Product Evaluation and Marketing Review Report

Performed by Diving Science & Technology, For the SEA-DOO® Seascooter VS SUPERCHARGED*

September 30, 2003

*The SEA-DOO® Seascooter VS SUPERCHARGED is designed and manufactured by DAKA Development LTD.

1.0 Executive Summary

Diver propulsion vehicles (DPVs) have been used by military and research divers for years. Although their advantages have been long recognized by technical divers, they are just beginning to generate interest from the recreational diver. A diver propulsion vehicle can add a whole new dimension to the diving experience. Not only do divers enjoy DPVs, but DPVs reduce the effort on divers and extend their time and range in the water.

Wishing to create a stronger demand for DPVs by recreational divers, DAKA has developed the SEA-DOO Seascooter VS SUPERCHARGED, a DPV designed to eliminate the common barriers of purchase on segment, namely: price, ease of use and weight.

DAKA contracted Diving Science & Technology to perform an independent study on the SEA-DOO Seascooter VS SUPERCHARGED, to include product testing, competitive evaluation, and market analysis.

To gain information on potential customers, the market segment, and current competition, DSAT designed and implemented a market research project. The enclosed report includes information pertaining to the market segment, potential client profiling, survey data from 200 participants, and a comparative evaluation of the SEA-DOO Seascooter VS SUPERCHARGED DPV with four similar products. The comparative evaluation includes comparisons in two key areas: an evaluation of objective performance data and an evaluation of subjective performance data, focusing mainly on ergonomics and an overview of the specifications for each unit tested.

Based on the test results, the SEA-DOO Seascooter VS SUPERCHARGED is a DPV design that has a strong market potential, particularly as compared to the competitor products it was evaluated against. The strongest features of SEA-DOO Seascooter VS SUPERCHARGED include its small profile, its lightweight portability, and its solid underwater performance.

Data show that there is significant growth in the dive industry, specifically diver certifications. According to the 2001 PADI Certification History Report, there are more than 11 million Cumulative Certifications documented in the US, with a growth percentage of 6.33 percent per year. Data from the 2000 SGMA International Outdoor Sports and Activities Report reports that more than 2.9 million US certified divers participate in scuba diving at least once per year, with an estimated number of 250,000 new divers certified annually.

According to the Diving Equipment Marketing Association, total US scuba sales reached $812.8 million in 2001, up from $770 million in 2000. Survey results show an open niche for a low cost, lightweight, strong performing DPV in the

marketplace. A large percentage of DPV certified divers who were surveyed do not own a DPV, with cost being the number one factor. Out of the 60 DPV Certified Divers surveyed, sixty three percent of DPV certified divers who do not own a DPV, would like to. This data confirms that current DPVs do not meet this customer need.

The DPV rental market is small but has potential — 80 percent of surveyed dive operations do not offer DPV rentals. Their top objections are demand and cost. Resorts that do offer DPV dive excursions charge, on average, $75 US per dive, showing large revenue potential for by offering DPV rentals.

The focus of the market research discussed in this report is specific to the SEA-DOO Seascooter VS SUPERCHARGED Dive Propulsion Vehicle, and market analysis specifically pertaining to the DPV market.

Company Profiles:

DAKA Development Ltd.
DAKA is an award winning consulting company, completely diverse in their capabilities with a 'passion for innovation'. Specializing in product development, DAKA satisfies the public's thirst for adventure by offering Outdoor and Marine products that are high quality, affordable, and easy to use. In addition to design and production, DAKA also supports an extensive network of engineers and sales and marketing professionals. Bombardier and DAKA currently have a licensing agreement for the SEA-DOO® branded SEASCOOTER™.

Bombardier Inc.
Bombardier Recreational Products designs, develops, builds, distributes and markets utility vehicles, Rotax® engines and karts, Ski Doo and Lynx snowmobiles, BombardierTM ATVs, SEA-DOO watercraft and sport boats, Johnson and Evinrude outboard engines, as well as Evinrude direct injection and Evinrude E TECTM technologies.

Bombardier Inc., a manufacturing and services company, is a world-leading manufacturer of business jets, regional aircraft, rail transportation equipment and motorized recreational products. It also provides financial services and asset management in business areas aligned with its core expertise. Headquartered in Montréal, Canada, the Corporation has a workforce of some 75,000 people and manufacturing facilities in 25 countries throughout the Americas, Europe and Asia-Pacific.

Its revenues for the fiscal year ended Jan. 31, 2003 stood at $23.7 billion Cdn. Bombardier shares are traded on the Toronto, Brussels and Frankfurt stock exchanges (BBD, BOM and BBDd.F).

Diving Science & Technology

Diving Science & Technology is an award-winning, multimedia production company, well known for its expertise in equipment testing, educational program development and product design.

Diving Science & Technology was founded in the early 1980s and first developed state-of-the-art multimedia training and promotional materials for the Professional Association of Diving Instructors (PADI), the world's largest and most successful scuba diver training, certification and membership organization.

2.0 Situation Analysis

The market segments identified within the dive industry for the DPV market include dive operations and the consumer market. The method used to gain information on this market consisted of a telephone survey targeting dive operations in North America, DPV certified divers, and certified PADI Open Water Divers in North America. This telephone survey was designed to identify how strong the demand for DPVs, the rental market, and the public opinion of the most important DPV features.

Eighty dive operations in North America, 65 DPV certified divers, and 65 PADI Open Water Divers in North America participated in a telephone survey conducted by Diving Science & Technology. Their contact information came from PADI databases.

The 200 surveys conducted consisted of the following questions:

DPV Dive Operation Survey

1) Do you currently sell DPV's?

If Answer Is Yes
2) What DPV's do you currently sell?

If Answer Is No
3) Why Not?

4) Is there a reason why you sell those particular brands?

5) Do you sell any DPV accessories? If so which ones?

6) Would you say there is strong demand for DPV's from your customers?

7) Based on customer feedback, what DPV features do you believe are most important?

1. Speed
2. Endurance
3. Looks or Color
4. Battery Life
5. Size and Weight

8) Based on customer feedback, is cost a big factor in the purchase of a DPV?

9) Do you currently rent DPV's?

If Answer Is Yes
10) On average, how much do you charge for a rental?

If Answer Is No
11) Why Not?

DPV Certified Diver Survey

1) Do you currently own a DPV?

If Answer Is Yes
2) What DPV do you currently own?

If Answer Is No
3) Would you like to own a DPV?
4) What factors led you to choose that particular brand?

5) Are you satisfied with your DPV?

6) Do you own any accessories for your DPV?

7) Are there any accessories you are planning to purchase or that you would consider purchasing if they were available (such as a compass or light attachment)?

8) Where do you usually dive with your DPV?

9) What DPV features do you believe are most important?

1. Speed
2. Endurance
3. Ease of Use
4. Battery Life
5. Size and Weight
6. Other:

10) What do you like the most about using a DPV?

1. Dive with minimal effort
2. Air supply lasts longer
3. Thrill of riding underwater
4. Other:

11) Is there anything you don't like about DPV's?

12) Is cost a big factor in the purchase of a DPV?

13) Have you ever had a bad experience with a DPV? If so, what happened?

14) What got you interested in DPV's?
1. Friends
2. Advertising
3. Dive Store
4. Instructor

Demographic Info:

Male Female Age

Household Income Level:
$0 - $50k per year $50k to $100k $100k +

Open Water Certified Diver Survey

1) Have you ever used a DPV?

If Answer Is Yes

2) Where did you use it?
Resort
Dive Store
Other:

3) What your experience using the DPV a good one?

4) Was there anything you did not like about your experience?

5) What DPV features did you believe was the most important?
1. Endurance
2. Looks or Color
3. Battery Life
4. Size and Weight

If Answer Is No

6) What is your knowledge about DPV's on a scale from 1-10?

7) Have you been offered a DPV rental at your local dive store, or at any hotels or resorts?
Yes
No

8) When you were certified, did your instructor speak at all about DPV's?
Yes
No

2.1 Market Summary

The target market for the DAKA DPV is the consumer market (certified divers) and dive operations (dive centers and resorts).

General Market and Demographic Data *

- Estimated number of certified divers in the US - 6 million
- Data show the total U.S. scuba sales in 2001 to be $812.8 million **
- Estimated number of active divers in the US - 2.5 million
- Estimated number of new divers certified each year - 250,000
- Estimated number of retail dive operations in the US - 2000
- Average gross revenue per store - $475,000
- Average revenue generated by dive operations rentals - $700 million
- Estimated revenue generated by dive travel sales - $1.7 billion
- Estimated number of dives by US divers per year - $20 million

The U.S. Census Bureau reports that there are currently 5,674 taxable and 749 exempt sports and recreation instruction establishments in the US, with more than $1.4 billion in sales per year.

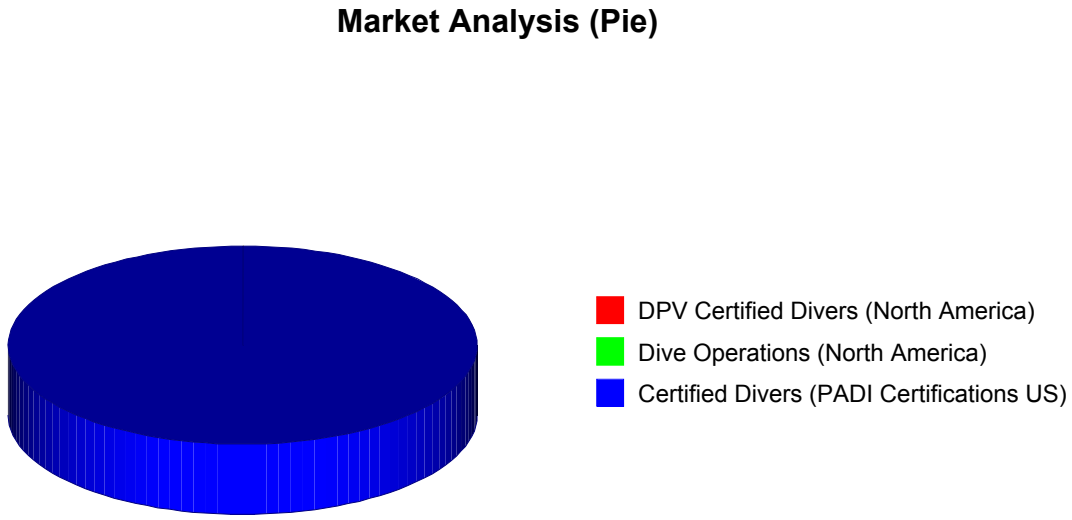
*Data supplied by PADI and DEMA (Diving Equipment and Marketing Association)
**Data supplied by Diving Equipment Marketing Association

Table: Market Analysis

Market Analysis

Potential Customers	Growth	2001	2002	2003	2004	2005	CAGR
DPV Certified Divers (North America)	7%	1,123	1,202	1,286	1,376	1,472	7.00%
Dive Operations (North America)	2%	1,900	1,938	1,977	2,017	2,057	2.00%
Certified Divers (Certified Divers United States)	6%	6,000,000	6,379,800	6,783,641	7,213,045	7,669,631	6.33%
Total	6.33%	6,003,023	6,382,940	6,786,904	7,216,438	7,673,160	6.33%*

*Compound Annual Growth Rate - **CAGR**. The year over year growth rate , over a specified period of time. Calculated by taking the nth root of the total percentage growth rate where n is the number of years in the period being considered.



2.1.1 Market Demographics

Marketing efforts should be focused on two types of target consumers: Dive operations and the consumer market (certified scuba divers)

Survey results show the following prominent information:

• The US states California, Hawaii, Washington, New Jersey, and Florida have the strongest demand for DPVs. Surveys show that areas with bad diving conditions do not have a strong demand for DPVs.

• The rental market is prominent in resort areas with good dive conditions.

• Data show that the majority of dive operations based in Hawaii do not allow DPV dives to be unaccompanied by an instructor. This is due to liability reasons.

• Surveys conducted show that younger males use DPVs mainly for the thrill of riding underwater, and older males use DPVs mainly to reduce air consumption.

• Surveys show among female DPV certified divers, size and weight are the most important features in the purchase of a DPV.

• 98 percent of the 60 DPV certified divers surveyed do not own a DPV, and 63 percent would like to own one.

• 80 percent of DPV certified divers and 80 percent of dive operations believe that cost is a large factor in the purchase of a DPV.

• 70 percent of DPV certified divers surveyed chose battery life as the DPV feature that is most important.

• 54 percent of dive operations surveyed do not currently sell DPVs, with 65 percent answering that the reason why is that there is no demand.

• 53 percent of DPV certified divers surveyed became interested in DPVs from a dive store, and 35 percent became interested in DPVs from a friend.

2.1.2 Market Needs

Although advantages of using a DPV are acknowledged by divers, the inconveniences associated with using a DPV is a significant. Surveys show that a DPV is seen more as an inconvenience to recreational divers, and the transportation and mobility issues outweigh the benefits of using a DPV.

The SEA-DOO Seascooter VS SUPERCHARGED is a Dive Propulsion Vehicle, being presented to the marketplace, that is lightweight and user friendly. Testing conducted shows that the strongest features of the SEA-DOO Seascooter VS SUPERCHARGED include its small profile, its lightweight portability, and its solid underwater performance. The high portability was a feature that attracted test divers to the unit for such activities as shore diving, snorkeling or other water sports, and for use by families (especially children and small stature divers).

Market Needs / Ideal DPV Information

Based on the results of market research performed by Diving Science & Technology, survey data shows that the ideal DPV for the open market niche would possess the following features: durability, ideal underwater maneuverability, lightweight, easy to transport, a separate battery compartment from the motor (in case of flooding), easy accessibility to battery compartment, strong battery performance, easy to use latches, and lower in cost than the current DPVs available in the marketplace.

Based on Diving Science & Technology's extensive experience within the dive industry, and results from the comparative evaluation outlined in this report, the following breakdown is Diving Science & Technology's opinion of the ideal DPV for this niche:

Price Point

The ideal and affordable price point would be less than US$500 for the recreational model and not more than US$1,000 for the more professional model.

Speed

The minimum speed (with variable speed) would be not less than 1.5 mph for recreational use and not less than 2 mph for the more professional model.

Ideal Weight

The ideal weight would range between 10 - 30 lb and can be carried and maneuvered easily with one single hand.

Battery Life / Burn Time

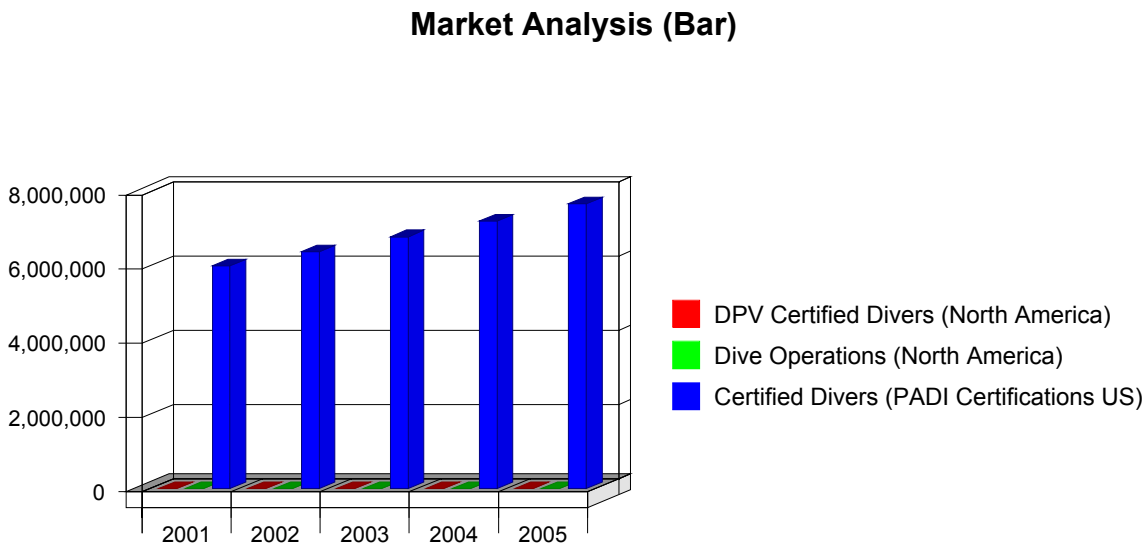
The minimum battery life would allow the DPV to run for 60-90 min. under a normal condition. This is an average which divers spent under water.

Speeds

The ideal DPV would have two speeds

Additional Features:

. Adjustable buoyancy system
. Attachments such as dive torches or cameras
. Extra battery compartment
. Dead man switch



2.1.3 Market Growth

Data shows that there is significant growth in the dive industry, specifically dive certifications. According to the 2001 PADI Certification History Report, there are more than 11,070,033 cumulative certifications documented, with a current growth percentage of 6.33 percent*.

Data from the 2000 SGMA International Outdoor Sports and Activities Report reports that over 2.9 million US Certified divers participate in this sport, at least once per year. That is a 20 percent increase from 1987. Participation in scuba diving increased during the '90s, perhaps as a result of growing interest in adventure vacations.

*Data Supplied By 2001 PADI Certification History Report

2.2 SWOT Analysis

2.2.1 Strengths

There are several advantages diving with a DPV, including that air supply lasts longer, and it is easier to travel further than otherwise possible. Based on the

results of testing performed by Diving Science & Technology, the SEA-DOO Seascooter VS SUPERCHARGED is a DPV design that has a strong market potential, particularly as compared to the competitor products it was evaluated against.

The strongest features of the SEA-DOO Seascooter VS SUPERCHARGED include its small profile, its lightweight portability, and its solid underwater performance.

The modern, artistic hull design is aesthetically pleasing and should contribute to its marketing advantage. The option for the user to modify the buoyancy of the unit is another positive, though tests indicated this was not a high priority.

2.2.2 Weaknesses

The primary weaknesses of the SEA-DOO were identified as the design and durability of the switches and controls, concerns over the way the battery compartment seals, the potential for losing key parts (assembly latches) and the lower speed and power scores as compared to its competitors.

These weaknesses affect the potential market for these units in several ways. For example, a more positive sealing design that is less likely to experience flooding would make the unit more user-friendly and more appropriate for rental markets, novices, and technically challenged divers. Slider O-rings are susceptible to problems with sand and debris, so if tropical sandy environments/resort rentals are viewed as strong marketing options for this unit, a design change may be appropriate. The likelihood of losing unattached parts also makes this unit less appropriate for rentals and unskilled divers.

Finally, larger, heavier and more aggressive divers may find the slightly lower power and speed an issue. The Torpedo, for example, clearly has a marketing advantage when issues of speed, power and "machismo" are emphasized.

While some of these issues may be easy to resolve with slight modifications, some are more challenging to resolve without significant design changes, which could in fact negatively affect other market advantages. In its current form, the unit still affords a strong positive marketing advantage (assuming the problem with the cutting-out switch is corrected). The most obvious target market for the SEA-DOO Seascooter VS SUPERCHARGED is the family-oriented diver. Perhaps the biggest challenge will be to overcome the general perception by many divers that DPVs are big, heavy, unwieldy, difficult to take along on dives, expensive and better suited to more technically adept divers. The SEA-DOO should appeal to men with families, women divers, and "average" divers looking for a little more freedom and adventure. This is a big performer in a tiny package with a lot of marketing potential.

2.2.3 Opportunities

Based on testing analysis, there appears to be significant marketing potential for the SEA-DOO Seascooter VS SUPERCHARGED. Based on survey data, a large majority of consumers who attended a DPV certification course gained their knowledge of DPVs from their local dive store, followed by a recommendation by a friend. Several opportunities exist in the current market, if product strengths are marketed to dive operations in areas with good diving conditions.

2.2.4 Threats

Based on test results, the Apollo AV-1 and the Torpedo have been identified as the main competitors for the SEA-DOO Seascooter VS SUPERCHARGED. Test results indicate that the Apollo and the Torpedo performed well for topside criteria, though the weight and bulk of the Apollo was a serious weakness. The simple secure closure of the Torpedo was also marked advantage in terms of design.

In addition, in speed tests conducted, the SEA-DOO was less than half as fast as the fastest unit (Torpedo), and speed has been shown to be a main factor in the purchase of a DPV among young males.

2.3 Competition

Most DPVs come in two styles. Tow-Behinds are designed so that the diver holds onto a bar or handle, and is towed behind the vehicle. The other main style of DPV is designed so the diver sits astride it. Thirteen Dive Propulsion Vehicles were identified in the market, with g the Scuba Pro Sea Glider, the Apollo AV-1, the Torpedo, and the Tyger Ray appearing to offer the most direct competition.

All DPV models use lead/acid sealed batteries, although several have options for higher energy density batteries such as silver/zinc. Many of the designs also offer accessories such as tow bars, head lamps, camera mounts, buoyancy collars, various recharge options and carrying handles / bags.

Johnson Outdoors Inc. (JOUT/Nasdaq) is the only public dive equipment manufacture found that is currently selling DPVs. Johnson Outdoors brands include ScubaPro and SnorkelPro.

Table: Competitive Analysis - Published Data by Manufactures

Name	Type	Top Speed	Thrust	Speeds	Max Depth	Burn Time	Height	Length	Width	Weight	Price
K-10 Hydrosp-eeder	Sit On	6.3 mph	80kg	Variable	213 ft	2 hours	18 inch	81 inch	50 inch	269 lbs	$9,900
Sea Glider	Tow Behind	2.2 mph	n/a	1	230 ft	50 min	20 inch	22 inch	17 inch	47 lbs	$1,500
Oceanic Mako	Tow Behind	2.7 mph	23kg	9	180 ft	120 min	14 inch	25 inch	17 inch	54 lbs	$2,500
Torpedo 2000-20	Tow Behind	2.3 mph	9kg	1	171 ft	55 min	n/a	31 inch	n/a	46 lbs	$1,000
Breathing Observation Bubble	Sit On	2.8 mph		2	40 ft	1 hour	53 inch	31 inch	28 inch	96 lbs	$15,000
Aquazepp LST 14-24	Sit On	3.7 mph	40kg	4	295 ft	4 hours	n/a	49 inch	n/a	77 lbs	$1,700
Farallon MK7	Sit On	2.75 mph		1	400 ft	n/a	n/a	42 inch	n/a	79 lbs	$3,400
Gavin	Tow	2.3	24kg	Variable	328 ft	50-150	10 inch	31 inch	n/a	220 lbs	$3,800
Maxx Stealth	Tow Behind	3.25 mph		2	325 ft	55min	22 inch	20 inch	18 inch	51 lbs	$2,500
Apollo AV-1	Tow Behind	2.4 mph	18kg	3	164 ft	1 hour	13 inch	24 inch	n/a	40 lbs	$2,000
Submerge UV-18	Tow Behind	2 mph	n/a				n/a	88 inch		70lbs	$3,600
Tyger Ray	Tow Behind		48lbs	1	100 ft	1 hour	15 inch	24 inch	22 inch	40 lbs	$500
Aeris Voyager	Tow Behind	2.7 mph	50 lbs	9	180 ft	120 min			n/a	54 lbs	$2,495

Table: Accessories, Features and Patent Information

Name	Accessories Available	Features	Patented Design
K-10 Hydrospeeder	Road Trailer and Camera Mount	Adjustable Buoyancy System	
Sea Glider	Carry Case with Wheels and Light	Propeller below main body so it can be used on the surface and underwater	Yes
Oceanic Mako		Variety of speed settings and power triggers on both grips	Yes
Torpedo 2000-20	Camera Mount, Buoyancy Bag, Gauge Mount	Switch inside the hand grip is triggered by magnet that straps to the hand	
Breathing Observation Bubble	Light Fittings (included)	Steering wheel, instrument panel and decompression computer	
Aquazepp LST 14-24		13 models offered so customers can pick most desired features	
Farallon MK7	Silver Zink Batteries	Used by US Special Forces	Yes
Gavin		Designed to take eight 12 volt batteries	
Maxx Stealth		Speed control located next to the power trigger, to change speeds without stopping	Yes
Apollo AV-1	Wrap around buoyancy vest, comes with Styro-foam case	Power switch located on the hand grip	Yes
Aeris Voyager		Charge indicator	

2.4 Comparative Evaluation

Comparative Evaluation of the SEA-DOO Seascooter VS SUPERCHARGED DPV with Four Targeted Competitor Products

This report provides a comparative evaluation of the test product (SEA-DOO Seascooter VS SUPERCHARGED) with four similar products. This report includes comparisons in two key areas; an evaluation of objective performance data and an evaluation of subjective performance data, which focuses mainly on ergonomics. Additionally, an overview of the specifications for each test unit has been included.

Testing protocol was developed based on the following needs:

1. To focus the evaluation on marketing strengths and weaknesses.
2. To collect a sufficient quantity and quality of data to allow us to compare performance.
3. To complete the project in a timely and cost effective manner.

The testing protocol was conducted in both a confined water setting and an open water (boat diving) environment to ensure evaluation in realistic recreational diving environments. Testing included in-water performance as well as topside (pre and post dive) performance with an emphasis on the needs of potential users. See Appendix 1 for samples of the test protocol data sheets, which list the criterion that was evaluated.

Test Protocol - Confined Water

Tests were conducted in confined water at the Oregon Coast Aquarium under the supervision of Vallorie Hodges, Dive Safety Officer. Test divers briefed, explaining what data to collect and how to rate each criterion. Each test diver was provided a data sheet on waterproof paper, which listed the evaluation criteria and the rating scale. The scale was a simple 1-5 rating (1=poor, 2=fair, 3=average, 4=good, 5=excellent). Each test diver evaluated all five products, recording the data on these data sheets. Appendix 2 provides the raw data collected from test divers in a spreadsheet format.

Dry (Topside) Performance

These evaluations focused on the user-friendly features of the products, such as the ease of handling the unit above water in realistic situations, simplicity and intuitiveness of the assembly and pre-dive preparations, and carrying or transporting the unit.

In-Water Performance

Two separate evaluations were conducted in the water. The first was a subjective evaluation of various performance criteria, including the user's perception of ease of

handling, maneuvering, comfort of controls, balance and stability and power. The second was an evaluation of the maximum speed (using hand-held underwater speedometers) and a timed slalom pattern to evaluate maneuverability. These tests were conducted in the Aquarium's "Halibut Flats" exhibit, a very large (300,000 gallon), 26 foot deep cold-water exhibit.

Test Protocol - Open Water

Open water test dives were conducted at approximately 35 feet offshore of Catalina Island, California from a recreational diving charter vessel. As with the confined water tests, test divers were briefed on the protocol, provided data sheets, and evaluated the products in both a dry (topside) setting and in-water.
Appendix 3 provides the raw data collected from each of these tests in a spreadsheet format.

Limitations

The extent to which the data can be used to draw conclusions must be limited to the scope of this project, as the numbers of testers used and physical differences affect the statistical validity of the data, particularly when viewing averaged scores. It should also be emphasized that each tested feature does not carry equal weight or importance to the end user. For example, the user may not care how fast or powerful a product as much as he cares that it is lightweight and easy to carry, or vice versa. Another limitation experienced during this project was the underwater visibility during open water dives. This challenged the divers to negotiate the slalom course in less than 10 feet of horizontal visibility; however all the units were subjected to the same environment, so comparisons can still be made.

Comparative Evaluation and Analysis

Specifications

Appendix 4 compares the specifications of each unit, including details such as depth ratings, weight, maximum speed, battery recharging time, etc.

All of the information in this chart came directly from the user guides and instruction manuals provided by the manufacturer for each product.

Dry (Topside) Results

Overall, the clear leader in performance was the SEA-DOO. Both open water testers and confined water testers (two separate groups) independently ranked the SEA-DOO as far better than the competing products. The main strength of the SEA-DOO in this category is

its size and weight. The high portability was a feature that attracted test divers to the unit for such activities as shore diving, snorkeling or other water sports, and for use by families (especially children and small stature divers). Significantly, even testers that rated this unit lower (as compared to the other units) for in-water performance still chose the SEA-DOO SEASCOOTER VS SUPERCHARGED as the best product overall due mainly to its topside performance.

The main weakness of the SEA-DOO was identified as how the unit is assembled, including the fact that the handles detach (and may be easily lost), the need to use a pump to disassemble, the risk of flooding the unit due to failure to screw in the battery compartment plug, and the lack of a failsafe manner of positively tightening down the battery compartment. On the other hand, this unit did not receive negative comments about the latches being hard on fingers, which is one of the primary design concepts used by other manufacturers to ensure a watertight closure. While assembly was not viewed as being particularly intuitive, most testers felt that it was easy to do once proper methods were learned. Additional comments about the design and assembly of the SEA-DOO were made during a debriefing of the open water dives, and provide interesting insight and suggestions for future improvements. (See Appendix 5, Debriefing Comments).

The test results indicate that the Apollo and the Torpedo also performed well for topside criteria, though the weight and bulk of the Apollo was a serious weakness. The simple secure closure of the Torpedo was a marked design advantage.

In-Water Test Results – Subjective Data

Over all both confined water test divers and open water test divers were very impressed with the performance of the SEA-DOO, though there was some discrepancy in the rankings of the confined water and open water testers. The confined water testers clearly chose the SEA-DOO Seascooter VS SUPERCHARGED as the best performing unit, with the major weakness identified as a slight lack of power.

It is highly likely than in a more confined setting or diving environment (such as a closed reef system or similarly tight physical dive site) the SEA-DOO offers an advantage due to its small stature and lightweight, making it easier to physically manipulate the unit and maneuver. The open water testers clearly identified the SEA-DOO as their second favorite performer underwater. Testers particularly liked the speed, power and maneuverability of both the Apollo and the Torpedo. An issue for the SEA-DOO was the reliability and design of the controls.

Open water test divers experienced multiple problems with the switches cutting out, affecting the performance of the SEA-DOO considerably. The positioning and design of the controls were reported to be potentially fatiguing to the hands.

In-Water Test Results - Objective Data

One striking result of this testing is the distinction between maximum speed and the maneuverability scores. Speed does have an effect on maneuverability, and generally speaking one might expect a positive correlation between speed and maneuverability scores. The longer and more open the maneuverability course, the more this would be true. The tighter and shorter the course, the less this would be true.

Speed was evaluated on each unit using a hand held underwater speedometer. Testers recorded the maximum speed reached for each unit. Maneuverability was evaluated in two ways. First, timed slalom patterns (which included both horizontal and vertical axes) were conducted in open water and in confined water. Secondly, each tester was asked to evaluate the maneuverability performance of the unit. This second evaluation is a more subjective rating that is based on the perception of the tester. Of the five test units, the SEA-DOO was ranked fourth in speed, with a significant difference between it and the fastest three units. In fact, the SEA-DOO was less than half as fast as the fastest unit (Torpedo).

In the slalom runs, these three faster units also had faster slalom times. Interestingly, the SEA-DOO's slalom runs were not significantly slower than these three faster units. So despite a relatively significant difference in speeds, the SEA-DOO Seascooter VS SUPERCHARGED performed nearly as well in the slalom runs. While the SEA-DOO was only half as fast as the Torpedo, it was on average only about 15 percent slower than the Torpedo on the slalom runs. Most striking, however, are the subjective ratings received by the SEA-DOO from the testers. In both confined and open water tests, the SEA-DOO Seascooter VS SUPERCHARGED was ranked best in maneuverability. However, it should be noted that in a longer more open maneuverability course, one would expect objective maneuverability scores decline in comparison to faster units.

2.5 Test Diver Survey

Post Test Dive Debriefing Session Comments

Following the open water testing, a debriefing session was conducted with test divers, soliciting additional feedback and comments regarding the performance of the various units, the perceived strengths and weaknesses of the units, and the potential marketing opportunities for the SEA-DOO.

Dry (topside) test comments:
Overall, the 5 test units were ranked in the following order of preference, considering only the above water performance criteria (see Appendix x: data sheet for performance criteria)

1. SEA-DOO
2. Torpedo
3. Apollo and ScubaPro
4. Tyger Ray

SEA-DOO**:**
Several testers commented that the SEA-DOO unit would be improved with the positioning of a *central handle* for carrying purposes. While it can be carried using the existing handles, it would be better balanced with a central handle. Testers did not like the *flexibility of the existing handle-grips*. Comments were made that the handles are flimsy, especially when carrying the unit, contributing to the sense that it is not as balanced as the user would like. Underwater this flexibility does not seem to be a problem.

According to testers this unit is small and easy to maneuver, however the position and design of the *controls* makes it harder to hold the controls and move the unit easily (for example when making a sharp turn). The design is also seen to contribute to fatigue of the wrists and hands.

The *assembly latches are removable* and susceptible to loss. This could be improved if they were made captive (use of a leash for each handle, perhaps.)

The nose cone assembly needs a better *visual key* to ensure proper assembly. Most testers tried to assemble it incorrectly, and the soft plastic makes it easy to attempt to force it into the wrong position. A simple addition of a highly visible logo that is partly on the nose cone and partly on the main body could prevent miss-assembly.

From a technical point of view, it was generally believed that the SEA-DOO SEASCOOTER would benefit from a combination of a slider and compression *o-ring closure system*. The battery compartment is not fail-safe from flooding. Unlike the design of compression o-ring and snap fastener closures used by several of the other manufacturers, the user can assemble the SEA-DOO without a positive closure, (by leaving a gap around the unit). Additionally, the user could accidentally leave the plug unscrewed or off, resulting in a flood.

Testers questioned whether a flooded battery compartment would also result in killing the motor. (Are the electronics in the same compartment so that a flooded battery results in a flooded motor?)

Several testers commented that the *battery compartment* is not easy to open after submerging. A small toy-like pump is supplied to introduce pressure and pop the top off.

This can be violent and a rubber band is supplied to keep the unit from flying off and hitting the user or something else. This is a weakness of the design, since without the pump it is almost impossible to remove the battery housing.
Several testers liked the design of the *battery clips* and the ease of connecting and disconnecting them from the battery posts.

Testers queried the effect of the three-blade propeller on efficiency (as opposed to the two-blade propellers on each of the other units). It was proposed that this was likely a very positive improvement for efficiency of the SEA-DOO.

Summary of Negative Comments for the SEA-DOO:

1. *Switches and controls*: the design of the controls appears to have a durability issue (the left hand control was broken off and had been attempted to be glued back together, but was broken when it arrived for testing. Previously mentioned problems with the switches cutting out did impact the test results.
2. *Seal design* (not fail safe), need for the use of pump and vacuum issue, chance to leave off the plug and flood unit.
3. Slower speed and lack of a sense of *power* compared to other units.
4. Sense of *durability* of the plastic, especially due to the flexible handles, and concern with loss of assembly latches.

ScubaPro:

The user must turn it upside down to get *access to battery compartment*. This position is unstable and awkward. Assembly is fairly intuitive and idiot proof, but the *latches* are finger breakers.

Testers believed that the design of the *wings* on the side of the hull presents a problem, since some testers found they had to re-arrange the position of their arms to go under the wings or the unit would be more difficult to maneuver. This position is not necessarily intuitive, and incorrect positioning puts the wrist and hand in a poor position.

Tyger Ray:

Strongly negative comments regarding this unit spanned much of the topside and in-water criteria. Major issues included carrying the unit, problems with sealing the compartment and the finger-breaker latches, very poor battery performance, discomfort with the magnetic switch and handles, excessive positive buoyancy, and problems maneuvering underwater.

Torpedo:

This unit was generally well regarded by divers due to its perceived durability, simplicity of access plus security of the battery compartment, speed, maneuverability, and solid over all performance. The main negative issue was the size and weight of the unit, but this was not viewed as a major problem compared to three of the other four test units.

Apollo:

The Apollo was also well regarded, and a solid performer. The main negative comments were the finger breaker latches, size and weight, and the potential for fatigue of the hands due to the thumb control.

General DPV comments:
Testers made comment generally that DPVs with half speeds (or two speed) are somewhat meaningless, since most indicated they would only use the faster speed. However, the comment was also made that a two-speed approach might improve performance in terms of moving from a full stop to speed in a smooth manner.

Rank order of "maneuverability":
1. Apollo
2 SEA-DOO Seascooter VS SUPERCHARGED or Torpedo

Rank order of "power"
Torpedo
Apollo
SEA-DOO or ScubaPro

Rank order of "torque"
Apollo
Tyger Ray
Torpedo

Comments regarding "torque":
Torque was seen by some testers as the ability to move from a stopped position and provide smooth forward momentum. Diver #1 viewed the SEA-DOO as providing very high torque, however the switch was cutting out and effected performance (due to previously mentioned switch problems.)
Size to power ratio: SEA-DOO clearly number one. Some commented it could use a little more power.

Comfort Rank order:
Torpedo, then mixed between SEA-DOO and Apollo

Boat diving preferences
Diver #1: SEA-DOO, Torpedo (did not like the thumb switch on the Apollo).
Diver #2: Apollo, Torpedo
Diver #3: Apollo, Torpedo (liked the fact you could lock it in the on position)

Comment: best dead man switch made is the magnetic.

Shore Diving Preferences:
SEA-DOO was the clear leader. Diver #2 made the comment "I would take two SEA-DOO Seascooters before I would take anything else." Reasons for testers selecting the SEA-DOO included portability, price, use for free diving, diving with kids, women, children, and the emphasis on use with families.

Looks / Appearance:
The most well liked DPV in terms of look and appearance was the SEA-DOO. Functional, yet artistic. Torpedo was seen as problematic. One diver related the story of the unit being impounded during travel due to its shape and name.

Disappointments:
Scuba Pro name and recognition of quality as a brand – their unit did not live up to this perception /expectation. The assembly, bulkiness of the unit, heaviness, and stability on dry land cited as issues. Performance ok, but not to a ScubaPro standard.
Testers were asked: "If you could take one home today, which would you chose, and why?"
Diver 1: Probably the Torpedo due to the reliability, but it would be a toss up with the SEA-DOO (for family considerations)
Diver 2: SEA-DOO– I'm a beach diving guy.
Diver 3: Apollo, but so heavy! SEA-DOO– versatility, portability

For use with families, the SEA-DOO was seen as the absolute leader. It is tiny, good for use with kids, and "bullet proof." It was also seen as a strong leader due to the perception of value for money, with the notion it would sell for well under $1,000 retail.

2.6 Survey Results

Survey results show that there is a place for a low cost, lightweight, strong performing DPV in the marketplace. An extremely large percentage of DPV certified divers that were surveyed do not own a DPV, with cost being the number one factor. Sixty three percent of DPV certified divers who do not currently own a DPV would like to own one, confirming that a current customer demand is not being met by the products available in the marketplace.

Dive operations that do not sell DPVs are willing to if customer demand were stronger, and the large percentage of dive operations do not rent DPVs due to the cost incurred when purchasing the equipment.

In addition, data show that more than half of DPV certified divers became interested in DPVs from a dive operation, showing the importance of this market segment. Survey results suggest that the development of a dealer incentive program could be beneficial with the product launch of the SEA-DOO Seascooter VS SUPERCHARGED. Competitors currently offer similar programs.

Data document that the US states of California, Hawaii, Washington, New Jersey, and Florida have the strongest demand for DPVs. Surveys show that areas with less pristine diving conditions do not have a strong demand for DPVs.

Surveys conducted show the following pertinent information:

- The number one reason for the lack of dive store sales of DPVs is a lack of demand—consumers are in general not well informed about the benefits of a DPV and factors such as price keep them away from them.

- 98 percent of DPV Certified Divers do not own a DPV, and 63 percent would like to own one.

- 80 percent of DPV Certified Divers and 80 percent of Dive Operations believe that cost is a large factor in the purchase of a DPV.

- Battery life is by far the biggest concern at both the dive shop level and the consumer level.

- 53 percent of DPV Certified Divers surveyed became interested in DPVs from a Dive Store, and 35 percent became interested in DPVs from a friend.

- Typical DPV certified diver is a male in his 40s, with an income of $50K to $100K per year.

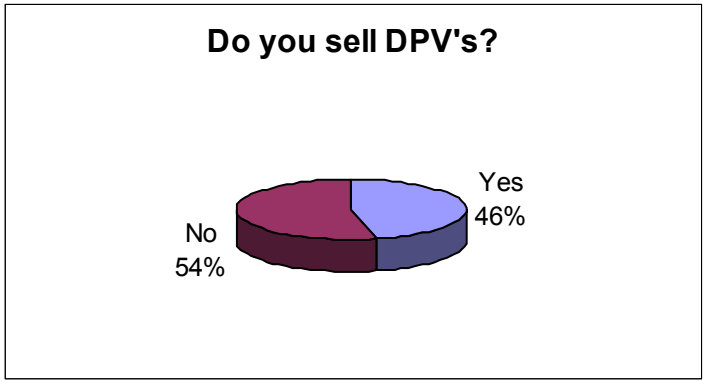
- 62 percent of Open Water Certified Divers surveyed have never been offered a DPV rental.

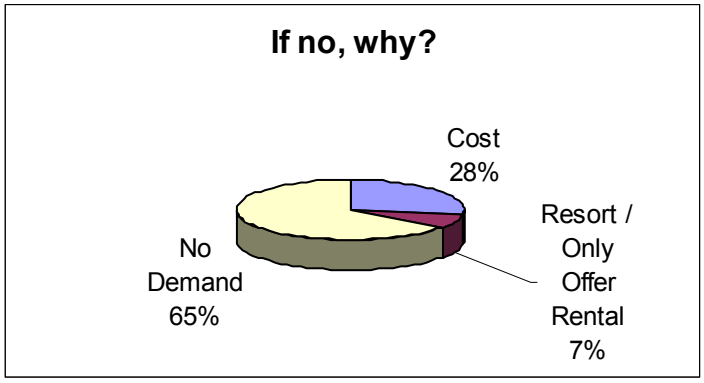
- 67 percent of Open Water Certified Divers surveyed that used a DPV rental, did so at a resort.

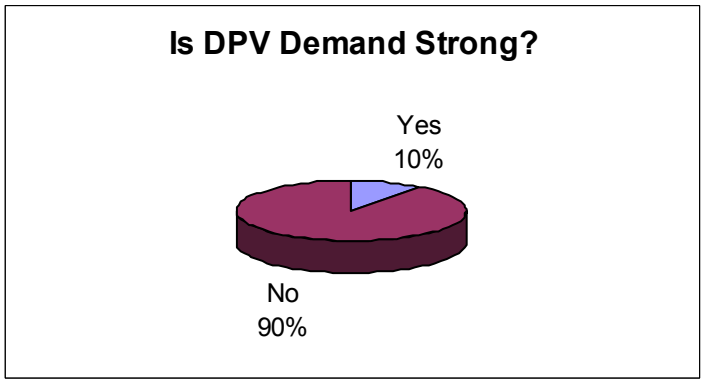
- 54 percent of Dive Operations surveyed do not currently sell DPVs, with 65 percent answering that the reason why is that there is no demand.

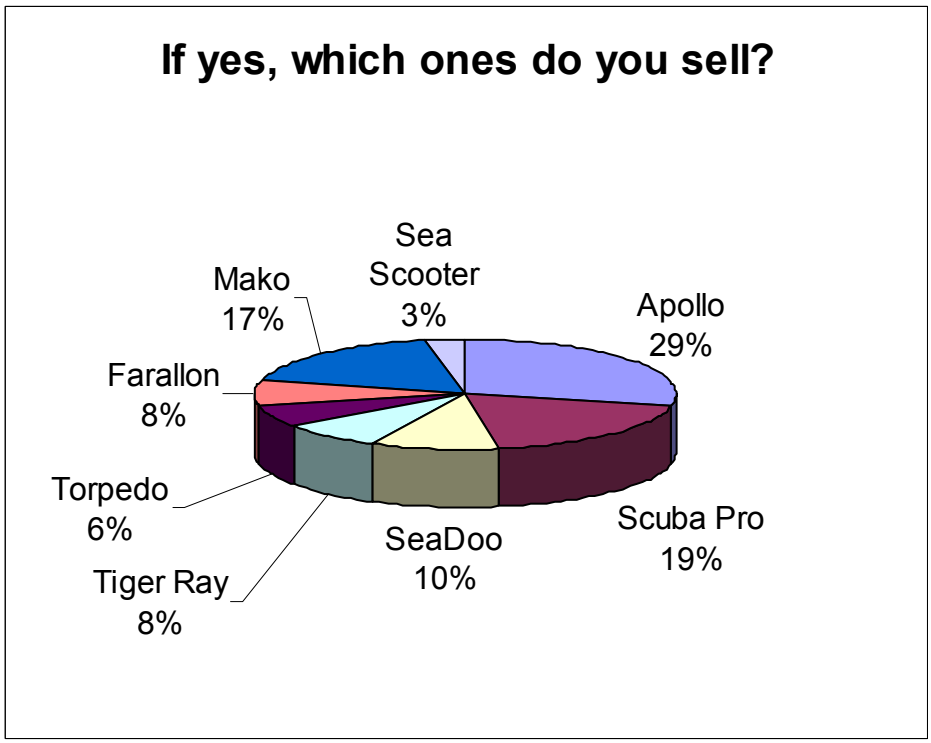
Survey results are as follows:

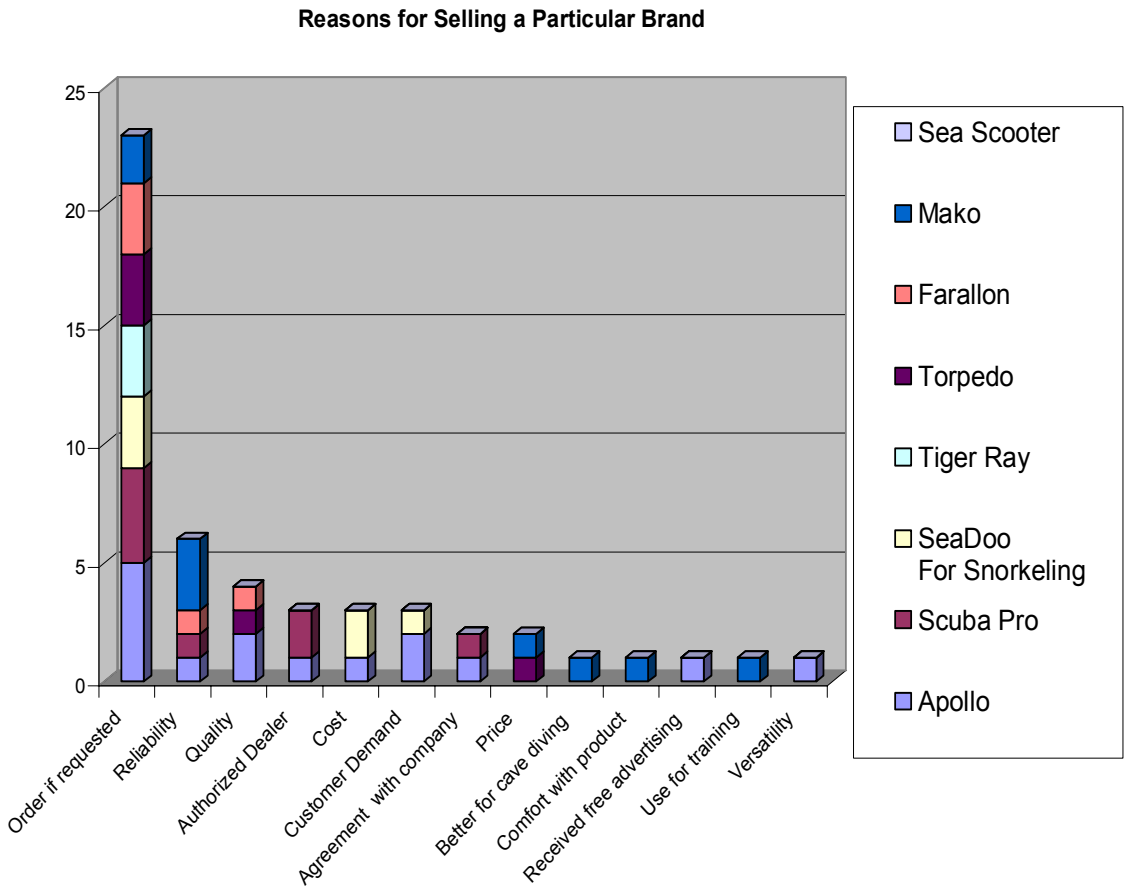
Dive Operation Survey Results
80 North American Dive Operations Surveyed

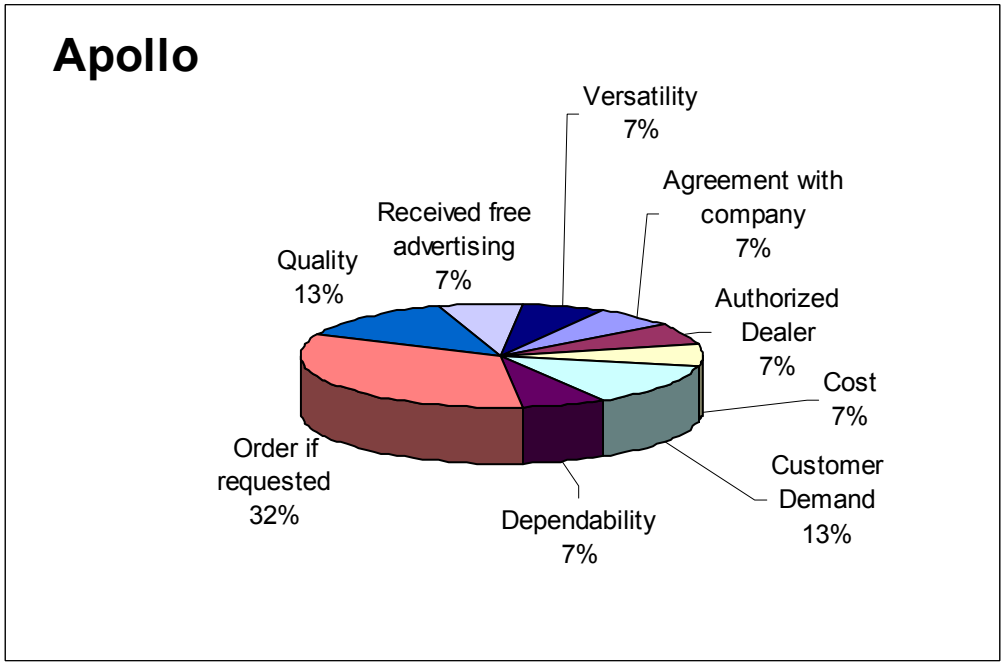


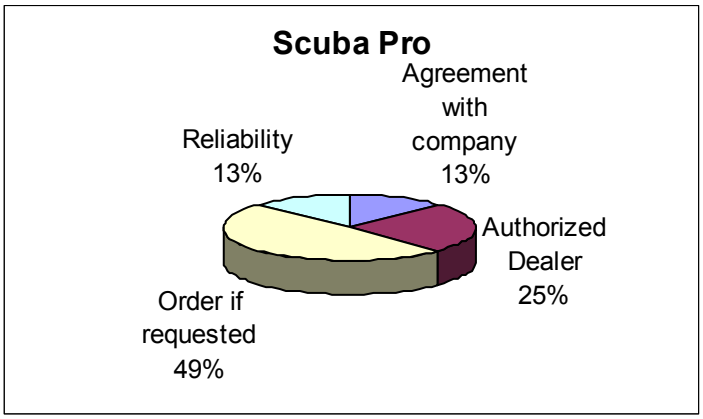

If no, why?
Cost
28%
Resort /
Only
Offer
Rental
7%
No
Demand
65%

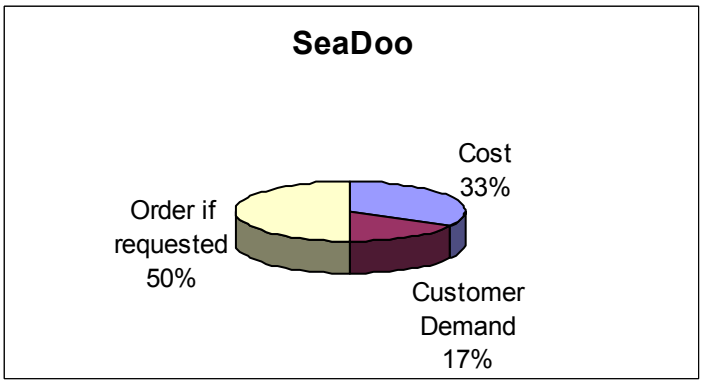

Is DPV Demand Strong?
Yes
10%
No
90%

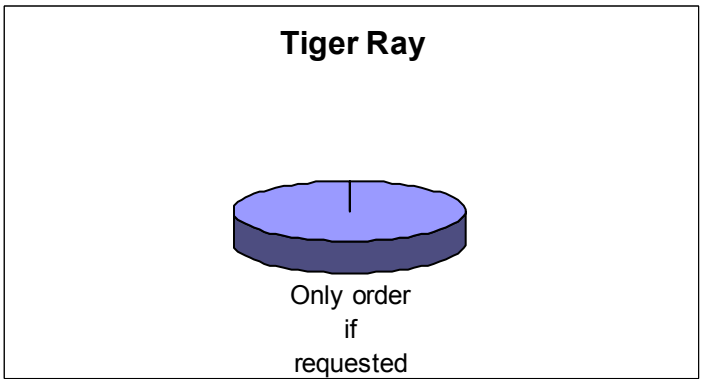

If yes, which ones do you sell?
Sea
Scooter
3%
Mako
17%
Apollo
29%
Farallon
8%
Torpedo
6%
Tiger Ray
8%
SeaDoo
10%
Scuba Pro
19%

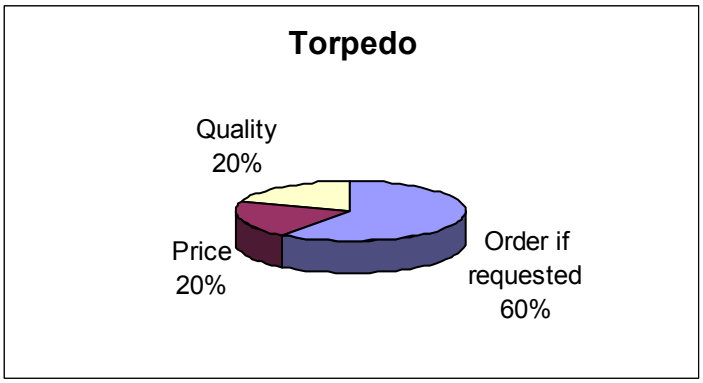

Reasons for Selling a Particular Brand
25
20
15
10
5
0
Order if requested
Reliability
Quality
Authorized Dealer
Cost
Customer Demand
Agreement with company
Price
Better for cave diving
Comfort with product
Received free advertising
Use for training
Versatility
Sea Scooter
Mako
Farallon
Torpedo
Tiger Ray
SeaDoo For Snorkeling
Scuba Pro
Apollo

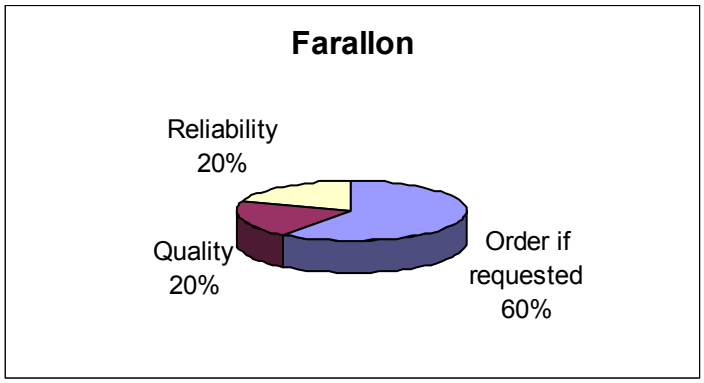

Apollo
Versatility 7%
Agreement with company 7%
Received free advertising 7%
Quality 13%
Authorized Dealer 7%
Cost 7%
Order if requested 32%
Customer Demand 13%
Dependability 7%

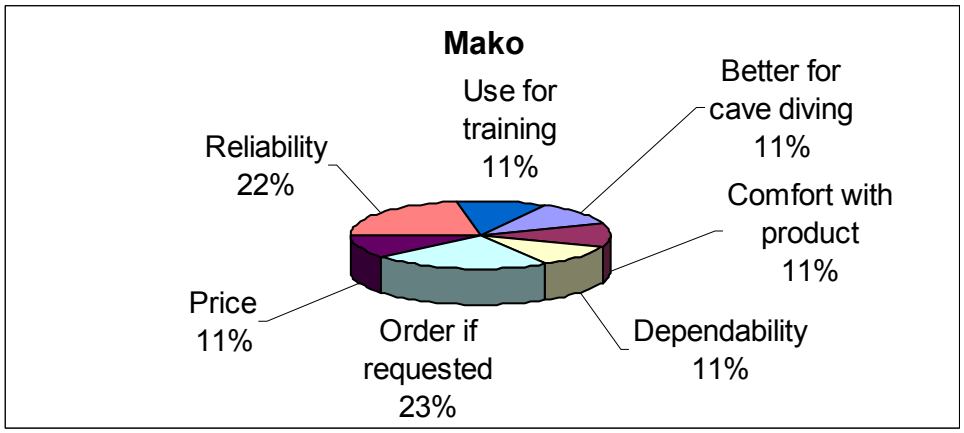

Scuba Pro
Agreement with company 13%
Reliability 13%
Authorized Dealer 25%
Order if requested 49%

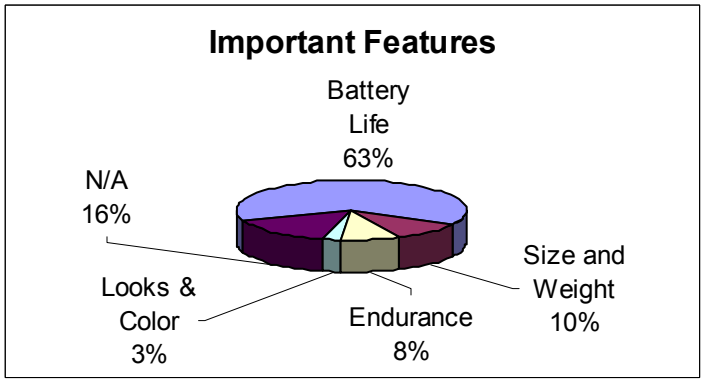

SeaDoo
Cost 33%
Order if requested 50%
Customer Demand 17%

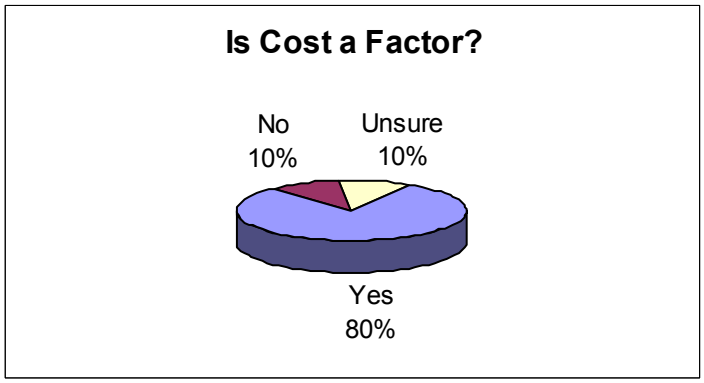

Tiger Ray
Only order if requested

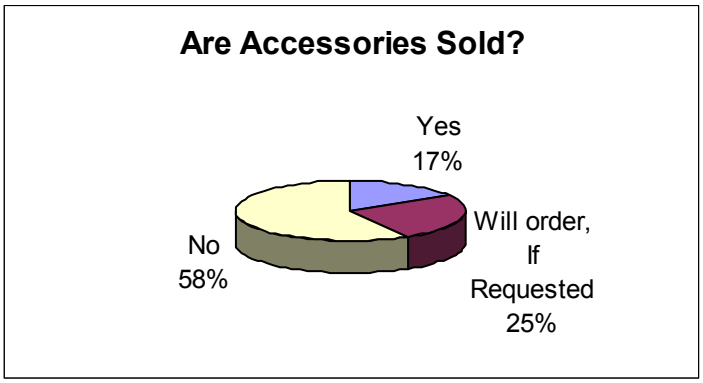

Torpedo
Quality 20%
Price 20%
Order if requested 60%

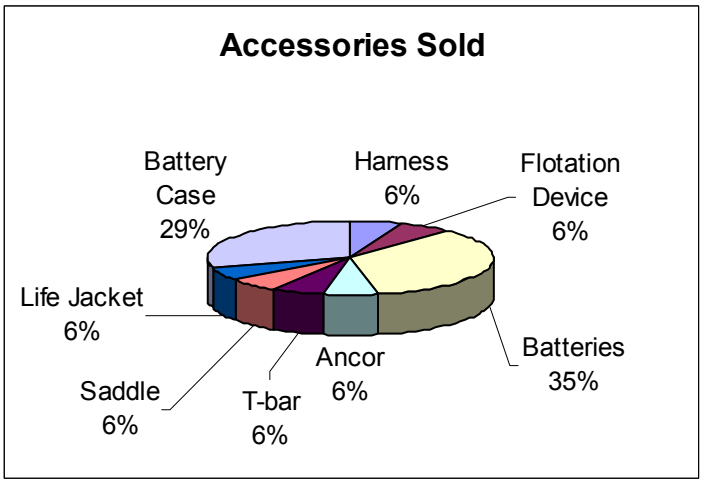

Farallon
Reliability
20%
Quality
20%
Order if
requested
60%

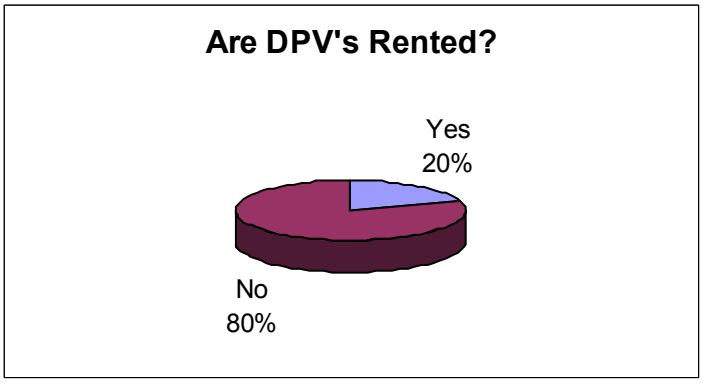

Mako
Use for
training
11%
Better for
cave diving
11%
Reliability
22%
Comfort with
product
11%
Price
11%
Order if
requested
23%
Dependability
11%

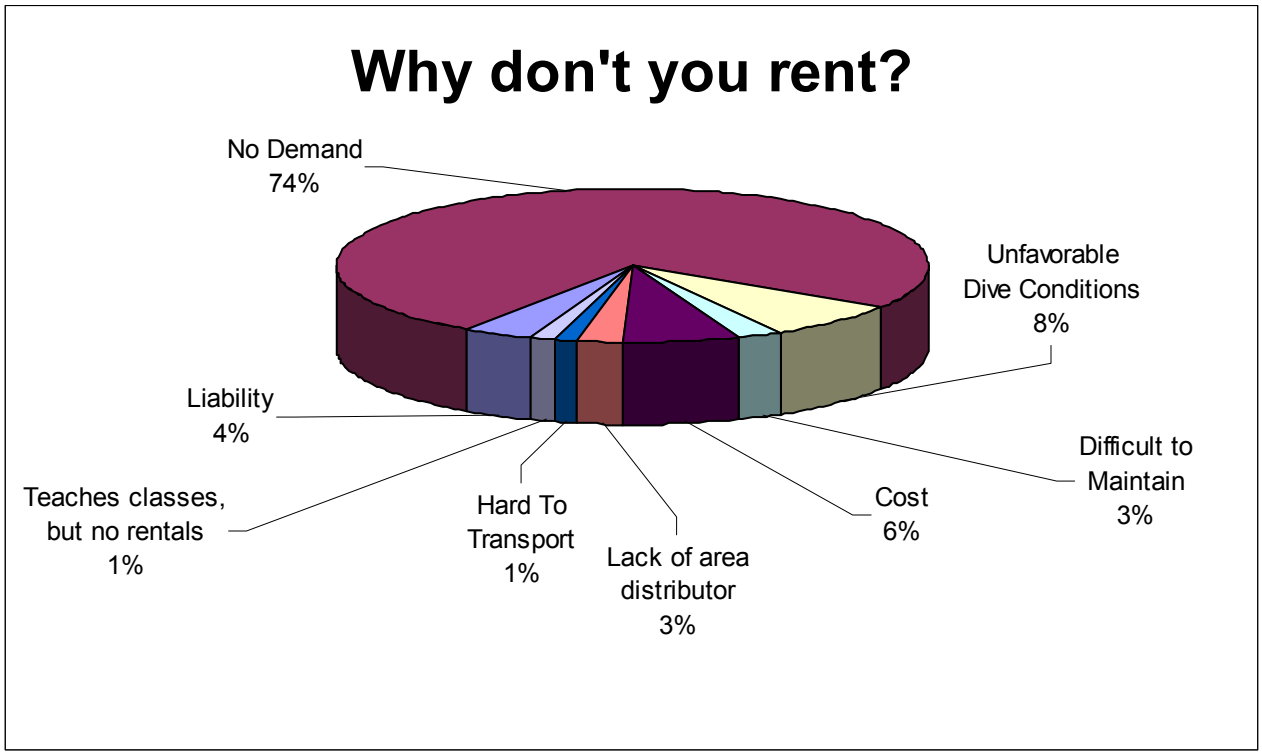

Important Features
Battery
Life
63%
N/A
16%
Size and
Weight
10%
Looks &
Color
3%
Endurance
8%


Is Cost a Factor?
No
10%
Unsure
10%
Yes
80%

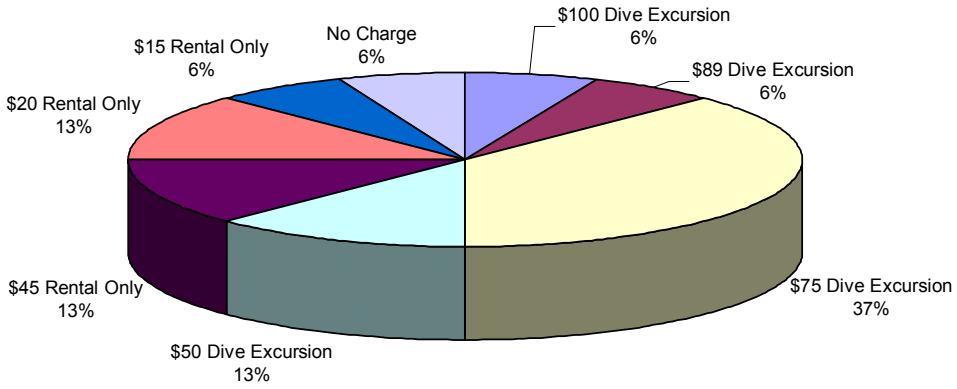

Are Accessories Sold?
Yes
17%
Will order,
If
Requested
25%
No
58%


Accessories Sold
Battery
Case
29%
Harness
6%
Flotation
Device
6%
Life Jacket
6%
Batteries
35%
Ancor
6%
Saddle
6%
T-bar
6%


Are DPV's Rented?
Yes
20%
No
80%

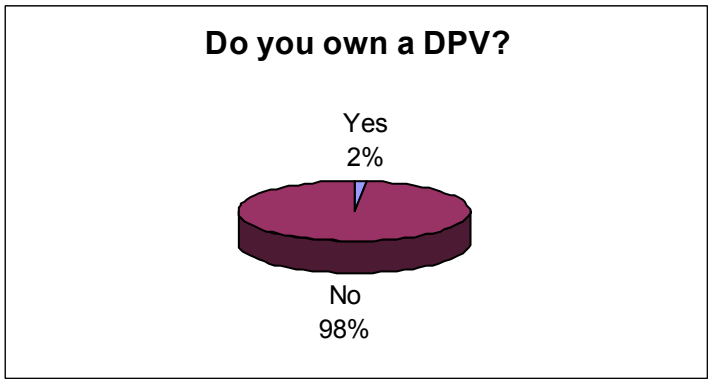


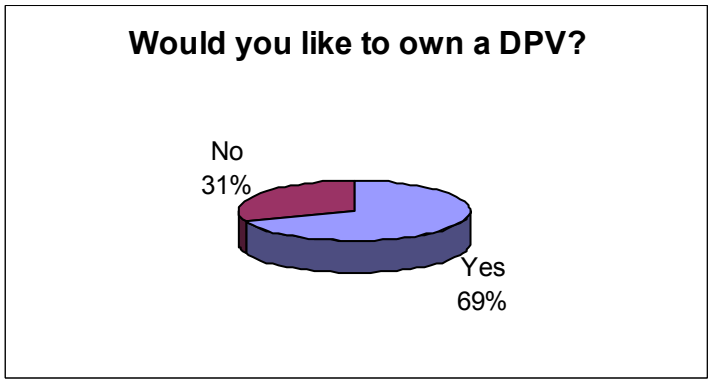
Rental Charges

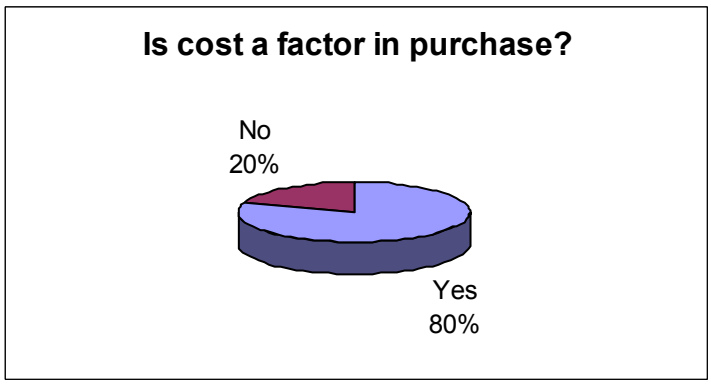


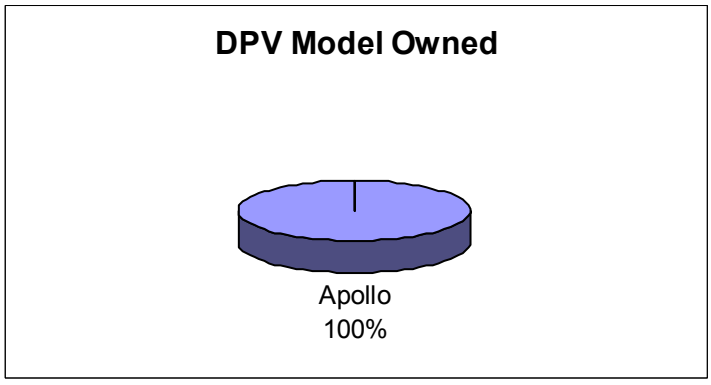
2.7 DPV Certified Diver Survey Results

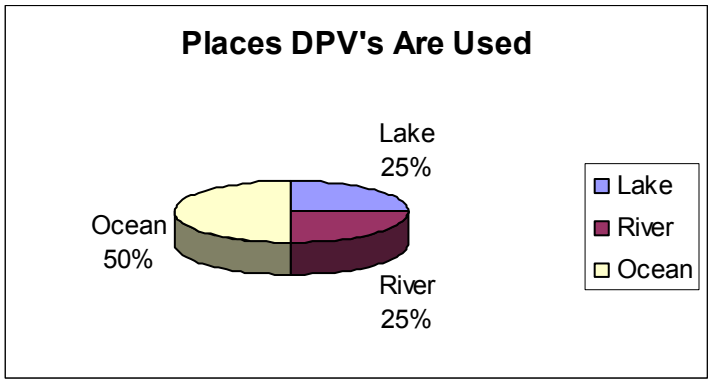
60 North American DPV Certified Divers Surveyed

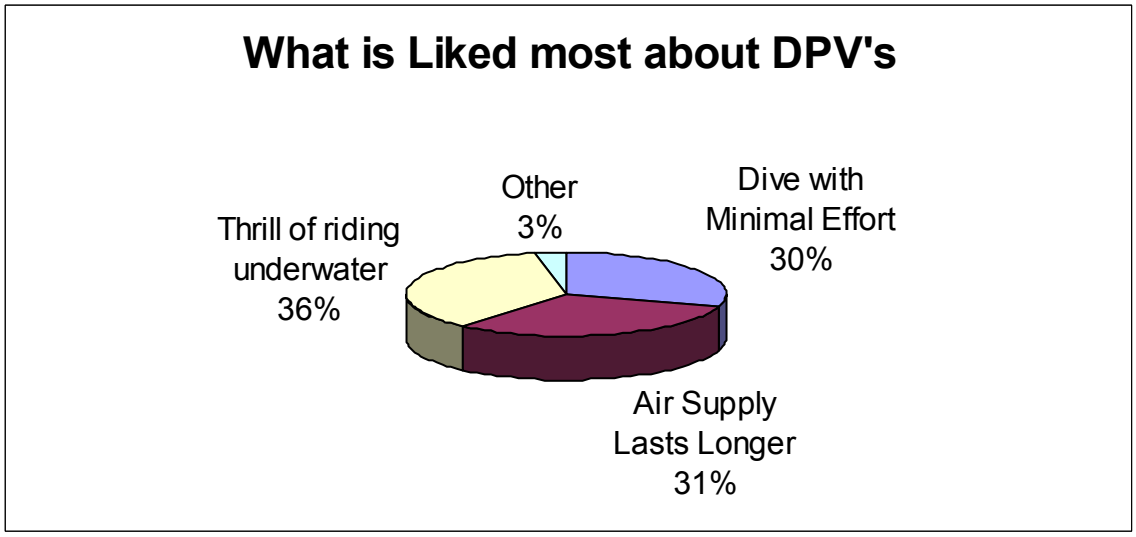


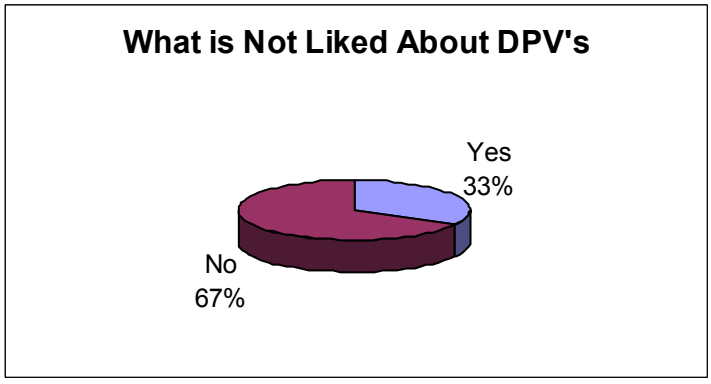




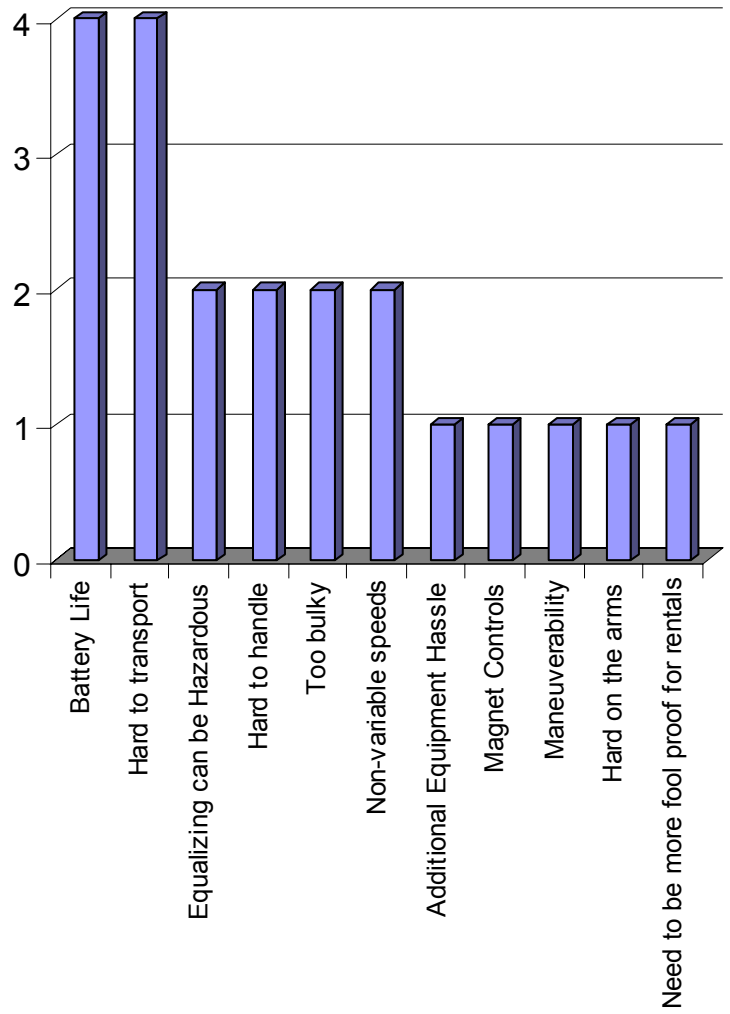



Places DPV's Are Used
Lake
25%
Ocean
50%
River
25%
Lake
River
Ocean

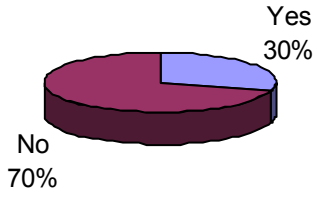

What is Liked most about DPV's
Other
3%
Dive with
Minimal Effort
30%
Thrill of riding
underwater
36%
Air Supply
Lasts Longer
31%


What is Not Liked About DPV's
Yes
33%
No
67%

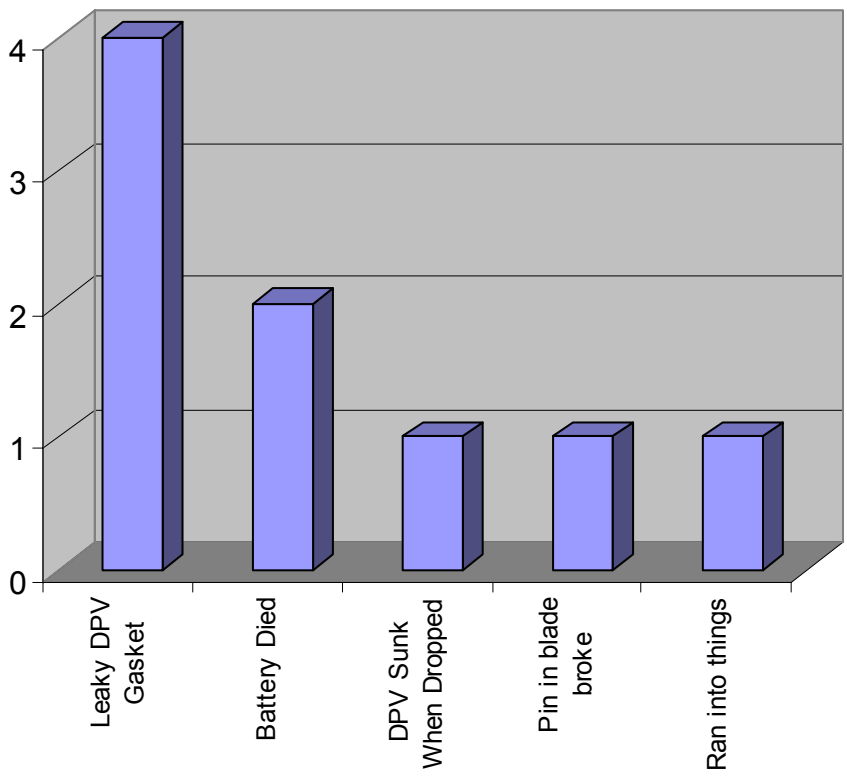
What is Not Liked About DPV's



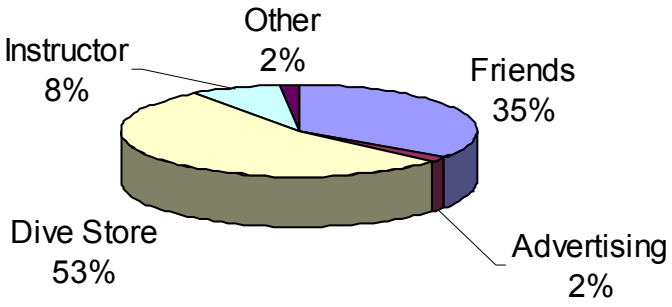
Have you had a bad DPV experience?

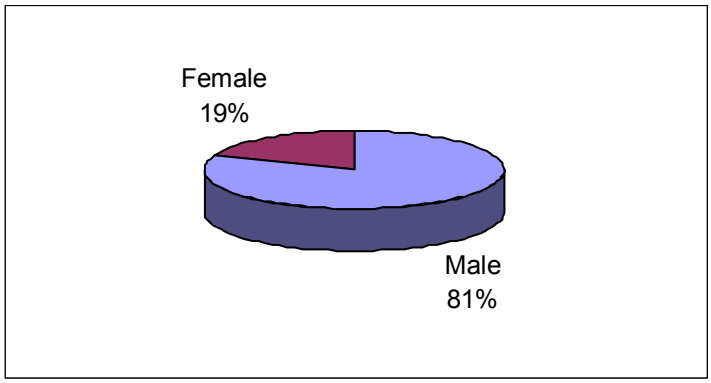


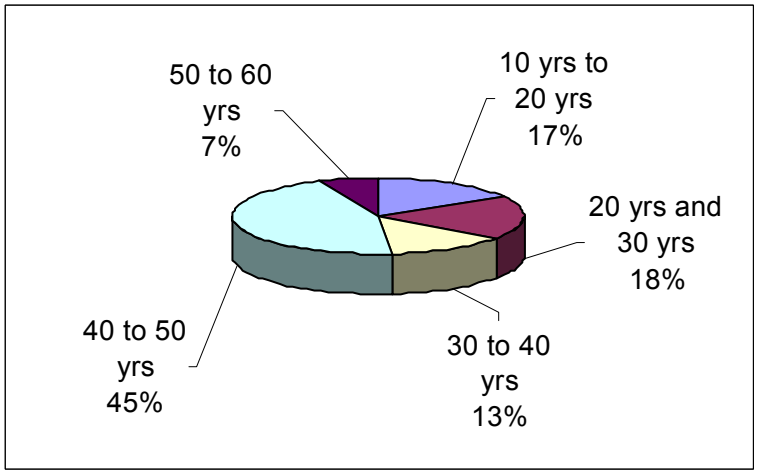
Cause of bad DPV experience

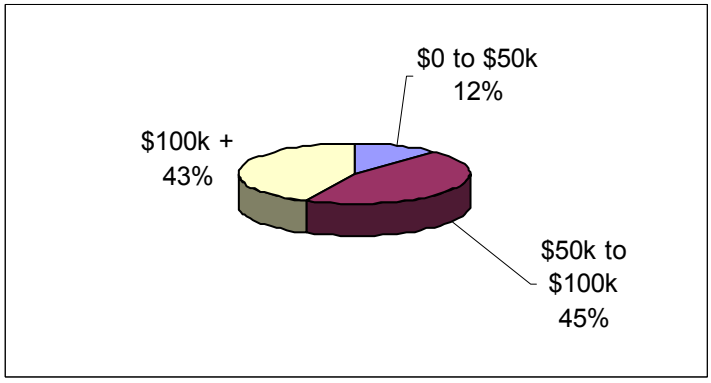


What interested you in DPV's?



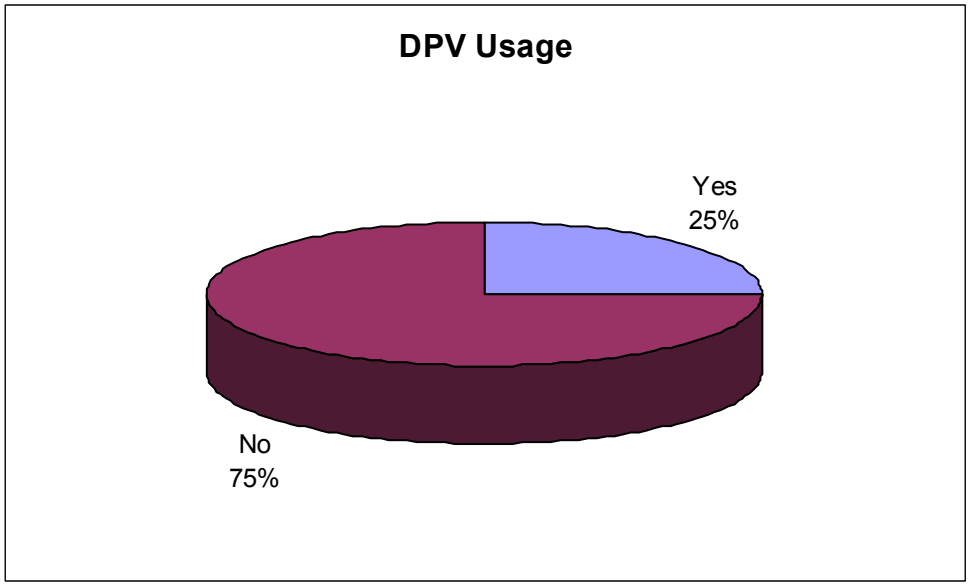

Female
19%
Male
81%

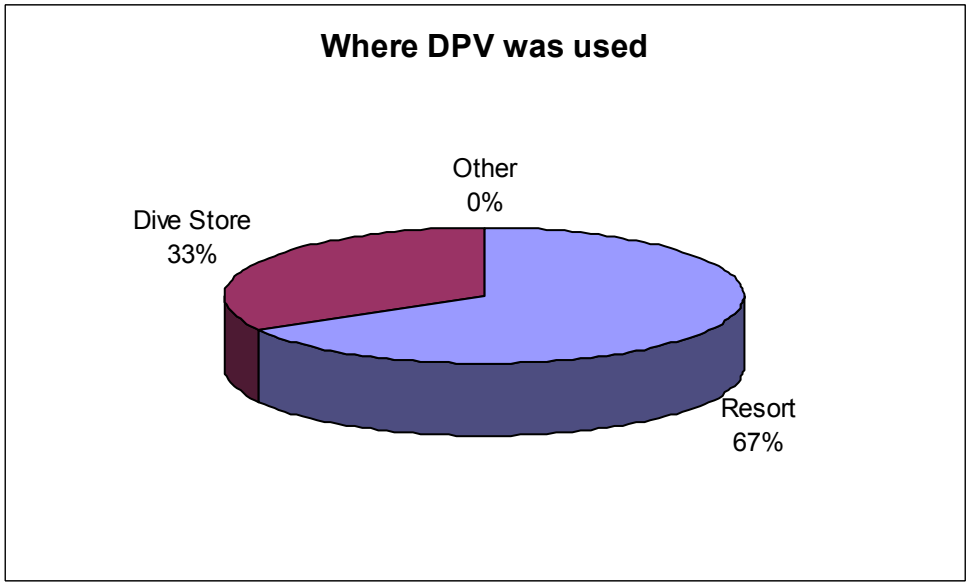

50 to 60
yrs
7%
10 yrs to
20 yrs
17%
20 yrs and
30 yrs
18%
40 to 50
yrs
45%
30 to 40
yrs
13%

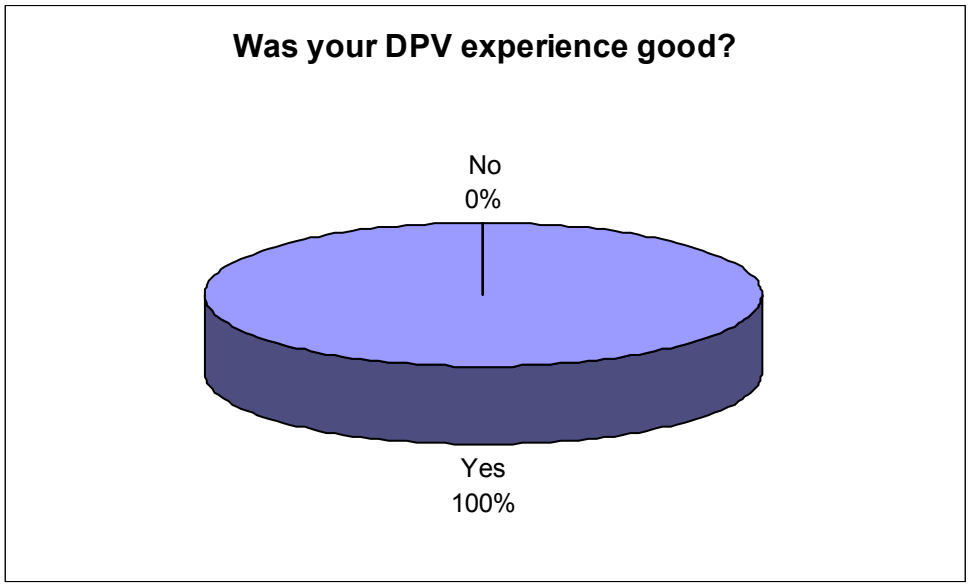

$0 to $50k
12%
$100k +
43%
$50k to
$100k
45%

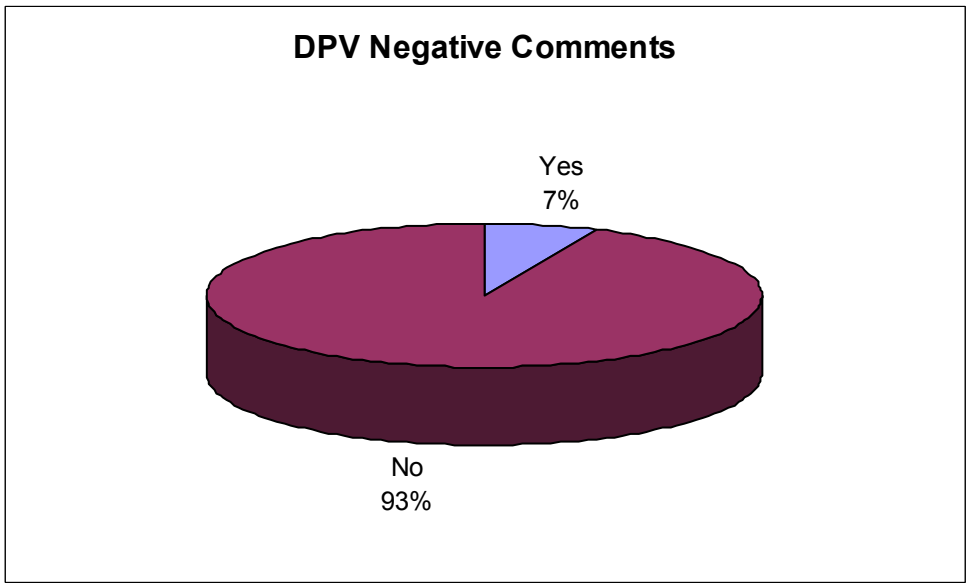
2.8 Open Water Diver Survey Results

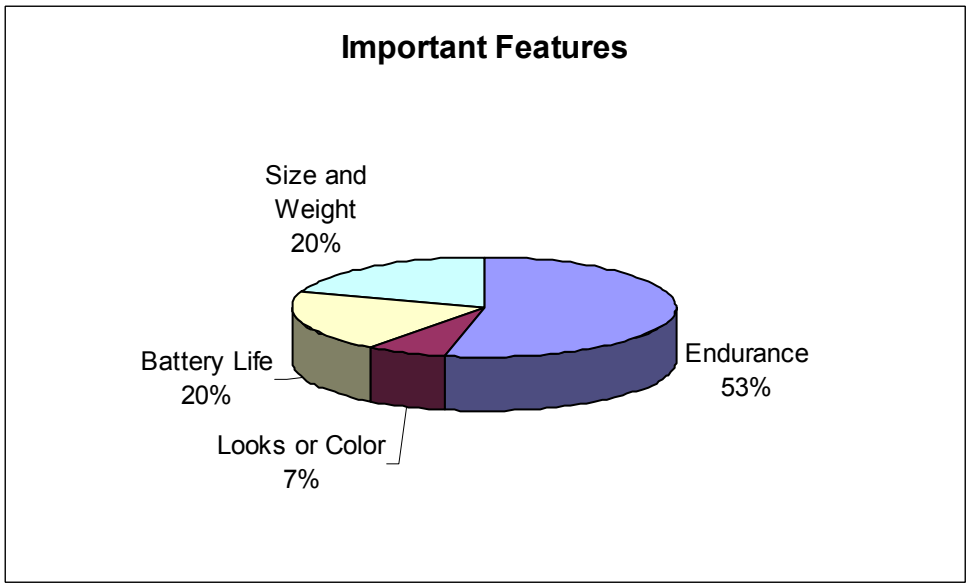
60 North American Open Water Certified Divers Surveyed

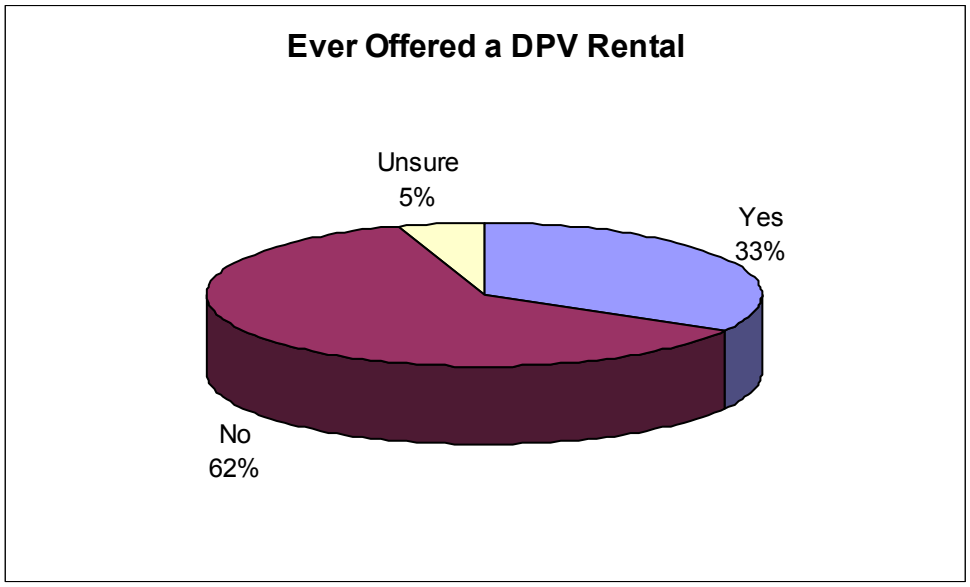


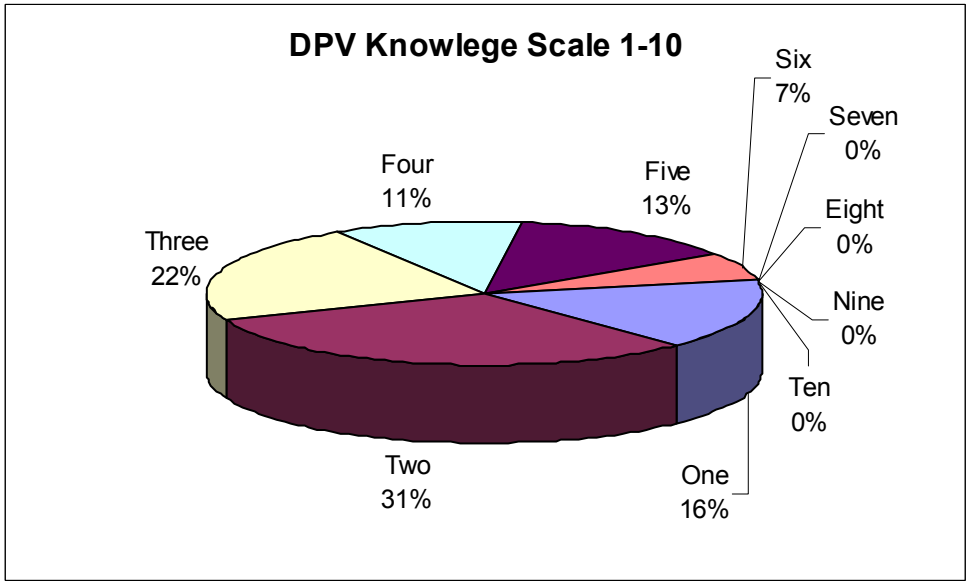



Was your DPV experience good?
No
0%
Yes
100%


DPV Negative Comments
Yes
7%
No
93%


Important Features
Size and
Weight
20%
Battery Life
20%
Looks or Color
7%
Endurance
53%


Ever Offered a DPV Rental
Unsure
5%
Yes
33%
No
62%


DPV Knowlege Scale 1-10
Six
7%
Seven
0%
Four
11%
Five
13%
Eight
0%
Three
22%
Nine
0%
Ten
0%
Two
31%
One
16%