

Publically Traded Treasure Hunters: An Analysis of Odyssey Marine Exploration

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Abstract

This capstone explores the funding and operations of 21st century shipwreck exploration. Hundreds of years of sunken vessels lay on the bottom of the world's oceans. Many of these wrecks sunk with valuable cargos potentially worth hundreds of millions of dollars. This paper explores the shipwreck industry by examining the strategic management of Odyssey Marine Exploration. Odyssey is a premier shipwreck search and recovery company and unique in that its shares are publically traded on the NASDAQ stock exchange (OMEX). This capstone includes a historical review of salvage operations and an analysis of current Odyssey business operating results. The capstone explores the significant legal and ethical issues that threaten the going concern of Odyssey. The final section offers recommendations as to strategies that Odyssey Marine Exploration can implement to secure and stabilize their operating cash flows.

Introduction

Odyssey Marine Explorations (NASDAQ: OMEX) discovers and salvages shipwrecks on the ocean floor. Viewed by many as modern day treasure hunters, the company has a team of researchers that dig through historical records to find wrecks with cargoes of value. Odyssey will then search for and salvage the wrecks using advanced techniques and machinery developed in many other industries. Odyssey makes use of side scan sonar systems and operates two industrial class remotely operated vehicles (ROVs) ZEUS and ZEUS II, each the size of truck and able to dive to

2,500 meters. Odyssey's operations are based from their 251' dynamically positioned flagship, *The Odyssey Explorer*. *The Odyssey Explorer* holds a crew of 42 and can stay at sea for up to 60 days at a time.

The company was founded in 1994 and has continually distinguished itself from its competitors. Odyssey is unique because it was publically listed on the NASDAQ stock exchange in 1997. OMEX stock is included in the Russell 3000 index of small and medium capitalization companies. This has given the company unparalleled financial resources and requires of them an organization and structure that no other shipwreck company possesses. Their closest competitors are for the most part sole proprietorships led by quirky treasure hunters. The company has operated at a net loss and with negative operating cash flows for the past five years and requires constant cash infusions. The business model is one of a bio-tech company where many years of negative earnings are offset by a massive payday once research and development finally produces a return. Odyssey is currently developing three such projects that they believe will stabilize earnings.

In order to offset the lumpiness of payments from shipwreck exploration and recovery, Odyssey has begun to move into to different undersea markets. Most notably, they have begun to move into the emerging undersea mining industry. Odyssey has accomplished this by providing exploration services. To this end Odyssey recently purchased a second vessel, the 311' dynamically positioned

Dorado Discovery. OMEX has also established a minority equity position in Neptune Minerals a pioneering deep-sea mining venture.

Odyssey Marine Explorations has faced years of adversity and several life threatening setbacks. Management has doubled back and is currently in the process of redesigning the corporation's business plan. President and COO Mark Gordon describes the revised business as at its core based on two facts, "there are billions of dollars of valuable things on the ocean floor and that the technology exists to find these things." This paper believes that managements own self directed changes are steps in the right direct. This paper will review past and future challenges facing Odyssey, discuss management's approach, and recommend solutions of its own.

Industry Overview

Marine Salvage

Commercial salvage and ship wrecking are well established industries with long histories. Ship 'wrecking' was a hastily organized industry that spring up along the American coastline in the 19th century. Originated by pragmatic coastal residents, 'wreckers' would scramble to recover the valuable cargo of vessels that floundered on dangerous shores. Occasionally, this resulted in the rescue of crew, but this was purely as an incidental byproduct. The industry would later become far more organized, and legal, but was always limited to coastal wrecks.

Commercial salvage is the successor to the wreckers of old. The industry is in decline and is centered around saving recently wrecked ships.¹ Commercial salvage operations would involve tugging a disabled vessel, preventing oil spills from a damaged tanker, firefighting, or removing cargo from a stranded or sinking vessel.² The other major use of commercial salvage is in the recovery of military warships. There is no interest in recovery of historical shipwrecks from the commercial salvage industry.

Shipwrecks & Treasure Hunting

As opposed to the centuries old recovery of recent shipwrecks, there is virtually no industry around the search and recovery of historical shipwrecks; treasure hunting. The industry is extremely unorganized. Treasure hunting is mostly the realm of overly obsessive hobbyist who have too much time and money. The industry is focused around shallow water exploration. Small ventures with magnetometers ply historic trade routes and shipwreck alleys. These companies use conventional SCUBA gear, which limits the length and depth of dives. Additionally, the smaller ships used by these treasure hunters are not capable of extended voyages and are really only suitable for day voyages.

Odysseys competitors from their 10-K in this space are Blue Water Ventures, Mel Fisher's Treasures, Deep Blue Marine, Marine Exploration, Inc., Oceanic Research and Recovery, Seafarer Exploration, Deep6 Ltd. and UnderSea Recovery Operation.

¹ Commission on Engineering and Technical Systems, (1994)

² Commission on Engineering and Technical Systems, (1994)

All of these shipwreck companies are confined to shallow, coastal waters. None are equipped for deep-ocean exploration. None of these competitors have ROV's or a vessel over 100'. The three competitors that are publically traded all are listed over the counter and trade below \$0.01. None have over 20 employees. All of these companies are modeled after the most successful of Odysseys competitors: Mel Fisher's Treasures. Mel Fisher was a treasure hunter who in 1985 discovered the wreck of the Spanish treasure galleon, *Neustra Senora de Atocha*. The *Atocha* wreck was estimated to be worth \$400 million dollars, the most valuable wreck ever discovered until Odyssey Marine's 'Black Swan' project.

Odyssey Marine is essentially inventing its own industry. Mel Fisher, for all of his success, only has one wreck to his name and was limited to the range and depth of SCUBA equipment off of the Floridian coast. Odyssey can dive up to 2,500 meters in any ocean in the world. Odyssey already has already discovered more than five highly valuable shipwrecks and has more in its pipeline. Odyssey is listed on the NASDAQ and is a member of the Russell 3000 index. The company is truly an industry unto itself with few directly comparable companies.

The deep water shipwreck recovery industry that Odyssey is creating is highly complex and fraught with risks. Exploration and excavation costs run in the tens of millions of dollars with no guarantee of returns. In many ways this is similar to a bio-tech or mining company. Huge start up costs are incurred upfront as sophisticated and expensive machinery must be purchased.

We can characterize the industry using Porter's five forces. The threat of new entrants is moderately high. There are very low barriers to entry. There is a large leasing market for commercial work vessels. There is a large pool of readily available experts both from academia and the offshore oil and gas industry. The industry is not yet profitable and does not have a solid, viable business model. If Odyssey succeeds in creating a replicable and repeatable industry business model the only true barrier to entry will be the ability to raise capital. Odyssey's total loss over the course of operations has been \$150 million. While a lot for a company OMEX's size, if the industry becomes profitable such expenditures would be a drop in the bucket for many firms; especially compared to the scale of speculative investments in Oil & Gas.

The threat of substitute products is low. Authentic coins must come from authentic wrecks and few such sites exist. The demand for shipwreck expedition may be low but it is irreplaceable.

Bargaining power of consumers is moderate. As stated below, there are almost no substitute products in the market. If a collector wants a historic artifact there are only a handful of shops that offer such goods. On the other hand, these are purely discretionary purchases. Collectors are under no pressure to purchase artifacts so they can time the market or wait until they have enough savings.

The bargaining power of suppliers is high. Despite an impressive amount of equipment, Odyssey is still highly dependent on third party contractors. Odyssey will often temporarily expand its fleet and crew for intense search or recovery operations. Odyssey is an extremely small shop and has little bargaining power. The largest customers of heavy marine equipment are the oil and gas industry, the shipping industry, and navies. All three of these industries are far better capitalized, established and reliable than Odyssey. Thus far Odyssey has had no trouble securing ships and machinery when needed but they certainly have little leverage when bargaining.

The competitive rivalry within the industry is low. In fact no direct competitors exist. Traditional treasure hunters don't have the equipment or cash to explore deep water. Established salvage firms operate on contract and are unwilling to take on the risk of such speculative recoveries.

Subsea Mineral Mining

The concept of deep sea mining was first dreamt up 150 years ago following the initial results of the Challenger oceanographic expedition. First taken seriously by prospectors in the 1960s following reports of massive undersea mineral deposits. From the 1960s through the 1980s more than \$650 million was spent on research and exploration of underwater manganese nodules.³ Such missions found no success and little return. After this first round of enthusiasm, the United Nations

³ Glasby, G. P., (2000).

Conference on the Law of the Sea established the International Seabed Authority (ISA) to regulate mining in international waters. The ISA set up a commercial mining enterprise arm. Any company would be required to operate two mining sites at once with one to be turned over to the Enterprise. The ISA Enterprise also required contractors to transfer any technology they developed over to the international venture.⁴ These requirements are clearly too onerous for any private company and effectively limit all future deep sea mining to the 200 mile exclusive economic zones of sovereign nations.

Current deep sea mining is focused not on manganese nodules but on seafloor massive sulfides (SMS). Seafloor massive sulfides develop on convergent plate boundaries where sulfur rich mineral deposits spew out of hydrothermal vents and cool across the ocean floor.⁵ These deposits, located around 2,000 meters below the sea level contain large amounts of copper, zinc, gold, and silver. The real value of these deposits comes from massive growth and development in the third world. Copper is used in the wiring of buildings and zinc in the galvanization of steel. As such, demand for the two minerals, and accordingly prices, have risen dramatically thanks to the boom in construction across the third world.⁶ Minerals are a non-renewable resources so the supply-demand equation seems favorable at first glance but these deep sea projects will have to prove economical. Early research shows

⁴ Glasby, G. P., (2000).

⁵ Hoagland, Beaulieu, Tivey, Eggert, German, Glowka & Lin, 2010

⁶ Hoagland, Beaulieu, Tivey, Eggert, German, Glowka & Lin, 2010

seafloor samples to be 10% copper and as opposed to 1% on land.⁷ Similarly, gold appears in SMS fields at concentrations ten times higher than on land.⁸ Not only do the deposits appear more attractive but also the costs may be up to half of those on land.⁹ Deposits undersea are far more concentrated making the mining that much more efficient. Land based mines are deep underground requiring the removal of or tunneling through tons of earth; SMS deposits lay atop the ocean floor and are easy to scoop up. This has the added benefit of producing less waste to be disposed of not only driving down costs but also arguably making this form of mining more environmentally friendly. Finally, Undersea mining will require fewer structures and since they are all necessarily ship based will be mobile from site to site driving down fixed costs.¹⁰

There are currently only two companies in the world who have made substantial progress towards developing operational deep sea mines, Nautilus Mineral and Neptune Minerals. Both are based in the south pacific in EEZ waters of New Zealand, Papua New Guinea, Tonga, Fiji, and others. Of the two, Nautilus is the most advanced but both have already received substantial interest from major corporate players. Nautilus has received major investments from Anglo American, one of the largest mining companies in the world, and Neptune retains Goldman Sachs for advisory services.¹¹¹²

⁷ "Treasure on the Ocean Floor," 2006

⁸ Gordon, 2012

⁹ "Treasure on the Ocean Floor," 2006

¹⁰ "Treasure on the Ocean Floor," 2006

¹¹ "Nautilus Marine Major Shareholders"

¹² Company Filings

Worldwide demand for minerals, both industrial and precious, has seen massive run-ups in the year benefiting the mining industry but terrestrial and otherwise. The four minerals that deep sea mining will yield are Copper, Zinc, Silver, and Gold. All of these resources are highly traded and spot prices are at 30-year highs. Below are the spot prices of copper, zinc, silver, and gold, respectively.



Spot copper prices¹³

¹³ Bloomberg Professional



Spot zinc prices¹⁴



Spot silver prices¹⁵

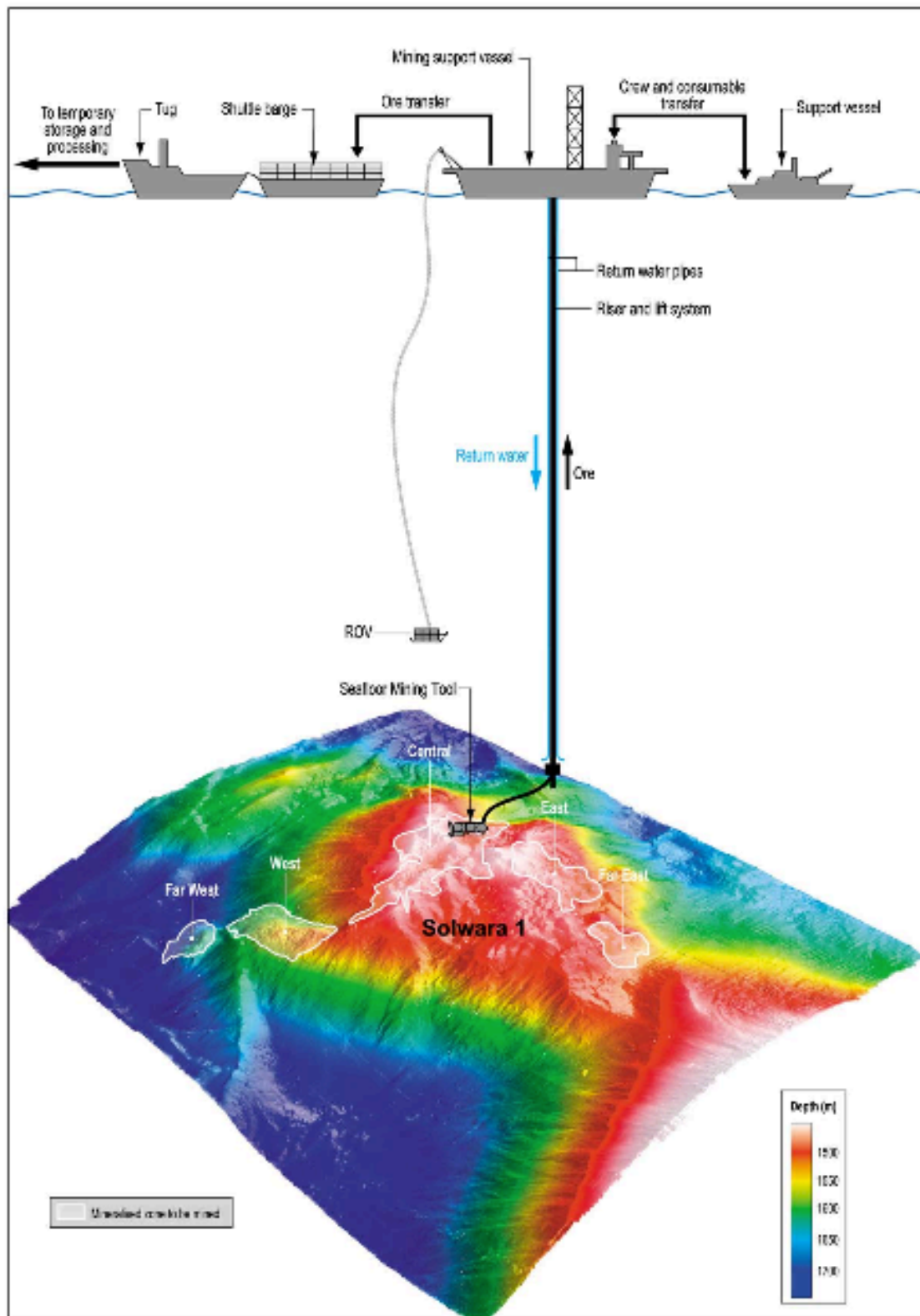
¹⁴ Bloomberg Professional

¹⁵ Bloomberg Professional



Spot Gold prices¹⁶

¹⁶ Bloomberg Professional



Proposed deep sea mining operations¹⁷

¹⁷ Hoagland, Beaulieu, Tivey, Eggert, German, Glowka & Lin, 2010

Company Overview

Summary of Ongoing Operations

Odyssey Marine has six ongoing projects of major interest to the company. Two of these projects are shipwrecks sites that are being currently excavated – the *HMS Victory* and the *SS Gairsoppa*. Two other projects deal with the aftermath of fully recovered wrecks – the *SS Republic* and the ‘Black Swan’ project. Odyssey Marine also contracts its services to explore for shipwrecks on behalf and Robert Fraser Partners. Lastly, Odyssey is involved in exploring for deep sea minerals. Odyssey contracts to conduct geological surveys for Neptune Minerals. Odyssey also owns a 33% minority interest in Neptune Minerals.

The *SS Republic* is Civil War era steamship that sunk during a storm in 1865. The vessel, a refitted Civil War battleship was chartered on the trade routes between New York and New Orleans. Historical records indicate that the ship went down with “\$400,000 in specie” and was therefore flagged by the company’s researchers as a high value target.¹⁸ OMEX searched over 1,000 square miles throughout 2002 and 2003 and investigated 24 target wrecks before discovering the *Republic* in late 2003. The wreck was found in 1,700 feet of water far beyond diving depths. The archaeologically sensitive recovery was done entirely by ROVs. By 2005 Odyssey completed their dives recovering 14,000 artifacts and 51,000 silver coins. Odyssey holds coins from the *SS Republic* in inventory and sells the coins through internal

¹⁸ "Odyssey marine explorations,"

and external sales channels. Artifacts and coins from the *Republic* make up the bulk of Odysseys travelling museum exhibit. The expedition was the subject of several documentaries, books and articles.

The 'Black Swan' is Odysseys name for its search efforts to recover the *SS Merchant Royal*. The *Merchant Royal* is a British merchant ship that sunk in 1641 on its way back from trade in the new world. The ship was believed to be carrying 100,000 pounds of gold. In 2007 Odyssey believed they found the wreck and recovered 17 tons of gold coins valued at over \$500 million. Shortly after recovery, the Spanish government claimed that the wreck was actually the Spanish Galleon *Nuestra Senora de las Mercedes* that went down in similar waters in 1804. The British government has in the past and continues to view Odyssey's work favorable. Britain often cooperates with and assists OMEX. As long as the work is done in an archeologically sensitive way, Britain grants the company substantial salvage awards. On the other hand, Spain is very aggressive about its cultural heritage. As the *Mercedes* is a sovereign Spanish warship, Spain filed suit in United States Federal court in 2007. Archaeological and historical evidence seems to bear out Spain's contention that the Black Swan is indeed the *Mercedes*. As such, U.S. courts awarded all treasure to the Spanish government who announced they would pay salvage award. OMEX appealed but lost and in 2011 was ordered to return the treasure to Spain. In 2012, Odyssey filed and appeal to the US Supreme Court but still handed the treasure over to Spain early this year. Possession being nine tenths of the law, even if the Supreme Court grants Odyssey's motion, there is nil chance of ever seeing the treasure again.

The bottom line is that Odyssey is out of pocket substantial time and money and has only legal fees to show for it. All expenses related to the 'Black Swan' have already been written off of the company's books

The *HMS Victory* is a large British ship of the line that sunk in 1744. In 2008 Odyssey found the *Victory* at a depth of 600 ft in international waters off of Britain. As a warship of Her Majesty's Government, Britain retains a strong legal claim to the wreck. As such, Odyssey entered into negotiations with the British Government before proceeding any further. An arrangement was made whereby the UK government established a foundation to "locate shipwrecks, investigate, recover and preserve artifacts."¹⁹ Odyssey transferred title of the wreck to the foundation. In 2012 Odyssey won a competitively bid contract to perform the salvage and recovery of the *HMS Victory* for the British foundation. Odyssey will be paid for this work an amount to be determined by the value of artifacts recovered. The British can make this payment either in cash or in kind at their discretion.

In 2010 Odyssey Marine Expeditions was awarded the salvage contract for the *SS Gairsoppa* by the Government of the United Kingdom. The *SS Gairsoppa* is a British transport ship that was torpedoed in 1941 by a German U-boat while on a convoy. It is believed the vessel went down with seven million ounces of silver, worth over \$210 million at today's spot prices (OMEX's market cap is \$201M). Odyssey agreed to take on all expenses up front. If the wreck is successfully salvaged, Odyssey will

¹⁹ Company Filings

recoup expenses and then receive 80% of all remaining salvage value. The company began search operations in 2011. In the same year, the company found the wreck in 15,500 feet of water off the Irish coast. In the process of their *Gairsoppa* operations Odyssey also discovered the *SS Mantola*, a British transport sunk by German U-boats in 1917. Odyssey has negotiated a similar contract for salvage. The wrecks are so similar and in the same waters so they will be recovered alongside each other. Both wrecks sunk carrying silver bullion which can be immediately liquidated at market spot prices. Salvage operations based from the *Odyssey Explorer* and the chartered vessel *Seabed Worker* will begin June 1st, 2012. It is estimated that recovery costs will be up to \$100,000 a day.

In early 2010 Odyssey Marine Exploration entered into a contract to provide shipwreck expedition services to Robert Fraser & Partners LLP (RFP). Robert Fraser is a London based asset management firm. Through a subsidiary, Robert Fraser Marine, the firm offers clients an opportunity to invest in and explore for shipwrecks. Odyssey has entered into a series of three contracts, each for a different shipwreck, wherein they provide a turnkey treasure hunt. Odyssey does the research, finds the wreck, and acts as the recovery crew. These are all the steps Odyssey would take on one of their own shipwreck cruises with the caveat that a portion of returns are passed on to Robert Fraser's investors. Odyssey has structured four of these deals, three of which are currently ongoing, projects "*Firebrand*," "*Shantaram*," and "*Enigma II*." The deals are all structured the same way. Odyssey receives an upfront cash payment from Robert Fraser. Once a wreck is

salvaged the first wave of payments goes to cover Odysseys costs. The next tranche is split 80/20 between Odyssey and Robert Fraser up to a set amount. After a certain amount of revenue is reached all remaining returns are split 50/50.

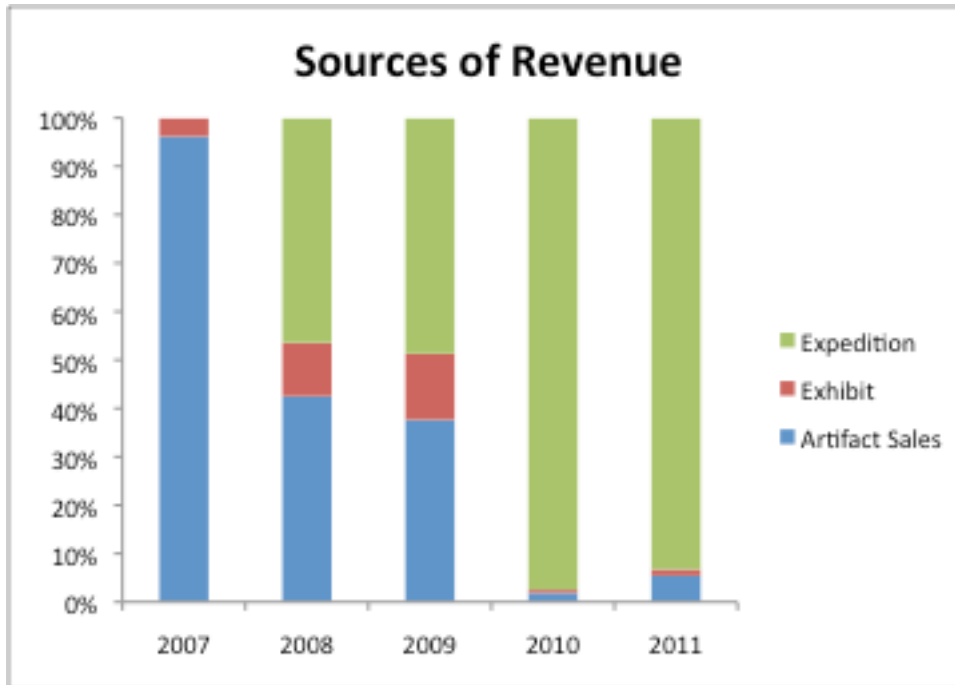
Odyssey Marine Exploration's most recent business ventures have been into the field of subsea mineral mining exploration. In 2010 Odyssey entered into a contract with Neptune Minerals Inc (NMI) to provide subsea mineral exploration, survey, and mining services. To this aim Odyssey purchased a second vessel, the 311' foot *Dorado Discovery*. Neptune Minerals' Chairman & CEO is John C. Morris. Mr. Morris co-founded Odyssey Marine Exploration with Gregory P. Stemm but has since retired. Odyssey's investment in subsea mining is a major new venture for the company. In addition to expedition contracts with Neptune, Odyssey is has also invested in Neptune Minerals and holds a 33% minority equity stake in the company. Neptune, and therefore Odyssey, is engaged in the mining of seafloor massive sulfides (SMS) in the South Pacific. Such sulfide fields are believed to hold large deposits of copper, zinc, gold, and silver.

Sources of Revenue

Odyssey Marine Explorations has three sources of revenue: artifact sales, exhibits, and expeditions. Artifact sales primarily come from coins and relics recovered off of the wreck of the *S.S. Republic*. Silver recovered from the Republic was in the form of minted coins rather than bullion or bar form. The transformation of silver into a coin adds significant value to the silver due to the historic value. Because of collector

value, coins have a multiple of value to the price of the underlying silver. Mark Gordon notes that as you add a multiple to bullion it extends the time to sell. This high correlation between time and premium adds value to a find but makes it much harder to realize liquidity from a wreck. Gordon estimates that Odyssey recovered \$75 million in coins from the *SS Republic* of which \$42 million have been sold over the past eight years. Exhibit revenue is realized from the travelling museum show SHIPWRECK! Pirates & Treasure.

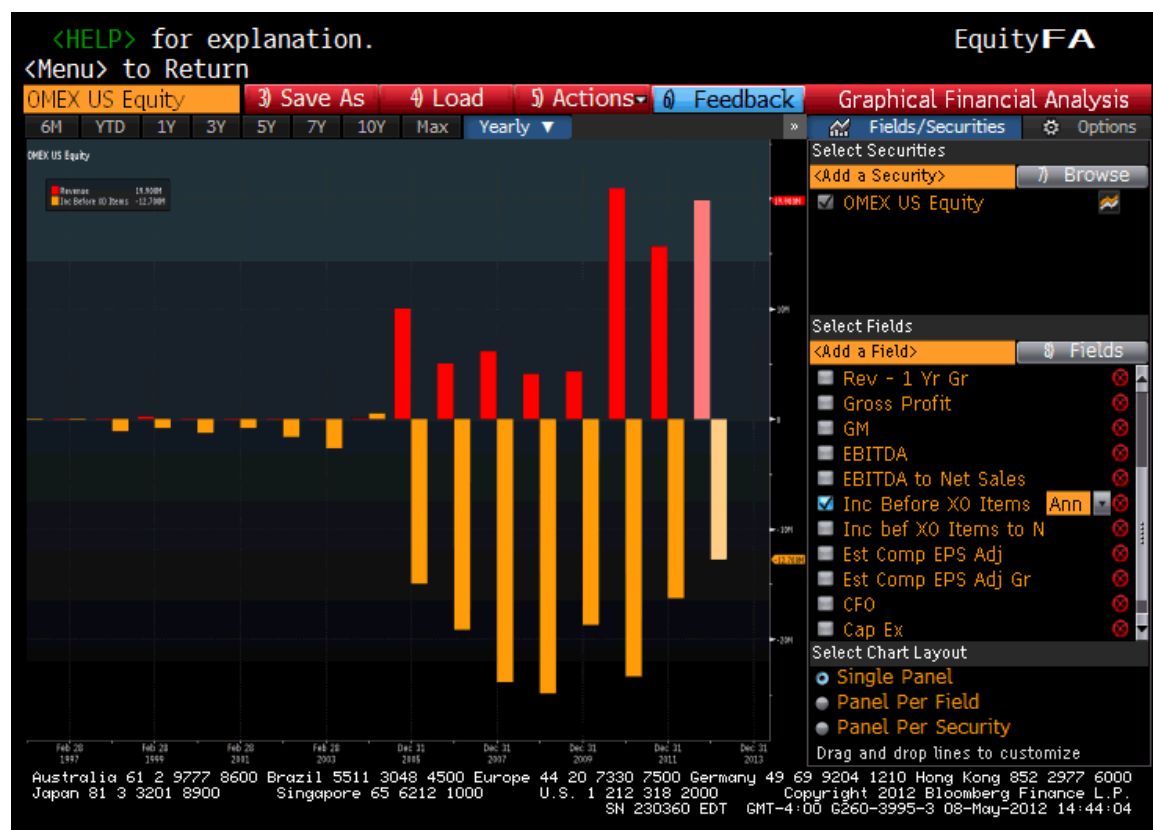
In the past two years expedition revenue has grown to make up an overwhelming majority of Odyssey's total sales. The revenues recognized from expeditions are orders of magnitude larger than those from artifacts. Entirely because of expedition charters, Odyssey saw its total revenue jump from \$4.3 million in 2009 to \$21 million in 2010. Expedition revenue comes from two principle partners, Robert Fraser & Partners and Neptune Minerals. Odyssey's deal with Robert Fraser essentially allows the company to monetize a wreck before operations even begin. By going in with a partner, Odyssey still runs the show in the same way they would normally. The difference is that by partnering with Robert Fraser they receive the cash upfront instead of taking the ship onto their proprietary book. RFP made up 44% of expedition revenue in 2010 but has since been dwarfed by Neptune. In 2011, Neptune charters made up 77% of all expedition and 72% of total revenues. This paper believes expedition revenue to be far more lucrative and reliable than artifact sales, a step in the right direction towards profitability.



Challenges

Profitability

Odyssey's first and most persistent challenge is profitability. Odyssey had one year of positive net income early on in the decade and has seen negative returns for the past five years. As of March 31, 2011 the company has accumulated a retained earnings loss of \$152.5 million.



To finance persistent operating losses the company has one of the most complicated capital structures this author has analyzed, striking for a company its size. With Odyssey's big payday business models losses are to be expected but as time goes on investors will be harder and harder to convince. Trouble in raising capital is clearly visible in Odyssey's equity holdings and weighted average cost of capital. Odyssey has a long history of issuing preferred shares and warrants. These debt-like shares give investors more protection but because of required dividends are extremely expensive. The cost is reflected in their astronomical 958% cost of capital. The average WACC is so low only because OMEX recently retired most preferreds last year at a cost of \$5.75 million. Through its history Odyssey has had seven preferred equity issuances of which two classes of preferred are still outstanding.

Period: Current (2012 Q1)

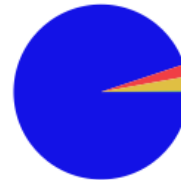
Cost of Capital

	Weight	Cost	Weight x Cost
Equity	94.90%	12.40%	11.80%
Debt	5.00%	1.50%	0.10%
Preferred Equity	0.10%	958.70%	1.10%

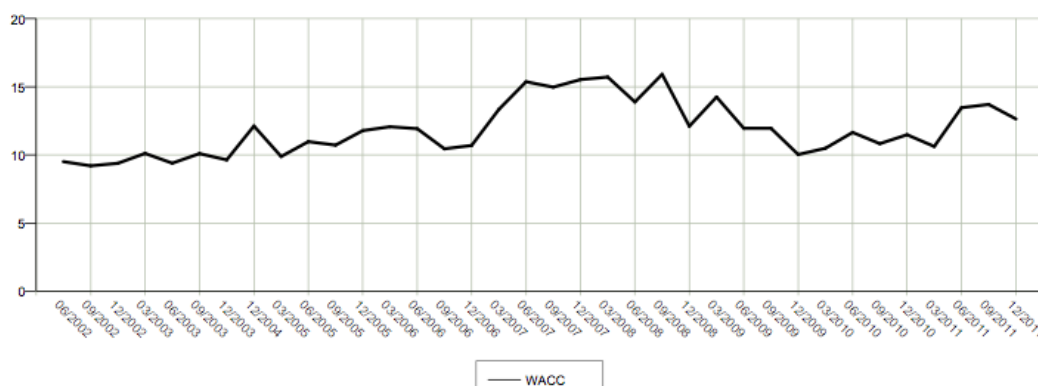
WACC

13.07%

Capital Structure Graph



Historical Graph



Weighted average cost of capital (WACC) and capital structure²⁰

Legal

A highly complex web of laws governs shipwreck salvage. Wrecks in international waters have less rules but are still regulated by international treaties. Complicating this though is that not every country has signed onto the same treaties. For instance, the United States has not ratified the United Nations Convention on the Law of the Sea. Once inside territorial waters, federal, state and local laws govern wrecks. To make matters worse salvage laws will often overlap with the laws whatever nation the wreck was flagged in prior to sinking. Warships, for instance always belong to the sovereign nation. Private cargos were often owned by individuals or

²⁰ Bloomberg Professional

corporations and insured by major insurers. Historically, the boundaries between private and public were much less defined so a national ship may have carried private cargos. What is the law when a Spanish warship, carrying Peruvian gold, owned by private investors and insured by private organizations sinks in international waters?

Mining

Pioneering a subsea mining industry will entail huge challenges for the company. The industry basically does not exist and similar to their shipwreck operations, Odyssey will contribute to building it from scratch. Some of the challenges are technical and accordingly outside the scope of this paper: ROV & ship design, software, refining & processing. Two challenges that strategic management must address are competitors and governments. Currently only one other company is mining SMS deposits but massive mining interests are eagerly eyeing progress from the sidelines. Odyssey will have to ensure that they catch the eye of giants like Anglo-American and others for when they do make their move.

Operations depend on governmental territory leases. Chief Operating Officer Mark Gordon believes that due to the structure and participation of these leases government's incentives are aligned with Odyssey and Neptune's. In the shipwreck business where Bureaucrats see limited upside and large risks from outrage over destruction of cultural heritage. In the mining industry governments see not only revenue but the chance to develop a new industry centered on their nations.

Granted, Odyssey will not single handedly reinvent the Tongan economy. However, if Odyssey proves out the feasibility of mining, BHP Billiton could reinvent the nation. So government incentives are far more aligned with Odyssey's in the field of mining but a glance at the history of oil drilling shows that the company will probably face a substantial amount of governmental challenges moving forward with its operations.

Strategic Management & Solutions

The 'Black Swan' highlighted a whole host of problems that had laid dormant in Odyssey Marine Explorations operations. The event was a wake up call to management and investors. To their credit, management has worked hard to reinvent the company's business model. Odyssey is moving to become more of a general purpose marine company but this paper believes that corporate strategy has not fully embraced the implications of this change. The corporate culture is organized around the free wheeling spirit of treasure hunting. If Odyssey wants to be respected by investors as a mature company they will have to develop consistent profit and sound risk controls.

This paper proposes four broad solutions, a primary emphasis on deep sea mining, expanded chartering operations, the establishment of a full time Chief Risk Officer, and an expansion of Odyssey's fleet. The first two recommendations are sweeping and forward looking. They seek to address Odysseys largest problem, net losses. These changes would transform Odyssey into a full spectrum commercial marine

services company. The third is ancillary and designed to prevent a 'Black Swan' style loss that threatens the going concern of the company from ever recurring again. The fourth is to address an operating issue that slows Odyssey's business cycle.

Deep Sea Mining

While not so in spirit, as a percentage of revenue we can already consider Odyssey Marine a mining company. Mining is a much larger industry than salvage and attracts a lot more customers and investors. Deep sea mining overlaps with Odysseys core competencies and becomes a great market for them to expand into. The problem with Odysseys current positioning in deep sea mining is that they do not deliver a unique, non-replicable competitive advantage. Odysseys main advantage is that they are one of two companies operating in the space. OMEX still charters, rents, and crews specialized workboats – in other words they provide services that any other company could easily do. Odyssey must commit to mining as fully as they have to shipwrecks so that as the industry grows they do not stand out simply as first movers but because their crews and ships have undeniable and non-replicable industry knowledge. When deep sea mining transitions from exploratory to big business, major industrial players will move into the space. Overnight, a large multi-national miner could easily spend the several hundred million to replicate the operations that Odyssey has invested in over years.

To fully capture their first mover advantages Odyssey needs to develop unique expertises so that large entrants have to choose but to work with the company (or buy them out). Making mining Odyssey's primary focus will accomplish this. As this season's salvage operations conclude so should OMEX's wreck focus. Capital expenditures, R&D and personnel decisions should be centered around mining. The company has \$8 million in cash on its balance sheet and is expecting cash inflows from pending treasure projects. Instead of reinvesting capital towards more discovery operations, it should be funneled towards mining. The company's balance sheet shows long lived assets almost fully depreciated. Odyssey's two ROV's are both specialized in search and recovery. One concrete recommendation this paper makes is to develop specialized mining ROV to replace its aging equipment. There are proposed designs of how such a machine would operate but few examples exist in the real world. Developing ROV mining capabilities, e.g. drill bits, suction devices, etc, would immediately make Odyssey stand out as a world leader.

Odyssey must also expand beyond Neptune Minerals. While the company has close personal ties to Neptune and they should not disengage, it is unhealthy to have so much revenue from a single customer. Deep sea mining is talk of many, very smart professionals and has already seen eager investment from major industry players. With all the cash on corporate balance sheets, there have got to be potential partners out there. Odysseys current Neptune contract involves friendly ties between management. Odyssey needs to truly become a mining company and proactively seek out and recruit new clients for mineral exploration projects.

Expand Chartering

Chartering expeditions to Robert Fraser is an ingenious method to monetize Odyssey's core competencies. Just like how small businesses can hire 'turnkey' accountants, lawyers, and even office space; OMEX now offers 'turnkey' shipwreck expeditions. Robert Fraser advertises themselves to investors as shipwreck hunters but owns nothing more than office space. Robert Fraser's operations, simply put, are Odyssey Marine. This is great for the company because they receive an upfront fee and still get to participate in upside recovered treasure, albeit, at a reduced rate. Historically, Odyssey has had a difficult time monetizing wrecks so the cash payments up front are a huge boon. Especially important, is the fact that charter commissions are paid whether the target shipwreck is found and salvaged or not. This takes out of play the entire aspect of expedition risk from operations.

Odyssey should also expand into more exotic charters. They recently executed a small contract for bio-prospecting – collecting biological samples from the seafloor. New species are of great interest to large researchers, particularly pharmaceutical companies. New biodiversity often holds unknown proteins, enzymes and chemicals which have in the past been monetized in drugs to great profit. Much of the undiscovered biodiversity researchers are interested in come from deep hydrothermal vent communities. This creates a huge synergy with Odyssey's mining services. Bio-prospecting has the potential to become a great way to enhance

marginal returns to mining by more effectively using vessel transit and commute times.

The company has potential to execute government contracts, provide seafloor mapping services, and to execute pure archaeological conservation with no salvage. All of these approaches are ways for Odyssey to recognize a consistent stream of cash. Some have more potential than others but by pursuing a mixture of exotic charter options, the company can help smooth out its extremely irregular cash flows.

Chief Risk Officer

The 'Black Swan' demonstrated the extreme vulnerability of Odyssey Marine to powerful stakeholders. It is crucial to the going concern of Odyssey that such an event never happen again. I believe that this is a large enough concern that Odyssey create a high level management responsible for overseeing and mitigating tail risks the company is exposed to. Just like a bank consistently checks its counterparty exposures and value at risk, OMEX needs methodical and institutionalized methods of risk management. The company can no longer afford to be gung ho treasure hunters with so much cash at stake.

Big 'fat tail'²¹ risks are also incumbent in deep sea mining. So far there is little opposition to deep sea mining although some scientific papers warn of environmental damage.²² Mining is dependent upon governmental mineral leases. So far the relevant governments seem enthusiastic about mining contracts but this does not mean there are no risks. A look at other exploitive resource projects demonstrates the risks Odyssey is undertaken. The oil and gas industry often sees governmental threats. A look at the historical battle over oil contracts all over the world stand as clear warnings. Mexico, Venezuela, Saudi Arabia, and others all nationalized their oil fields at one point. Even in the U.S., the political response to British Petroleum and offshore drilling demonstrate that there is the potential for huge tail risks in the mining Industry. I believe that a Chief Risk Officer position would commit Odyssey to careful excavation of shipwreck and mineral sites, show forward progress to investors, and help the company realize greater gains moving onward.

Expanded Fleet

Odyssey has a large cycle time between projects. In order, OMEX's major finds were in 2003 (Republic), 2007 ('Black Swan') and 2012 (Gairsoppa). It takes about five years from start to finish for the company to monetize a wreck. First research is done to determine wrecks worth greater than \$50 million. Once a wreck is determined search operations begin and rights are secured. After about a year of

²¹ Fat tails refer to non normal distributions of returns. Instead of a smooth bell curve the 'tails' of return distributions are fat meaning that there is potential for huge gains and losses 2-3 standard deviations away from the mean.

²² Birney, Griffin, Gwiazda, Kefauver, Nagai & Varchol

surveying, full scale recovery can begin. Odyssey is has one flagship used to do all of this work and so if it is engaged on a recovery, search efforts for the next big project cannot begin. Odyssey can only process one site at a time. This creates large lumpiness in cash patterns. Compounding that is the 'Black Swan' risk that if a project cannot be monetized it may be ten years between finds. Alternatively, if the company really needs another vessel it charters from private parties. Odyssey will be chartering a vessel for the recovery of the Gairsoppa and costs are expected to be \$100,000 a day.

The same concept applies to mining. New deposits will take a long time to discover. First suitable sites must be selected, then cored and tested before mining operations can commence. The processes are actually very similar to what the company uses in shipwreck hunting. Odyssey is currently contracted in this surveying role for Neptune minerals and has one ship on a long term lease in the area, the *Dorado Discovery*. Odyssey could expand it's fleet in the south pacific to gear up mining operations, perhaps purchasing a specialized miner. This way Odyssey would have one survey and one mining platform ship in the area. If Odyssey expands its fleet, cycle times and risk will be reduced, while income increases.

Conclusion

Odyssey is a fascinating company that has the ability to thrill and excite its employees, customers and investors. Despite an interesting value proposition, the

company has yet to deliver on promised returns. It is time for Odyssey to reinvent its business model to provide on long overdue profits.

Odyssey must change its shipwreck prospecting business into shipwrecks as a service. When prospecting for wrecks, the company is speculating on returns and bears all the risks. By providing exploration services third parties finance the risks and charter Odyssey to provide a service.

Odyssey should then develop its fledgling deep sea mining operations into a core competency. By investing in mining and developing competitive advantages they position themselves in a new sub industry. Deep sea mining sees macroeconomic factors converging in a manner similar to what offshore oil drilling and hydraulic fracturing have seen. The confluence of massive demographic and consumption expansion in the third world coupled with limited and non-renewable supplies is a massive force outside the control of individuals and governments. By moving into mining Odyssey positions themselves on the cutting edge of macroeconomic trends poised to deliver explosive growth.

Lastly, Odyssey should develop and capitalize on its commercial marine services. Expanding into various marine-contracting jobs can help Odyssey grow revenue on the margin. It also helps with inventory management, as by sending out many feelers, Odyssey can opportunistically take on projects during downtime. Selling excess capacity to various marine industries also lets Odyssey keep its ear to the

ground for new areas of opportunity. This paper believes that bio-prospecting for the pharmaceutical industry has potential but it is still too soon to tell.

Odyssey is a fascinating company with a dedicated management team. By properly positioning its strategy, Odyssey can develop itself into a truly unique company that generates sustainable, consistent profits.

Odyssey Marine Exploration Inc., (OMEX) Financial Statements

Dollars in thousands except per share amounts	Years Ended December 31,				
	2011	2010	2009	2008	2007
Results of Operations					
Revenue	\$ 15,727	\$ 21,001	\$ 4,347	\$ 4,105	\$ 6,147
Net income (loss)	(16,225)	(23,343)	(18,628)	(24,841)	(23,833)
Earnings (loss) per share – basic	(0.28)	(0.36)	(0.33)	(0.50)	(0.54)

ODYSSEY MARINE EXPLORATION, INC. AND SUBSIDIARIES CONSOLIDATED BALANCE SHEETS

	December 31, 2011	December 31, 2010
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	\$ 7,971,794	\$ 235,762
Restricted cash	212,788	563,710
Accounts receivable, net	500,626	2,095,571
Inventory	557,151	409,613
Other current assets	779,478	467,180
Total current assets	<u>10,021,837</u>	<u>3,771,836</u>
PROPERTY AND EQUIPMENT		
Equipment and office fixtures	15,450,467	16,637,638
Building and land	4,703,359	4,671,231
Accumulated depreciation	<u>(13,620,956)</u>	<u>(12,979,576)</u>
Total property and equipment	<u>6,532,870</u>	<u>8,329,293</u>
NON-CURRENT ASSETS		
Inventory	5,501,808	6,020,699
Restricted cash	251,791	183,498
Investment in unconsolidated entity	—	—
Other non-current assets	<u>1,106,097</u>	<u>1,101,367</u>
Total other assets	<u>6,859,696</u>	<u>7,305,564</u>
Total assets	\$ 23,414,403	\$ 19,406,693

LIABILITIES AND STOCKHOLDERS' EQUITY/(DEFICIT)		
CURRENT LIABILITIES		
Accounts payable	\$ 1,105,902	\$ 2,238,356
Accrued expenses and other	2,061,974	2,766,672
Deferred revenue	3,545,140	730,098
Subscription payable	—	1,998,800
Derivative liabilities	7,333,293	6,363,144
Mortgage and loans payable	4,802,930	5,174,537
Total current liabilities	18,849,239	19,271,607
LONG-TERM LIABILITIES		
Mortgage and loans payable	5,690,125	2,776,383
Deferred income from revenue participation rights	8,400,000	887,500
Total long-term liabilities	14,090,125	3,663,883
Total liabilities	32,939,364	22,935,490
Commitments and contingencies (Note U)		
Redeemable Series G Convertible Preferred stock	250,000	4,019,523
STOCKHOLDERS' DEFICIT		
Preferred stock – \$.0001 par value; 9,361,176 shares authorized; none outstanding	—	—
Preferred stock series D convertible – \$.0001 par value; 448,800 shares authorized, respectively; 206,400 issued and outstanding, respectively	21	21
Common stock – \$.0001 par value; 150,000,000 shares authorized; 73,095,384 and 67,082,835 issued and outstanding	7,309	6,708
Additional paid-in capital	137,236,462	122,722,840
Accumulated deficit	(147,018,753)	(130,277,889)
Total stockholders' deficit	(9,774,961)	(7,548,320)
Total liabilities and stockholders' deficit	\$ 23,414,403	\$ 19,406,693

ODYSSEY MARINE EXPLORATION, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF INCOME

	12 Month Period Ended December 31, 2011	12 Month Period Ended December 31, 2010	12 Month Period Ended December 31, 2009
REVENUE			
Artifact sales and other	\$ 853,627	\$ 391,189	\$ 1,636,042
Exhibit	207,289	140,000	593,798
Expedition	14,666,316	20,469,506	2,117,625
Total revenue	15,727,232	21,000,695	4,347,465
OPERATING EXPENSES			
Cost of sales – artifacts and other	414,993	191,091	680,530
Operations and research	21,288,476	19,570,672	12,594,834
Marketing, general and administrative	9,392,465	9,151,502	9,426,775
Receivable reserves	—	8,494,672	—
Total operating expenses	31,095,934	37,407,937	22,702,139

LOSS FROM OPERATIONS	(15,368,702)	(16,407,242)	(18,354,674)
OTHER INCOME OR (EXPENSE)			
Interest income	3,875	3,903	38,255
Interest expense	(1,155,072)	(515,878)	(334,364)
Change in derivative liabilities fair value	4,980,138	(3,638,112)	—
(Loss) on debt extinguishment	—	(383,023)	—
(Loss) from unconsolidated entity	(4,733,100)	(2,447,471)	(52,529)
Other	47,553	44,757	75,114
Total other income or (expense)	(856,606)	(6,935,824)	(273,524)
LOSS BEFORE INCOME TAXES	(16,225,308)	(23,343,066)	(18,628,198)
Income tax (provision) benefit	—	—	—
NET LOSS	<u>\$(16,225,308)</u>	<u>\$(23,343,066)</u>	<u>\$(18,628,198)</u>
LOSS PER SHARE			
Basic and diluted	\$ (.28)	\$ (.36)	\$ (.33)
Weighted average number of common shares outstanding			
Basic and diluted	70,179,935	65,633,382	56,211,952

ODYSSEY MARINE EXPLORATION, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

	12 Month Period Ended December 31, 2011	12 Month Period Ended December 31, 2010	12 Month Period Ended December 31, 2009
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net loss	\$(16,225,308)	\$(23,343,066)	\$(18,628,198)
Adjustments to reconcile net loss to net cash used by operating activity:			
Amortization of financing costs	272,998	—	—
Interest accretion on notes payable	405,465	—	—
Share based compensation	1,551,589	2,137,136	2,027,340
Depreciation	1,892,969	2,162,194	2,276,353
Write down of long-lived asset	593,966	—	—
Loan discount amortization	—	129,375	—
Loss on extinguishment of debt	—	383,023	—
Change in derivatives liabilities fair value	(4,980,138)	3,638,112	—
Loss from unconsolidated entity	4,733,100	2,447,471	52,529
Investment in unconsolidated entity	(4,733,100)	—	—
Accounts receivable - reserve	—	8,494,672	—
(Increase) decrease in:			
Accounts receivable	(403,856)	(10,343,976)	222,530
Restricted cash	282,629	3,368	91,215
Inventory	371,353	158,045	605,418
Other assets	(93,110)	(167,315)	13,518
Increase (decrease) in:			
Accounts payable	(1,132,454)	1,873,327	(623,377)
Accrued expenses and other	(541,356)	796,166	108,079
Deferred revenue	2,815,042	(527,355)	1,257,453
NET CASH (USED) IN OPERATING ACTIVITIES	<u>(15,190,211)</u>	<u>(12,158,824)</u>	<u>(12,597,140)</u>

CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchase of property and equipment	(973,764)	(1,630,108)	(1,149,981)
Investment in unconsolidated entity	—	(1,200)	(500,000)
Proceeds from disposal of long-lived asset	485,000	—	—
NET CASH (USED) IN INVESTING ACTIVITIES	(488,764)	(1,631,308)	(1,649,981)

CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from issuance of common stock	15,627,196	6,243,000	5,106,250
Proceeds from issuance of loan payable	10,000,000	1,872,714	—
Proceeds from issuance of preferred stock	—	5,050,000	—
Proceeds from warrants exercise	—	—	790,400
Broker commissions and fees on capital raises	(545,000)	(186,254)	—
Deferred income from revenue participation rights	7,512,500	—	—
Dividends	(515,556)	—	—
Redemption of Series G Preferred stock	(5,757,500)	—	—
Repayment of mortgage and loans payable	(2,906,633)	(1,099,015)	(244,438)
NET CASH PROVIDED BY FINANCING ACTIVITIES	23,415,007	11,880,445	5,652,212

NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	7,736,032	(1,909,687)	(8,594,909)
CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR	235,762	2,145,449	10,740,358
CASH AND CASH EQUIVALENTS AT END OF YEAR	\$ 7,971,794	\$ 235,762	\$ 2,145,449

SUPPLEMENTARY INFORMATION:

Interest paid	\$ 736,915	\$ 410,350	\$ 338,283
Income taxes paid	\$ —	\$ —	\$ —

NON-CASH TRANSACTIONS:			
Accrued compensation paid by equity instruments	\$ 229,564	\$ 561,594	\$ 117,804
Building and equipment purchased with financing	\$ 198,660	\$ 186,762	\$ —
Series G Preferred Stock accretion	\$ 1,987,977	—	—
Offset account receivable with subscription payable (See NOTE E)	\$ 1,998,800	—	—
Accounts receivable converted to stock in unconsolidated entity (See NOTE E)	\$ —	—	—
Acquired non-controlling interest of Dorado Ocean Resources, Ltd. with the assumption of a subscription payable of an equal amount (See NOTE J)	\$ —	\$ 1,998,800	\$ —

ODYSSEY MARINE EXPLORATION, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY / (DEFICIT)

	12 Month Period Ended December 31, 2011	12 Month Period Ended December 31, 2010	12 Month Period Ended December 31, 2009
Preferred Stock, Series D – Shares			
At beginning of year	206,400	1,906,400	6,900,000
Preferred stock issued for cash	—	—	197,600

Preferred stock converted to common	—	(1,700,000)	(5,191,200)
At end of year	206,400	206,400	1,906,400
Preferred Stock, Series E – Shares			
At beginning of year	—	13	13
Preferred stock issued for cash	—	(13)	—
At end of year	—	—	13
Common Stock – Shares			
At beginning of year	67,082,835	59,425,947	52,410,248
Common stock issued on convertible instruments	102,000	3,000,000	5,191,200
Common stock issued for cash	5,520,000	4,000,000	1,722,500
Common stock issued for services	390,549	656,888	101,999
At end of year	73,095,384	67,082,835	59,425,947
Preferred Stock, Series D			
At beginning of year	\$ 21	\$ 191	\$ 690
Preferred stock issued for cash	—	—	20
Preferred stock converted to common	—	(170)	(519)
At end of year	\$ 21	\$ 21	\$ 191
Preferred Stock, Series E			
At beginning of year	\$ —	\$ —	\$ —
Preferred stock issued for cash	—	—	—
At end of year	\$ —	\$ —	\$ —
Common Stock			
At beginning of year	\$ 6,708	\$ 5,943	\$ 5,241
Common stock issued on convertible instruments	10	300	519
Common stock issued for cash	552	400	172
Common stock issued for services	39	65	11
At end of year	\$ 7,309	\$ 6,708	\$ 5,943
Paid-in Capital			
At beginning of year	\$ 122,722,840	\$ 114,490,556	\$ 106,425,370
Series D Preferred stock issued for cash	—	—	790,380
Accretion of Series G Preferred stock	(1,987,977)	(383,050)	—
Fair value of warrants issued to Series G Preferred stock shareholders	(906,150)	—	—
Warrants issued in connection with short term funding	—	150,892	—
Common stock issued for cash	15,397,144	6,056,346	5,106,078
Share-based compensation	1,781,115	2,408,226	2,168,728
Common stock issued on convertible instruments	229,490	(130)	—
At end of year	\$ 137,236,462	\$ 122,722,840	\$ 114,490,556
Accumulated Deficit			
At beginning of year	\$(130,277,889)	\$(106,934,823)	\$ (88,306,625)
Net loss	(16,225,308)	(23,343,066)	(18,628,198)
Dividends	(515,556)	—	—
At end of year	(147,018,753)	(130,277,889)	(106,934,823)
Total stockholders' equity/(deficit)	\$ (9,774,961)	\$ (7,548,320)	\$ 7,561,867

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