USS *Vandenberg* in its operational days as a missile tracking ship. Photo: Artificial Reefs of the Keys

Photo: Don Kincaid
Schooling fish on the USS *Vandenberg*

Photo: Don Kincaid
Satellite dish on the USS *Vandenberg*

Public Financing and Return on Investment from the USS *Vandenberg* as an Artificial Reef

Introduction

In May 2009, the USS *Vandenberg* a 520-foot decommissioned U.S. Air Force missile tracking ship and World War II-era U.S. Army troop transport ship was sunk as an artificial reef off Key West, Florida, in Florida Keys National Marine Sanctuary.

The state of Florida and Monroe County governments invested in the sinking of the *Vandenberg* to boost economic development and tourism. The result was an increase in both local dive charter business and the local economy.

The following summary examines state and local tax revenues generated by the USS *Vandenberg* and as well as the return on investment to state and local governments.

Costs of the USS *Vandenberg*

The total costs of cleaning, towing, sinking and conducting monitoring of the USS *Vandenberg* were $8.6 million. The state of Florida invested $2.8 million, while Monroe County invested $4.3 million, for a total state and local government investment of $7.1 million. The U.S. Maritime Administration invested $1.25 million, with the remaining $0.25 million contributed by private sources.

Additional Tax Revenues Generated by the USS *Vandenberg*

The USS *Vandenberg* generated an annual increase in state and local tax revenues of approximately $618,000 — about $379,000 in state sales tax revenue and almost $240,000 in local sales and lodging tax revenues (Table 1).

Net Present Value of Tax Revenues and Return in Investment

Using lower-bound conservative assumptions that the annual additional state and local tax revenues from the *Vandenberg* will remain constant (net of inflation); that the life of the *Vandenberg* will range from 20 to 40 years; and the real interest rate (net of inflation) used to discount future tax revenues to their net present values ranges from three to five percent, we can calculate the net present value of the future flow of the tax revenues and compare these to the net costs to the state and local governments that invested in the *Vandenberg* to support economic development and tourism.

Based on the above assumptions, the net present value of tax revenues to state and local governments ranged from a low of $7.71 million (assuming the *Vandenberg* has a useful life of only 20 years and the discount rate is five percent) to a high of $14.29 million (assuming a useful life of 40 years and a discount rate of three percent). With a total state and local government investment of $7.1 million, there is a net return to state and local government even under the lower-end estimate.

Table 1. Additional Annual State and Local Sales and Lodging Tax Revenues from the USS *Vandenberg*

State Sales Tax Revenue (5.5%)	**$378,920**
Local Sales Tax Revnue (2.0%)	$142,892
Local Lodging Tax Revenue (5%)	$96,756
sub-total Local Tax Revenues	**$239,649**
Total State & Local Revenue	**$618,569**

1. State sales tax is 6%, but 0.5% is returned to local governments.
2. Local sales tax is 1.5%, but 0.5% of state sales tax is returned to local governments.
3. Local lodging tax is 5%, the 7.5% of sales tax on lodging is counted in the state and local sales taxes.

State government would receive a return on its investment under all assumptions, while local government would receive a return on its investment only under two of the six assumptions (useful lives of 30 and 40 years and an interest rate of three percent). However, if the state and local government pooled their investments and paid the full cost of the *Vandenberg* ($8.6 million), they would have received a return on their investment under all but one of the assumptions (20-year useful life and five percent interest rate).

Given what we know about other large ships deployed as artificial reefs, a 40-year lifespan seems a reasonable assumption for the *Vandenberg*. Under this scenario, state and local governments could have paid the entire cost of the *Vandenberg* and earned a net return on their investment.

Conclusions

This case study demonstrates that sinking a decommissioned ship as an artificial reef can be both a benefit to the dive businesses and the local economy, while also providing a return on investment to state and local governments.

To access the main report, technical appendix and other facts sheets go to: http://sanctuaries.noaa.gov/science/socioeconomic/floridakeys/recreation/new_reefs.html

Table 2. Net Present Value of Additonal State and Local Tax Revenue from the USS *Vandenberg*

	3% Interest Rate (Millions $)[1]			5% Interst Rate (Millions $)[1]		
Tax	20 years	30 years	40 years	20 years	30 years	40 years
State Sales Tax Revenue	**$5.64**	**$7.43**	**$8.75**	**$4.72**	**$5.82**	**$6.50**
Local Sales Tax Revenue	$2.12	$2.80	$3.30	$1.78	$2.20	$2.45
Local Lodging Tax Revenue	$1.44	$1.90	$2.24	$1.21	$1.49	$1.66
sub-total Local Tax Revenue	**$3.56**	**$4.70**	**$5.54**	**$2.99**	**$3.69**	**$4.11**
Total State & Local Tax Revenue	**$9.20**	**$12.13**	**$14.29**	**$7.71**	**$9.51**	**$10.61**

1. Interest rates are net of inflation, since tax revenues are also net of inflation. Assunption is that additional tax revenue is constant over time.

Photo: Don Kinkaid

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