education/outreach efforts?
13. What specific issue related to MANATEE HARASSMENT AND ITS IMPACTS is the most important issue for manatee education/outreach efforts?
14. What specific issue related to the REPORTING OF INJURED, DEAD, HARASSED, OR ORPHANED MANATEES is the most important issue for manatee education/outreach efforts?
15. What specific issue related to the PROTECTION OF AQUATIC ECOSYSTEMS is the most important issue for manatee education/outreach efforts?
16. What specific issue related to WARM WATER is the most important issue for manatee education/outreach efforts?

EDUCATION WORKING GROUP ANSWERS

Library/Media Specialist, The Columbus Zoo and Aquarium:

1. That individuals can make a difference by: not littering; learning more about manatee needs; behaving in ways that protect habitats.
2. That pollution directly affects the health of manatees and other wildlife, and humans control the success of clean-up efforts. It's in our hands!
3. What litter is! –Even dumping Pepsi into the water. It is amazing that people don't think that what they throw away isn't litter!
4. How gentle and peaceful and curious manatees are! They can't protect themselves from boats or fishing line!
5. Even though populations have increased they are not thriving, and need to be monitored. Other issues—like red tide—also negatively affect manatees.
6. Reduce, reuse, and recycle!
7. (Blank)
8. Many manatee deaths and injuries can be avoided by common sense boating habits and conservation habits.
9. Do's and Don'ts of viewing manatees! The fact that too many people sharing manatee habitat increases manatee-human conflicts!
10. Many conservation organizations actively rescue and do research manatees and many are volunteers. Rescue release programs are needed to maintain and increase manatee populations.
11. Just because Florida has downgraded manatees from endangered to threatened, the threats to manatees are still there.
12. Funds are always needed to support conservation and a little money can go a long way to helping manatees – just buying tracking equipment, fuel for research/monitoring boats is a great help.
13. That the individual can make a difference and it will require changes in human behavior to save the manatees.
14. Who to contact and basic procedure.
15. The individual can make a difference.
16. Manatees are attracted to warm water and this is also what makes them vulnerable to people-manatee conflicts.

Education Instructor, The Columbus Zoo and Aquarium:

1. That the manatee is oftentimes being forced to share its habitat with the public both in private and public areas. We need to respect the manatee's needs when we are using those areas.
2. That litter and pollution directly affects manatees as well as other wildlife species. It can damage their homes and can even make them sick.
3. Explaining to the public what litter is and how it can hurt manatees in their habitat. Many times the public does not realize that their litter can do harm to the manatee. Some

people do not realize that discarded fishing line is litter. They are assuming paper trash is just litter.

4. Teaching the natural history of the manatee, such as diet and feeding habits, swimming speeds, gentle nature, etc; explains to the public some of the manatee's vulnerability to injury and pollution.
5. Manatee populations need to be monitored so that when populations fluctuate steps can be taken to help when needed. These steps will help ensure healthy, viable manatee populations.
6. Just informing people that there are ways to help manatees that they can do, they feel empowered and willing to help. Many times people do not feel that they can help or make a difference.
7. Informing people that the regulations, signs and zones do exist and that they should be on the lookout for them and obey them to help the manatee.
8. A large percentage of manatee mortality is directly related to human impact. Manatees do not have any natural predators.
9. That many people vacation in manatee areas and they should know about the Endangered Species Act and the Marine Mammal Protection Act. They should be informed of what they can and can't do when observing and encountering manatees in the wild.
10. Many people and organizations are trying to help the manatee by volunteering, by performing research and even rescuing manatees. Rehabilitating and releasing manatees back into the wild can help sustain future generations.
11. Explanation of the Endangered Species Act and how it protects manatees both federally and locally in the state of Florida. To inform the public that even though manatees may be de-listed from endangered to threatened that they still will and should be protected under the same laws in existence.
12. Funds are always needed to help with research. Funds can help pay for boats, fuel, radio collars, and tracking equipment. All of these items help to protect the manatee and its future.
13. To inform the public that harassment of manatees may force them to disrupt their normal habits and move to areas where they may be in danger of boats or cold water or even areas where there is a lack of food.
14. Getting the information out to the public in a simple and easy to follow course of action. Informing the public that there is a procedure to report problems with manatees when found.
15. Informing the public that protecting fragile aquatic ecosystems is one way to ensure the future of manatees as well as many other aquatic species.
16. By informing the public that manatees are tropical mammals and must stay in warm water to survive will help them to understand the needs of manatees and how sometimes this need can also get them into trouble by hanging out at power plants.

Distance Learning Coordinator, The Columbus Zoo and Aquarium:

1. I primarily teach K-6 grade about manatees so we focus on the fact that all animals need food, water, shelter, and space.
2. We talk about how pollution affects the habitat needs of these animals.

3. We discuss the effects of littering on all wildlife.
4. We discuss mammal characteristics.
5. Occasionally we have older groups (grades 6-12) who participate in programs. We discuss with these groups the declining numbers of manatees and the reasons why they are endangered.
6. In Ohio we primarily discuss donating money.
7. We discuss the fact that it is always important to observe regulations, signs and zones that protect wildlife – whether we are in Florida or at home.
8. We focus on littering with K-6 grade because it is something they understand.
9. We don't really cover this in Ohio.
10. We talk about the work the Columbus Zoo is doing to help manatees.
11. With older groups we discuss the Endangered Species Act and how important legislation can be in the protection of endangered animals.
12. We mention supporting groups like the Save the Manatee Club if teachers want to know how to help.
13. (Blank)
14. (Blank)
15. (Blank)
16. (Blank)

Education Manager, Miami Seaquarium:

1. Destruction of seagrass beds.
2. Water run-off, fertilizer run-off.
3. Plastic straps – entanglement.
4. Breeding/reproduction.
5. Endangered – threatened issues.
6. Donation of money to help rehabilitation and release of injured manatees.
7. Explanation of specific boating zones and waterway signs.
8. Human-related – watercraft and pollution.
9. Not to feed manatees lettuce and other produce.
10. The process that rehabilitation centers use when an injured manatee is brought into a facility.
11. Change in status from endangered to threatened.
12. Background information on manatees and where and what the money will be used for.
13. What harassment terms mean in regards to manatees.
14. Phone numbers – how to get into contact with the right people.
15. Destruction of manatee habitat.
16. Deregulation of power plant.

Operations Management Consultant, Florida Wildlife Commission:

1. Preservation of warm water habitat areas and the travel corridors they use to get back and forth to them.

2. Use of fertilizers and the subsequent introduction of the nutrients into area water bodies – algae blooms, loss of seagrass, link to red tide.
3. Fishing line entanglement – encourage the recycling of plastics and fishing gear.
4. Low reproduction and adult mortality impacts to the population.
5. Loss of young adult manatees who are just starting to start their breeding.
6. Maintain level of funding to continue research, rehabilitation and recovery of species.
7. Voluntary compliance with posted waterway markers.
8. Reporting of injured manatees before they become a death statistic.
9. Posting a proper lookout on your vessel when underway.
10. Early reporting of injured manatees. Correct number available for people to call in reports.
11. Passing legislation for boat operator licenses – manage and account for awareness on the waterways.
12. Letting people know how their money has been spent for manatee protection. Maintaining the level of support.
13. Consistent message from all organizations and agencies about the definition and enforcement of harassment.
14. Need to report all of these instances immediately through the use of the correct phone number.
15. Protection of seagrass beds and control of nitrogen levels in groundwater.
16. Awareness of travel corridors for manatees using these areas – manatees leave sites to forage for food throughout the winter.

Director of Online Communications, Save the Manatee Club:

1. Overall habitat loss.
2. Degradation of food sources.
3. Entanglement and ingestion.
4. Manatees are slow-moving, need to surface to breathe air, and prefer shallow waters.
5. Not all subpopulations of manatees are doing as well as others.
6. Manatee protection tips for boaters, divers, and swimmers.
7. Locations of speed zones, refuges, and sanctuaries. Boat speed definitions (plane, off-plane, etc.)
8. Human-related manatee mortality is preventable. Watercraft-related manatee mortality is the leading identified cause of manatee death in Florida.
9. Look, but don't touch. Please resist the urge to feed manatees or give them water.
10. Numbers to call to report an injured manatee (phone, cell phone, marine radio) and how to assist in a rescue.
11. The state and federal laws that protect manatees.
12. Contact information (phone, address, website) so people can get in touch with your organization.
13. Look, but don't touch. Please resist the urge to feed manatees or give them water.
14. Numbers to call to report and tips on what to do to assist.
15. Water pollution, because it affects the manatee's food sources. No-wake zones because they protect against bank erosion and water turbidity (and also protects nesting birds).

16. Deregulation of power plants may limit warm water refuges for manatees in the future. Diminished spring flow and pollution of springs.

President, The Floridian:

1. Getting the boaters and boating industry to work closer with environmental community and industry: make common goals.
2. Red tide and fertilizer run-off issues.
3. More monofilament recycling. Danger of plastics to marine ecosystem.
4. Learn more about Sirenian immune system.
5. What is maximum carrying capacity?
6. Community based restoration programs!!!
7. Bigger signs, each boat equipped with Tom-Tom-like system showing signs and zones.
8. Decreasing the number (mortality) of undetermined deaths.
9. Reporting abuse or injured animals to proper authorities.
10. Re-evaluate captive born vs. wild born release options. Re-evaluate release criteria.
11. The need for more environmentally versed representatives to be appointed.
12. There should never be unavailable funds for the state marine mammal.
13. Officers do not write enough tickets. Fines are too inexpensive for the majority of violators.
14. Response time.
15. Teaching people how the ecosystem affects them.
16. Subsidize plants to stay on line. OR timed and zoned off line time frame.

Florida Marine Wildlife Program Manager, The Ocean Conservancy:

1. Quiet, undisturbed natural areas for resting/calving. Lush seagrass for feeding. Access to warm water in winter.
2. Things people/individual can do: don't dump in drains, minimize fertilizer, etc.
3. Entanglement is issue for all marine wildlife. Recycle fishing line. Participate in clean-ups. Don't litter; always pick up debris.
4. Manatees are native to Florida. Dispel common myths.
5. Manatees doing well in some areas of Florida (Crystal River, St. John's), not doing well in others (Southwest Florida).
6. Obey speed zones, support manatee protection, buy a license plate and decal.
7. Difference between slow speed and idle speed. Most boats can plane at 25 mph. Higher boat speed = greater risk to manatees. "Slow speed" does not equal "closed area." Speed zones are necessary to protect manatees and balance motorboats.
8. 25% annual deaths from watercraft. Boats of all sizes (not just big barges) injure and kill. Can't use carcass location to tell where it died.
9. Do not disturb! Passive observation. Never separate mom and calf or disturb resting manatees. Never scare away from shallow grassbeds. Never give food or fresh water.
10. Call 888-404-FWCC if see manatee in trouble.
11. Let legislators know manatee protection is important to Floridians.

12. Need funds to do good research, education, management, enforcement.
13. Definitely is not as important as impacts: attracts manatee to potentially dangerous areas, may discourage from using critically important areas.
14. Contact phone number: 888-404-FWCC. Know it's important to get to live animals fast and also collect carcass quickly so can learn as much as possible.
15. Emphasize holistic ecosystem approach.
16. Let people know loss of warm water (springs and power plants) is growing concern.

Outreach Coordinator, Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute:

1. Habitat protection – specifically seagrass.
2. Water quality – impacts to habitat from reduced water quality.
3. The need for monofilament recycling and proper use and disposal of other fishing gear.
4. Manatees are native to Florida and are part of the natural ecosystem.
5. The challenge of determining an accurate/reliable estimate of the manatee population.
6. Awareness of safe boating practices.
7. Awareness of why these items are established – the reason and importance of abiding by them.
8. Mortality fluctuates naturally and is not the only factor used in evaluating the status of the population.
9. Awareness of what is considered harassment.
10. How to report injured and/or dead manatees.
11. The manatee's classification status on the imperiled species list does not necessarily dictate the level of protection – most people don't understand this.
12. Providing details about how funds are used.
13. Awareness that harassment is harmful to manatees and that it could endanger them.
14. Awareness of how and when to report this information.
15. Everyone's role in protecting aquatic ecosystems.
16. Awareness of importance of warm water refuges, including power plants, for survival.

Stranding Coordinator, Marine Animal Rescue Society:

1. Habitat loss due to construction, development in South Florida area. Safe boating/recreation promoting sea grass bed protection and preservation. Manatee zone sign maintenance to ensure safe habitats.
2. Red tide!!! The number of deaths attributed to red tide in 2005 are staggering (i.e. fertilizer run-off, industry run-off from paper, etc.)
3. Debris that resembles sea grass (netting, line, various plastics) that get consumed by manatees and that get entangled around manatees.
4. That manatees are suited to only certain habitats and only certain regions of the world – a “local treasure” for Floridians. Manatees can forage for food on their own, no need to offer hoses or lettuce! Public awareness issue!

5. Very difficult to accurately count/account for all manatees so current population estimates may not be a good basis for downgrading/re-evaluating policy, etc. Need more research, more data, more funding.
6. Increase awareness about manatee intelligence, dispel rumors that they are inferior or “stupid” – hearing capability, focusing on manatee zones and that when obeyed, can help alert manatees.
7. Have statute number posted on signs for boater awareness, ensure that signs are maintained and/or replaced (following hurricanes, watercraft damage, vandalism, etc.).
8. Many, if not most, deaths are preventable (watercraft collisions, severe entanglement).
9. Ability of law enforcement to accurately cite statutes and ticket offenders. Feeding, watering, and harassment of manatees –awareness and explanation why feeding and watering is deleterious.
10. Funding is crucial – who to call.
11. Accurate counts and biologists needed to make proper, final decisions. Statutes need to be on manatee zone signage to ensure that enforcement can properly and accurately cite offenders.
12. Understanding causes and identifying possible solutions for manatee mortality requires research (as does rescue and rehabilitation) which requires funding.
13. Manatees losing innate “fear” of humans and boats when fed and watered. MMPA laws, punishable by fine and jail time when offended, need to be part of outreach.
14. Knowing who to call, how to report situation. Knowing what tracking devices look like and when/if manatees with device should be reported and to whom.
15. Without proper ecosystem balance, sea grass beds do not survive, as is true with development of land, causing habitat/ecosystem destruction.
16. Manatees are native to areas where warm water is abundant; they depend on unnatural sources of warm water like power plants, and potential impacts of that.

Government Affairs Director, Florida Council of Yacht Clubs:

1. We need to know where to find them, and how to spot and avoid them.
2. (Blank)
3. Entanglement items like fishing line and rope.
4. Anything that’s brief but say how long they’ve been around.
5. Difficulty in assessing.
6. Identify their presence and inform the public.
7. Each must be understood by the boater as necessary.
8. Boaters who hit a manatee must be able to report their action without fear of enforcement.
9. Look but don’t touch, and understand why.
10. Early identification of injured animal, early rescue, early beginning of rehab effort.
11. Must force regulators to justify every new restriction and remove those no longer needed.
12. Must be done by responsible agency without an agenda.
13. Dependency on humans for food, water, etc.
14. Again, fear of enforcement issues (leads to never being reported).
15. (Blank)

16. Possible loss of artificial sources.

Analyst, Florida Fish and Wildlife Conservation Commission, Law Enforcement/Boating and Waterways:

1. (Blank)
2. (Blank)
3. Recycling of monofilament line; crab trap entanglement.
4. (Blank)
5. (Blank)
6. Human harassment – obey posted waterway regulations.
7. Understanding what “slow speed minimum wake” means when operating watercraft. Be aware of surroundings.
8. (Blank)
9. What constitutes harassment.
10. (Blank)
11. Compatibility of federal/state laws on harassment.
12. (Blank)
13. How interaction harms.
14. (Blank)
15. Value to entire system – fisheries, health of resource.
16. Importance to survival of manatee.

Executive Director, Florida Marine Contractors Association:

1. Benefits and importance of dredging and desiltation (removing the muck from water).
2. Benefits and importance of dredging and desiltation.
3. Benefits and importance of dredging and desiltation.
4. Historical abundance of education.
5. Not relevant to outreach.
6. Distinguishing misdirected efforts.
7. If we have to have them, let’s make them clear, understandable and reasonable.
8. Cannot be adequately addressed now due to a lack of information. We need a scientific study regarding whether or not boats are a true extinction factor.
9. Target tourists or those who don’t see or rarely see manatees.
10. Good case studies on this, but not relevant to outreach.
11. Not relevant to outreach.
12. Not relevant to outreach.
13. Again, misdirected efforts—theoretically, driving a boat by a manatee is a form of harassment.
14. Need a toll-free line for reporting, one number applicable to all reports and inquiries.
15. Again, benefits and importance of dredging and desiltation.
16. Not relevant to outreach.

Executive Director, Marine Industries Association of South Florida:

1. The need to look at the marine ecosystem as a whole, in terms of protecting all species.
2. We need to ramp up efforts to determine the cause and solution for red tide outbreaks.
3. Fishing line.
4. (Blank)
5. The annual aerial count.
6. It's two-fold; boater education and enhanced law enforcement. Focus on technology.
7. Simplify signs and zones; consider smart signs.
8. Boats aren't the only cause of manatee mortalities; we need to educate the public on other causes and enlist their help in working on other causes.
9. Avoid interacting with manatees.
10. Report all abnormal manatee behavior.
11. The public should be made aware of the fact that the recent down-listing of the Florida manatee does not change protection measures in the least.
12. Advise donors how their money will be spent, as some may not want to fund lawsuits.
13. Take a look-but-do-not-touch approach.
14. Make sure the appropriate information is prominently displayed on any literature.
15. Protection and preservation of seagrass areas.
16. Ensure that warm water refuges continue.

Refuge Manager, J.N. "Ding" Darling NWR Complex:

1. (Blank)
2. (Blank)
3. (Blank)
4. (Blank)
5. (Blank)
6. (Blank)
7. Relative to the Caloosahatchee River, inadequate oversight of the many zones within the River. Zones are confusing to boaters. Regulations are interpreted differently on how to manage by both the State and Feds.
8. We're still having tremendous problems with 2 issues: boat mortalities and poor water quality, which is impacting the food sources easily accessible to manatees. (Army Corps and South Florida Water Management District control water releases down Caloosahatchee River.)
9. Feeding/watering – still a good many people who feed (or attempt) manatee lettuce and fresh water.
10. Accurate manatee numbers – difficult for public to know which statistics truly reflect over all numbers. Controversy surrounding this confuses the public – alienates, polarizes many.
11. The state down-listing the species while the Feds don't. The state should have continued to support Fed action – all based on which census numbers are correct.
12. Moving away from "Save the Manatee Club" which is "viewed" locally as a radical group who is so polarized and fanatical by the public. Greater support locally would be

had also if Feds hadn't forced the zones onto those who supported manatee protection the most – boating community. Most people are willing to give to support manatees but these issues above would need to be dealt with.

13. Lack of adequate law enforcement within the zones of impact.
14. Getting information back out to the public after incidences of Red Tide, boat interactions, etc.
15. Relative to the Caloosahatchee River – extremely poor water quality that is reducing seagrasses in most of the zones (habitat) – very little information coming out relating the manatee impacts to a lack of seagrasses.
16. Long-term plans for a reduction of warm water issues – where are the State and Feds with input to a long-term plan?

Florida Fish and Wildlife Conservation Commission:

1. Protection of water, grass beds and feeding areas from chemical pollutants.
2. Run-off, pesticides and other chemicals contaminating water and vegetation.
3. Entanglement in monofilament line.
4. That these chemical pollutants accumulate in manatee tissue; slow breeding rates.
5. (Blank)
6. Slow, safe boating; be careful and observant while boating; never discard monofilament; find out sources of pollution and try to change or stop the flow of pollutants.
7. (Blank)
8. Collisions with boats and what boaters can do.
9. Observe from a distance so the manatees are not disturbed; never feed or give water; never chase, never touch.
10. How to report an injured manatee, who to call, how to help.
11. Make boating safety mandatory when purchasing a boat for the first time and for new residents. Additional law enforcement position for manatee areas.
12. Promote contributions to the Save the Manatee Trust Fund.
13. Not touching, chasing, feeding, watering.
14. Need to get the info on how to report out there.
15. Preventing chemical pollution or degradation by dredge-and-fill activities, specifically around feeding areas.
16. That many warm water sites near power plants are artificial and may not be there forever.

Florida Sea Grant:

1. Food, space, shelter.
2. Fishing line and ropes, entanglement.
3. Consume trash, entanglements.
4. Where they originate from; Florida native species, related species.
5. How populations are determined, history of manatee populations.
6. List ways NOT to harm manatees (i.e. do not feed, do not give freshwater).
7. Where are the zones in the waterways, what are the fines.

8. What kinds of activity are impacting their survival.
9. Observe from a distance, do not feed.
10. Research on manatee health.
11. Population status for threatened or endangered.
12. (Blank)
13. Boating zones for manatees; do not feed, touch.
14. Who to report to; which agency and phone number.
15. Seagrass, natural springs protection.
16. Congestion of populations.

U.S. Fish and Wildlife Service, North Florida ES Office:

1. Warm water refuge.
2. Possible effects of lawn/golf course run-off (nutrients) and need for adequate buffers.
3. Entanglements and its direct effects on wildlife and resource user quality of use.
4. (Blank)
5. There are no magic numbers. Population health, survivability and reproduction are more important than target numbers.
6. Share the habitat.
7. Consistency of signage, reduction of “fake” signs so public has clearer understanding of real posted zones.
8. All causes, not just boaters, but don’t ignore boater impacts either. Put it all in proper context.
9. Passive observation, animal initiated contact only, observe posted zones.
10. Highlight success stories and research advancements.
11. Too much politics, so better left to other WG.
12. For research, yes—all others, no.
13. Passive interaction, don’t feed/water.
14. Critical need for information collection, rescue and rehab.
15. Impacts ecosystems have to people as well as critters.
16. Importance of habitat, need to address loss of artificial sites.

Wildlife Trust:

1. Warm-water/protection of natural sources and how it relates to increased development in Florida.
2. Pollution is a more general topic and relates to many marine and aquatic species. Entanglement in gear could be considered related to pollution and is an issue.
3. Monofilament and derelict fishing gear – outreach needed to recreational and commercial fishers.
4. Manatees are native to Florida.
5. There are multiple populations and not all seem to be increasing. Also, that there is no good way to count them and assess demographics, which is important.

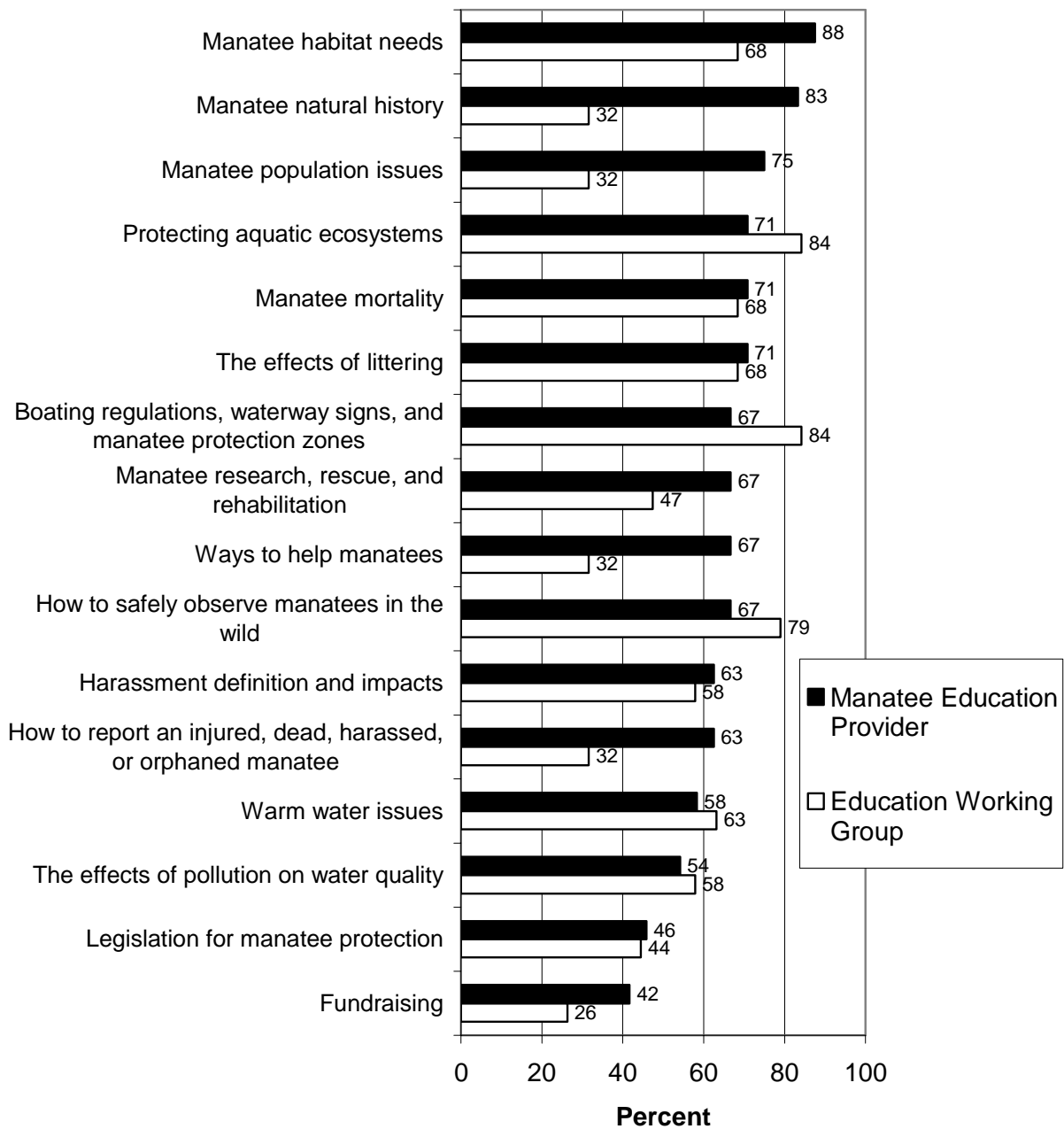
6. For non-boaters and non-fishers, provide a good option to make financial contributions to (other than the state and Save the Manatee Club).
7. Manatees are very difficult to see, so you may not know they are there – which is why it is especially important to respect speed zones.
8. The majority of deaths are usually related to human causes.
9. Observe from a distance – do not feed, water or swim with manatees.
10. Call 888-404-3922 to report injured or dead manatees. Scientists can learn a lot from a dead animal, so please respect them.
11. Development and withdrawal of water from the aquifer.
12. The state is not able to provide much funding for manatee issues, so private funding is needed for all aspects – research and rehab.
13. Manatees require warm water in the winter – if they are harassed and avoid those areas, they could suffer.
14. If you hit a manatee, report it! Call 888-404-3922 to report a sick, injured or dead manatee.
15. Protect coastal areas and seagrass beds – both development and damage from boats are important.
16. Manatees must have warm water in the winter or they will die.

**APPENDIX B: EDUCATION WORKING GROUP PRIORITIES
VERSUS EDUCATION AND OUTREACH PROVIDER
CURRENT ACTIONS AND PRIORITIES**

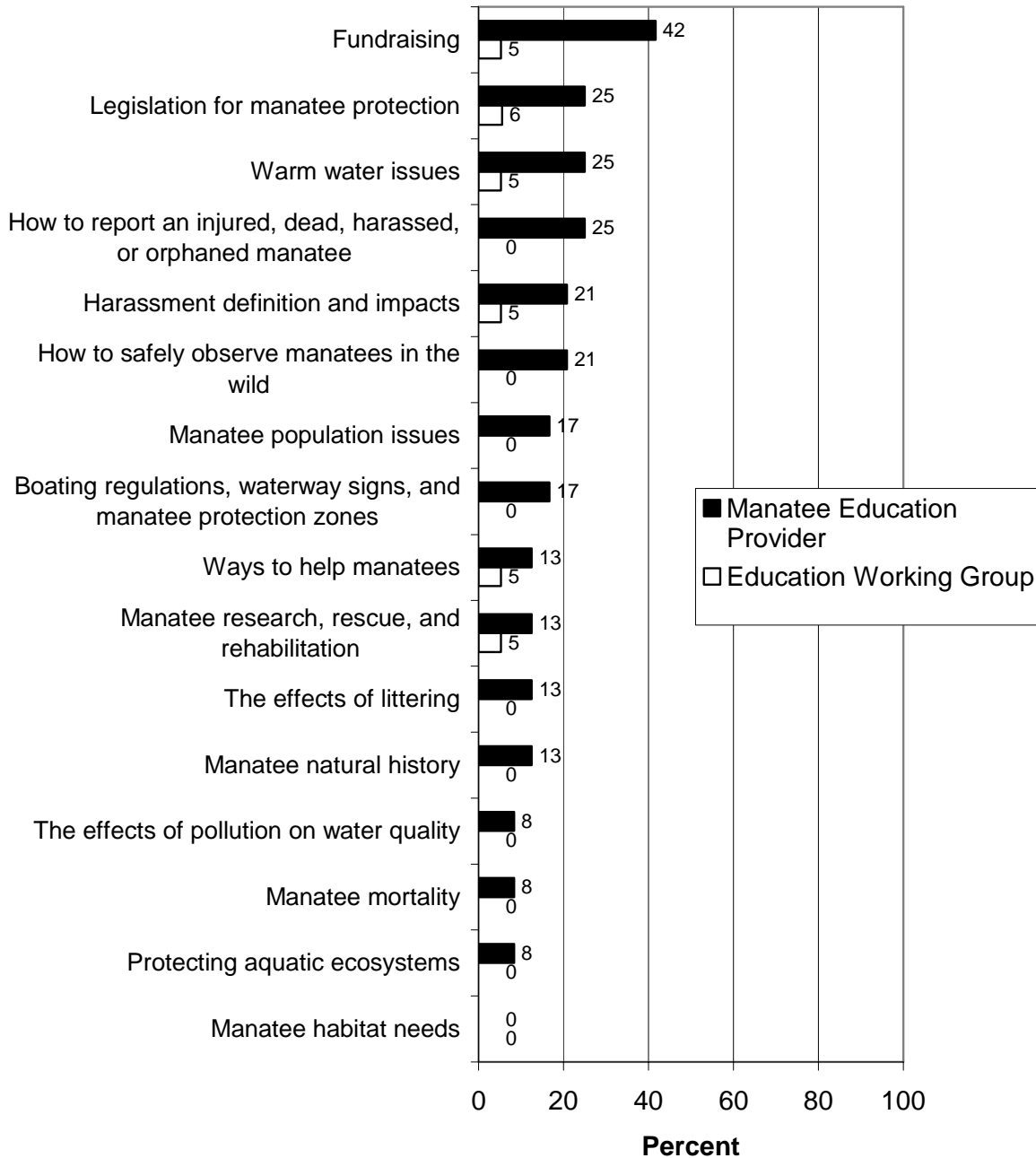
Topic areas on which manatee education and outreach providers focus a great deal / topic areas rated by Education Working Group members as extremely high priorities.



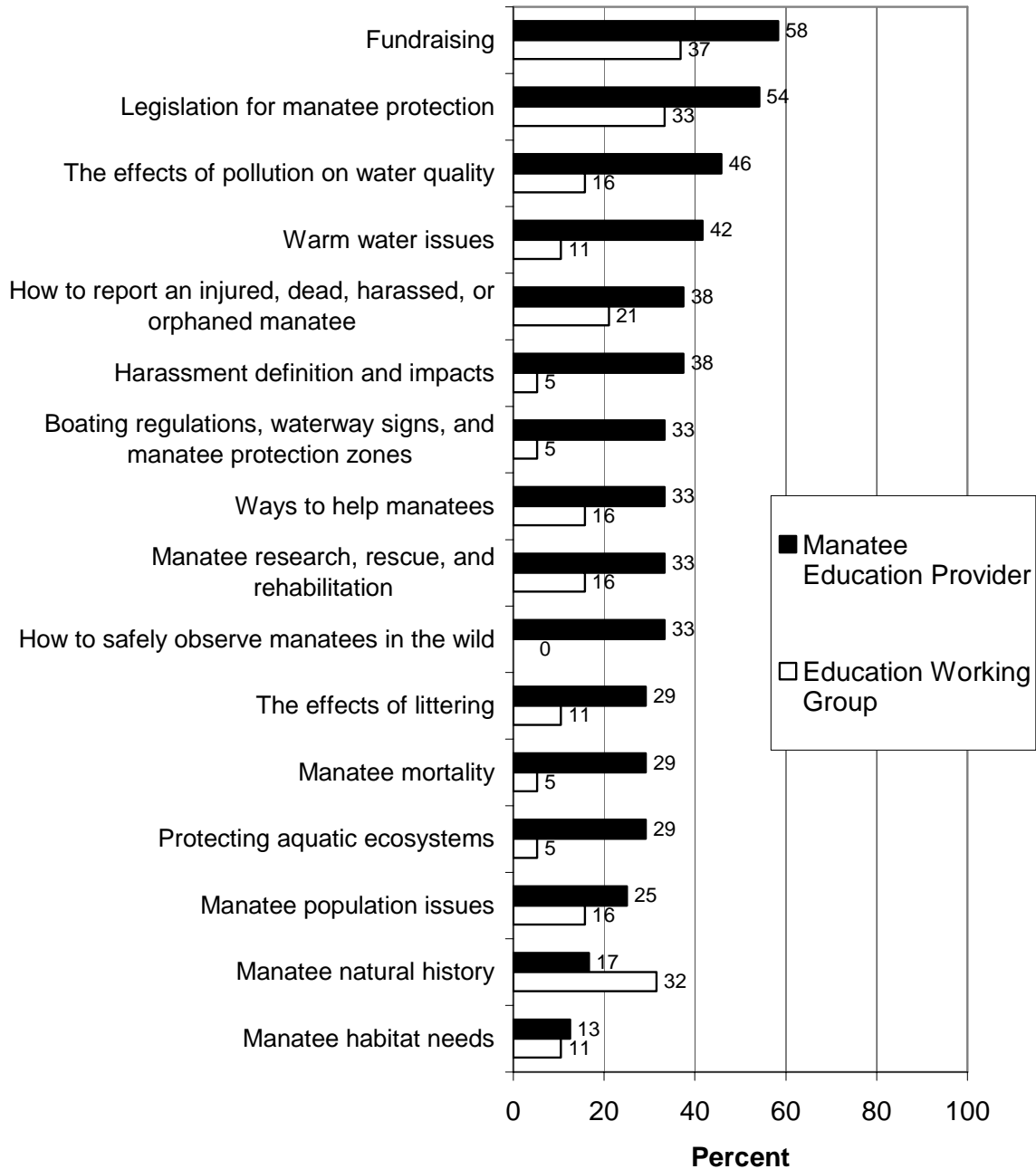
Topic areas on which manatee education and outreach providers focus a great deal or moderate amount / topic areas rated by Education Working Group members as extremely high or high priorities.



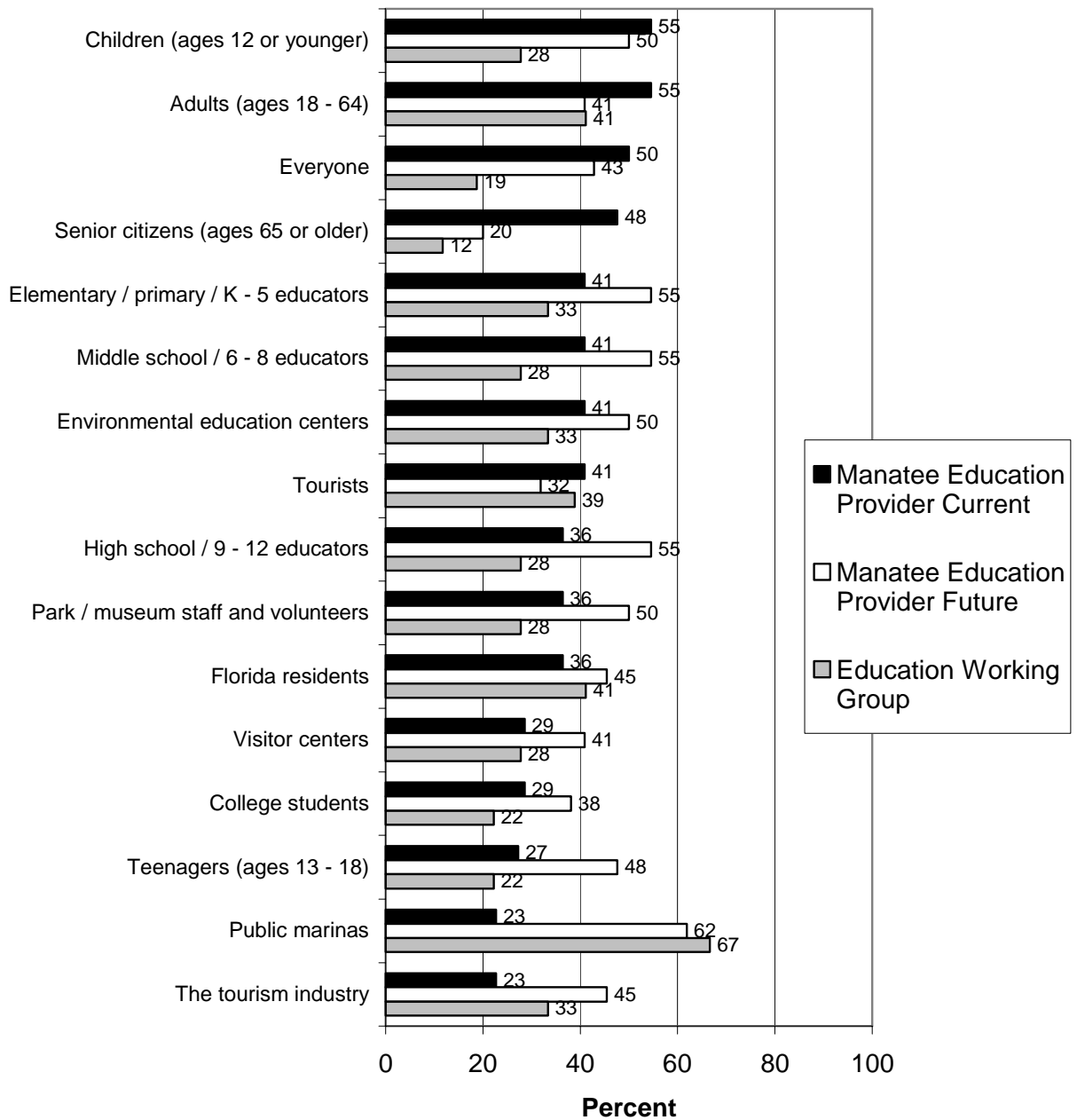
Topic areas on which manatee education and outreach providers do not focus / topic areas rated by Education Working Group members as not priorities at all.



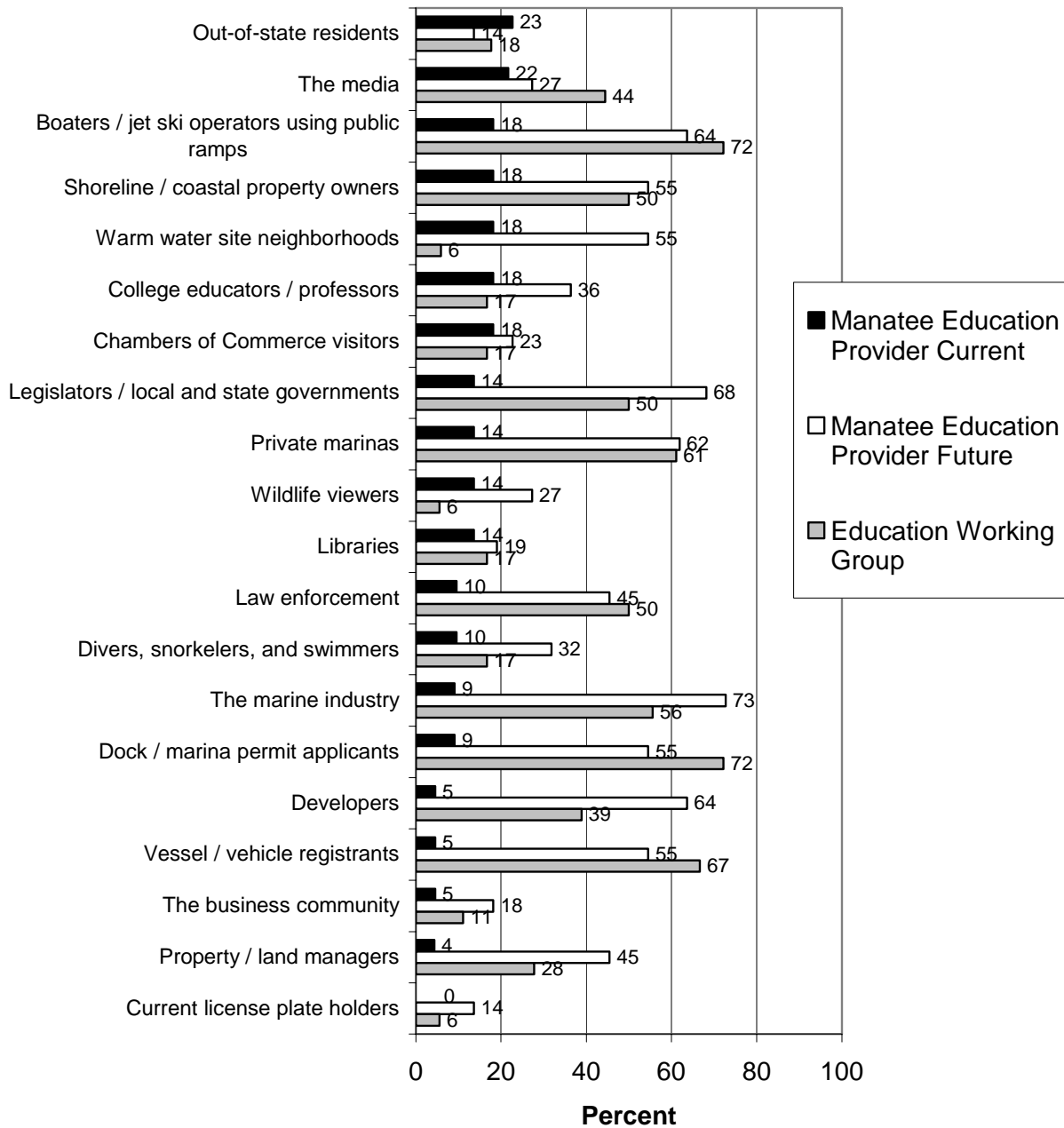
Topic areas on which manatee education and outreach providers focus a little or not at all / topic areas rated by Education Working Group members as low priorities or not priorities at all.



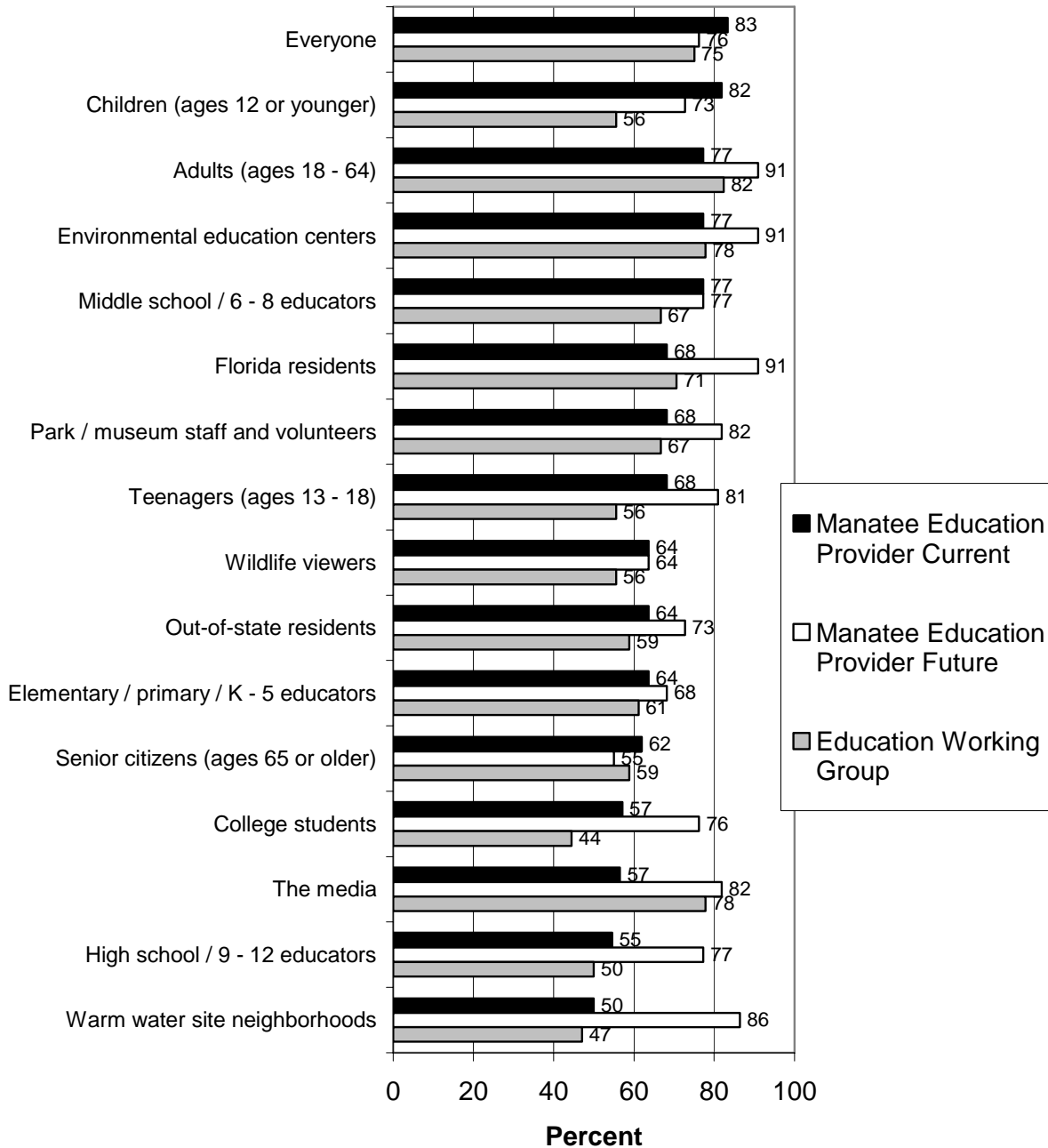
Groups currently targeted a great deal by manatee education providers / groups rated by education providers as extremely high priorities for future education / groups rated by Education Working Group members as extremely high priorities for education. (Part 1.)



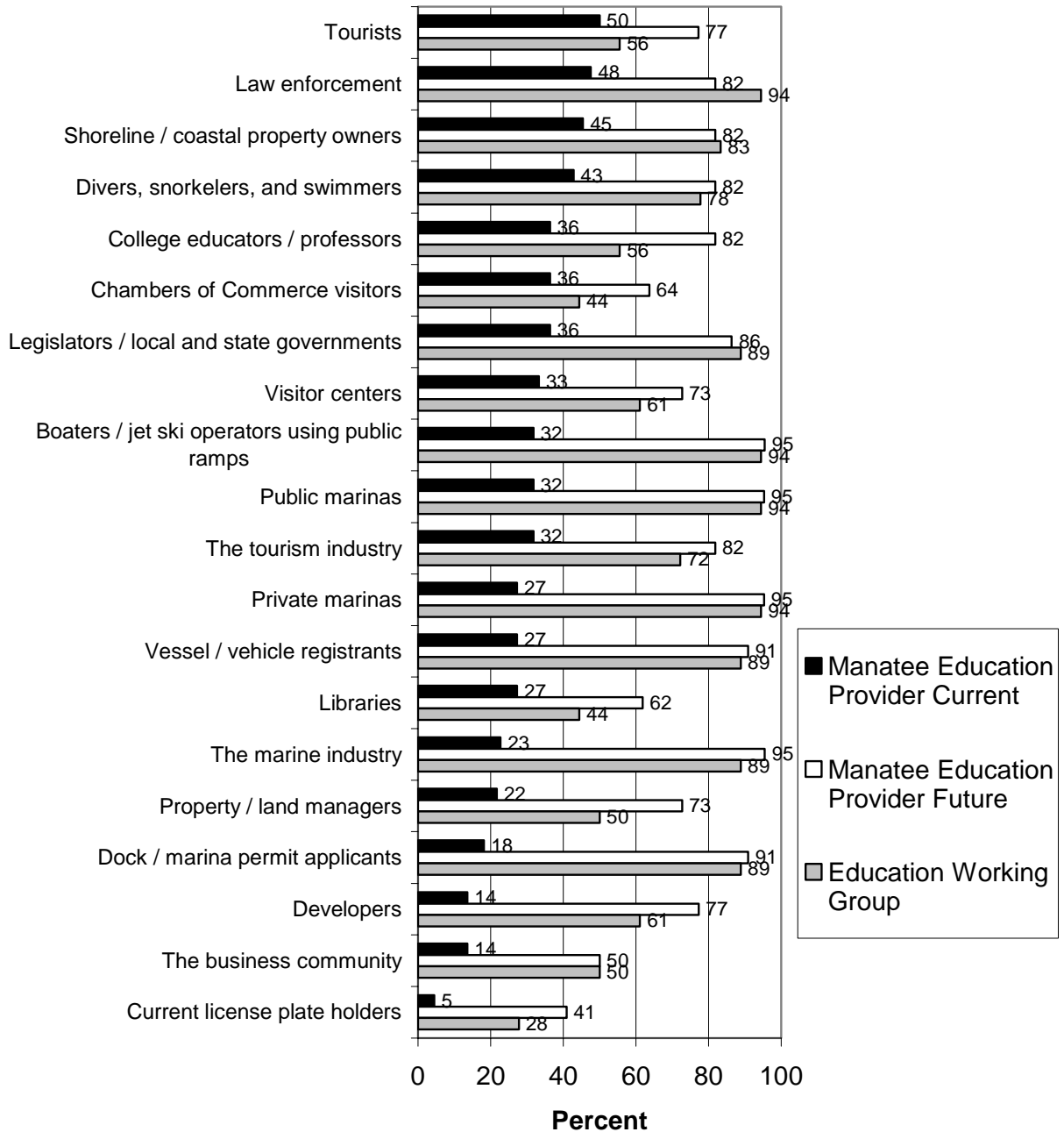
Groups currently targeted a great deal by manatee education providers / groups rated by education providers as extremely high priorities for future education / groups rated by Education Working Group members as extremely high priorities for education. (Part 2.)



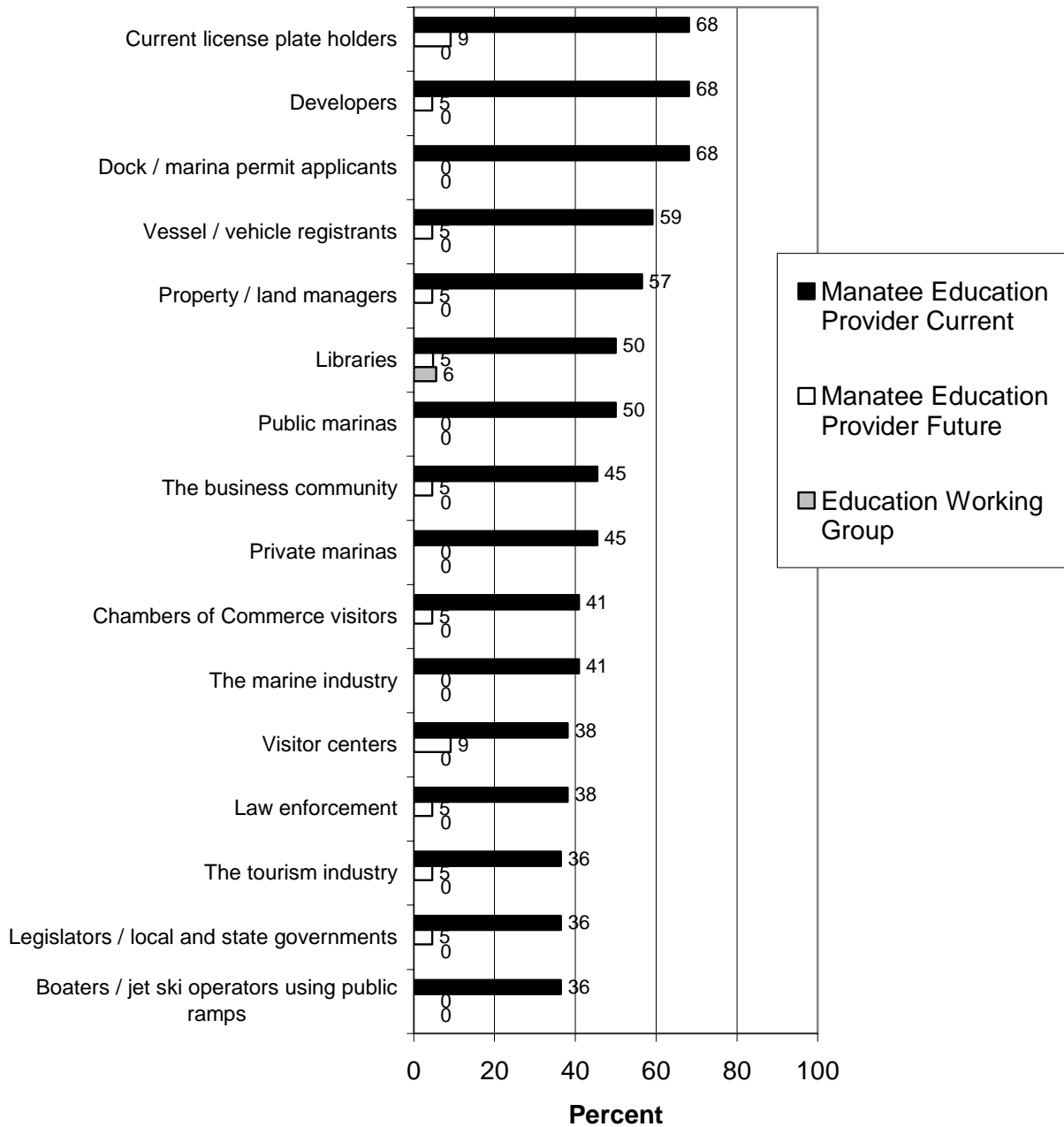
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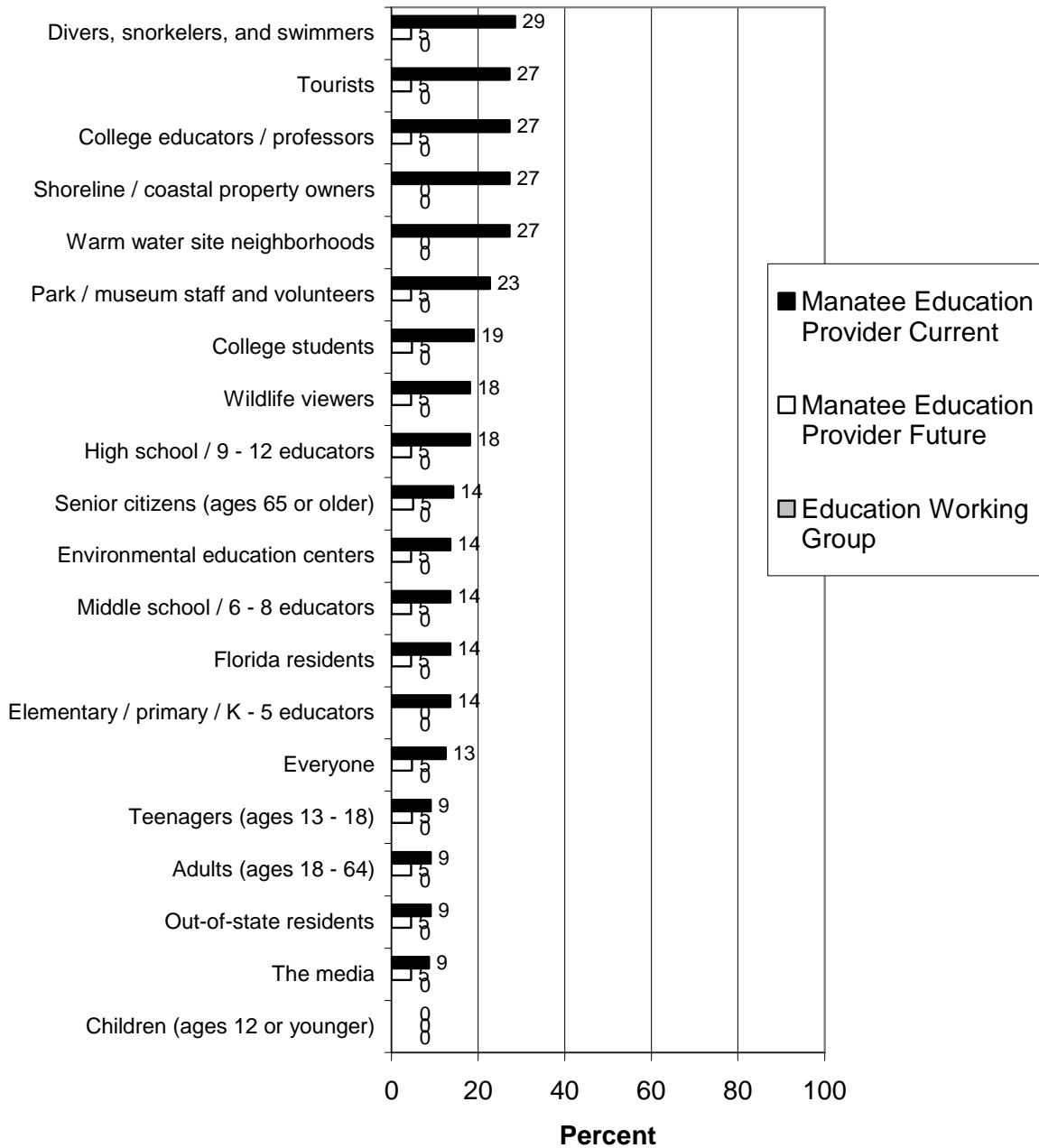
Groups currently targeted a great deal or moderate amount by manatee education providers / groups rated by education providers as extremely high or high priorities for future education / groups rated by Education Working Group members as extremely high or high priorities for education. (Part 2.)



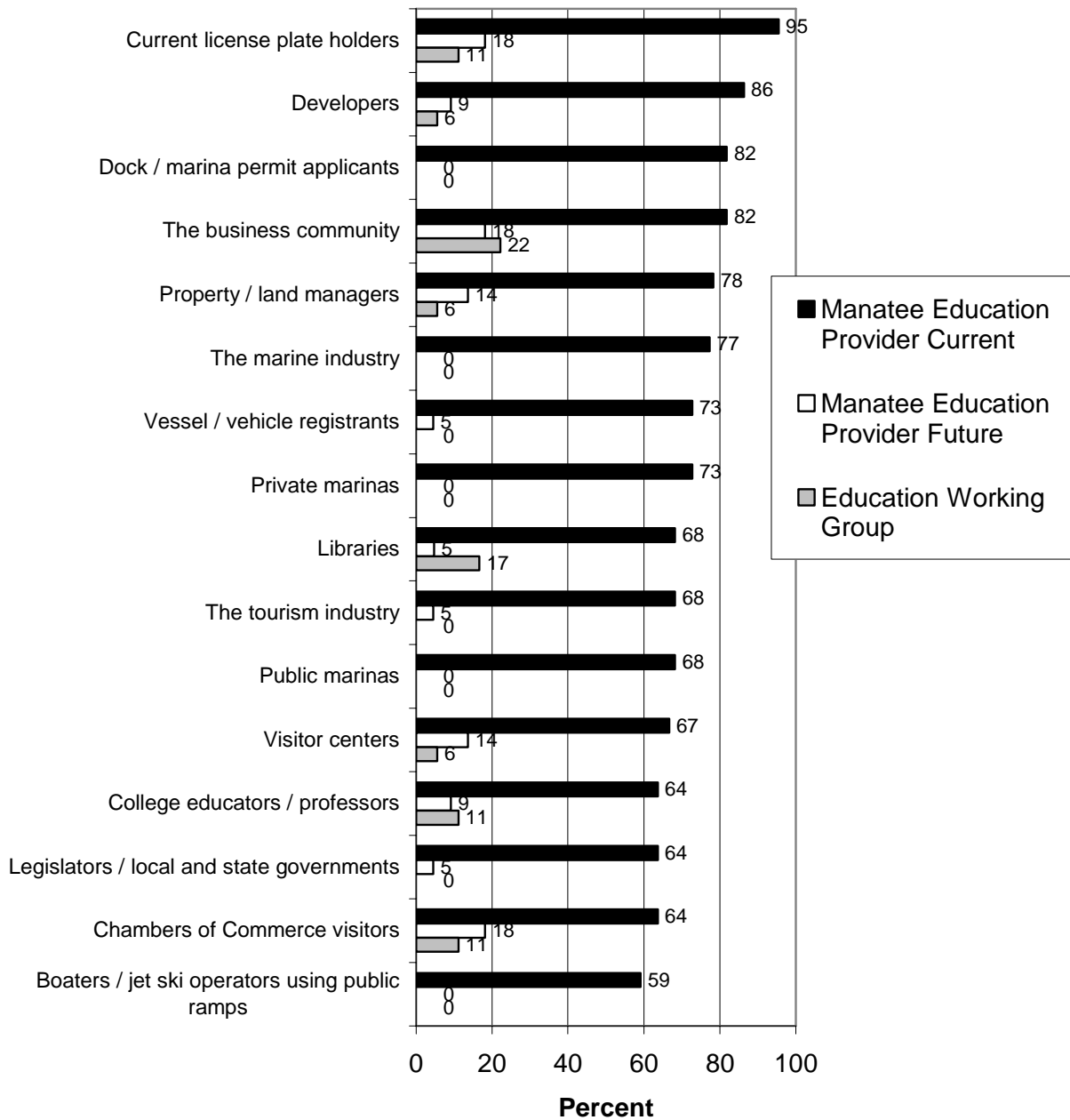
Groups not currently targeted by manatee education providers / groups rated by education providers as not priorities at all for future education / groups rated by Education Working Group members as not priorities at all for education. (Part 1.)



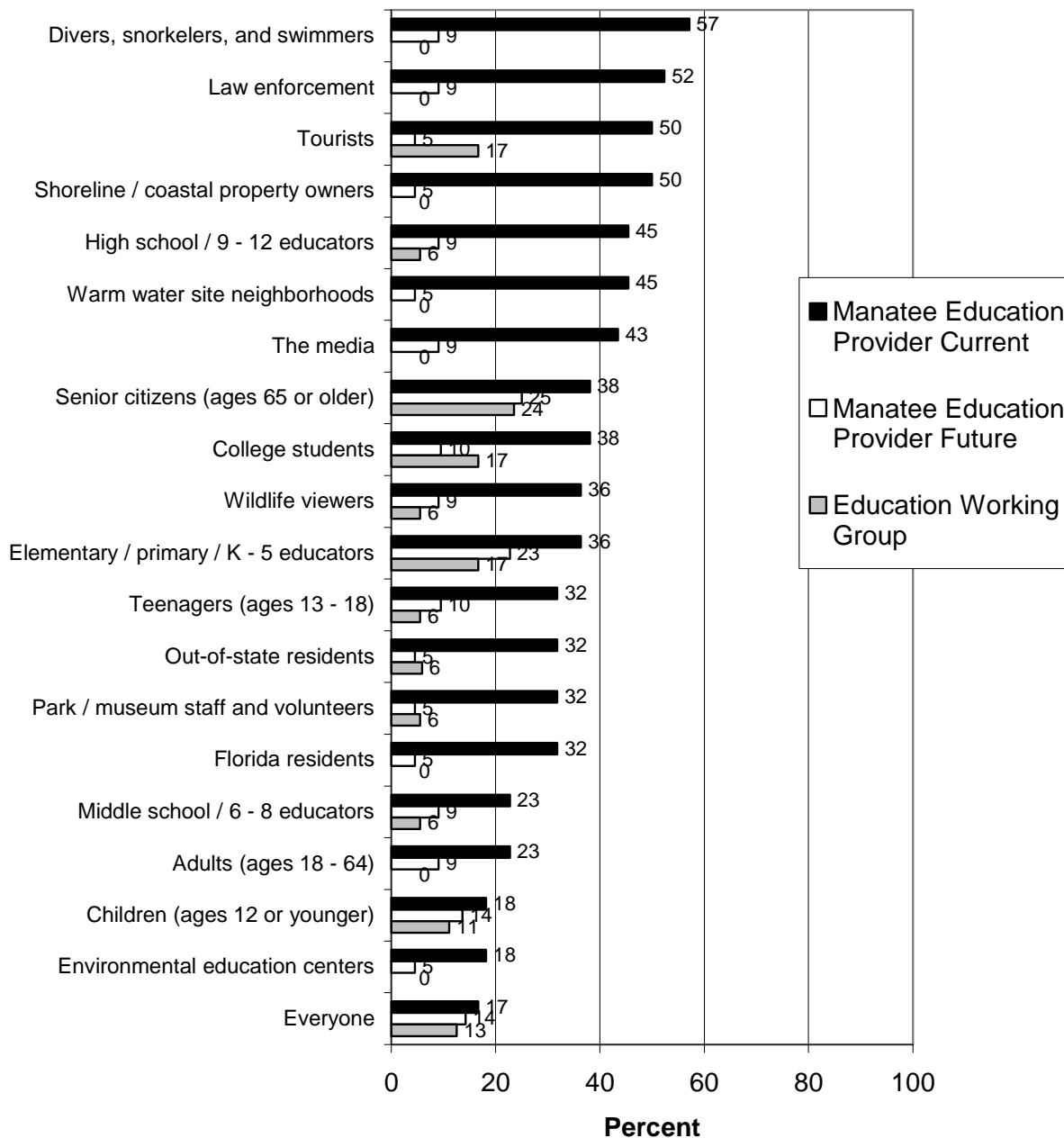
Groups not currently targeted by manatee education providers / groups rated by education providers as not priorities at all for future education / groups rated by Education Working Group members as not priorities at all for education. (Part 2.)



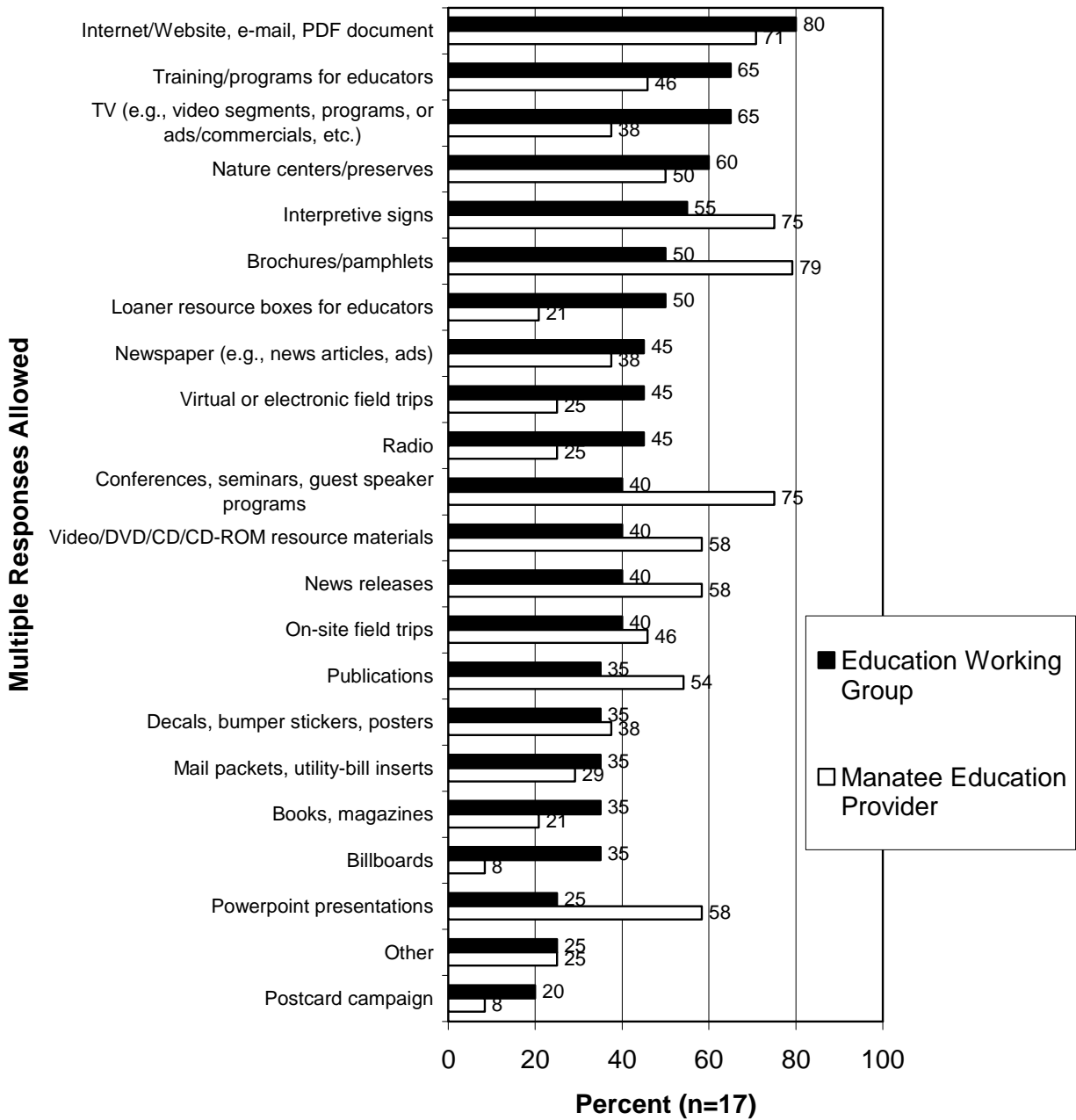
Groups currently targeted a little or not at all by manatee education providers / groups rated by education providers as low or not priorities at all for future education / groups rated by Education Working Group members as low or not priorities at all for education. (Part 1.)



Groups currently targeted a little or not at all by manatee education providers / groups rated by education providers as low or not priorities at all for future education / groups rated by Education Working Group members as low or not priorities at all for education. (Part 2.)



Types and formats of education and outreach materials rated by Education Working Group members as being effective / types and formats currently produced by manatee education providers.



ABOUT RESPONSIVE MANAGEMENT

Responsive Management is a nationally recognized public opinion and attitude survey research firm specializing in natural resource and outdoor recreation issues. Its mission is to help natural resource and outdoor recreation agencies and organizations better understand and work with their constituents, customers, and the public.

Utilizing its in-house, full-service, computer-assisted telephone and mail survey center with 45 professional interviewers, Responsive Management has conducted more than 1,000 telephone surveys, mail surveys, personal interviews, and focus groups, as well as numerous marketing and communications plans, needs assessments, and program evaluations on natural resource and outdoor recreation issues.

Clients include most of the federal and state natural resource, outdoor recreation, and environmental agencies, and most of the top conservation organizations. Responsive Management also collects attitude and opinion data for many of the nation's top universities, including the University of Southern California, Virginia Tech, Colorado State University, Auburn, Texas Tech, the University of California—Davis, Michigan State University, the University of Florida, North Carolina State University, Penn State, West Virginia University, and others.

Among the wide range of work Responsive Management has completed during the past 20 years are studies on how the general population values natural resources and outdoor recreation, and their opinions on and attitudes toward an array of natural resource-related issues. Responsive Management has conducted dozens of studies of selected groups of outdoor recreationists, including anglers, boaters, hunters, wildlife watchers, birdwatchers, park visitors, historic site visitors, hikers, and campers, as well as selected groups within the general population, such as landowners, farmers, urban and rural residents, women, senior citizens, children, Hispanics, Asians, and African-Americans. Responsive Management has conducted studies on environmental education, endangered species, waterfowl, wetlands, water quality, and the reintroduction of numerous species such as wolves, grizzly bears, the California condor, and the Florida panther.

Responsive Management has conducted research on numerous natural resource ballot initiatives and referenda and helped agencies and organizations find alternative funding and increase their memberships and donations. Responsive Management has conducted major agency and organizational program needs assessments and helped develop more effective programs based upon a solid foundation of fact. Responsive Management has developed Websites for natural resource organizations, conducted training workshops on the human dimensions of natural resources, and presented numerous studies each year in presentations and as keynote speakers at major natural resource, outdoor recreation, conservation, and environmental conferences and meetings.

Responsive Management has conducted research on public attitudes toward natural resources and outdoor recreation in almost every state in the United States, as well as in Canada, Australia, the United Kingdom, France, Germany, and Japan. Responsive Management routinely conducts surveys in Spanish and has also conducted surveys and focus groups in Chinese, Korean, Japanese, and Vietnamese.

Responsive Management's research has been featured in most of the nation's major media, including CNN's *Crossfire*, ESPN, *The Washington Post*, *The Washington Times*, *The New York Times*, *Newsweek*, *The Wall Street Journal*, and on the front page of *USA Today*.

Visit the Responsive Management Website at:
www.responsivemanagement.com