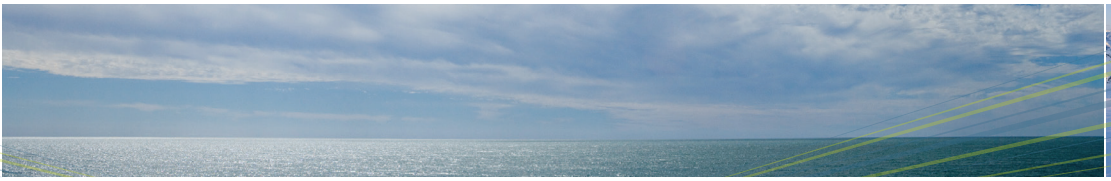

Port and Harbor Ten-year Development Plan

Prepared for the

City of Unalaska

April 2009

Northern Economics

Port of Dutch Harbor Ten-Year Development Plan

Prepared for the

City of Unalaska

April 2009

Prepared by

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Abbreviations

ABC	Allowable Biological Catch
ADCCED	Alaska Department of Commerce, Community and Economic Development
ADF&G	Alaska Department of Fish & Game
ADOL&WD	Alaska Department of Labor & Workforce Development
ADOT&PF	Alaska Department of Transportation & Public Facilities
AFA	American Fisheries Act
AMBBA	Alaska Municipal Bond Bank Authority
ANCSA	Alaska Native Claims Settlement Act
APL	American President Line
AS	Alaska Statute
ASC	American Seafoods Company
BSAI	Bering Sea and Aleutian Island
CEM	Carl E. Moses Boat Harbor (formerly known as Little South America)
CMMP	Capital and Major Maintenance Plan
CP	Catcher Processor
CPI-U	Consumer Price Index-Urban
CV	Catcher Vessel
DAP	Domestic Processor
DVC	Daily Vessel Check (database)
EEZ	Exclusive Economic Zone
FEMA	Federal Emergency Management Agency
FMP	Groundfish Fishery Management Plan
GOA	Gulf of Alaska
H&G	Headed and Gutted (type of fish processing)
IFQ	Individual Fishing Quota
IPQ	Individual Processing Quota
JVP	Joint Venture Processor
LCD	Light Cargo Dock
MLLW	Mean Lower Low Water
MTSA	Maritime Transportation Security Act of 2002
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

NPF	North Pacific Fuels
NPFMC	North Pacific Fishery Management Council
OC	Ounalashka Corporation
OCS	Outer Continental Shelf (potential oil development)
OSI	Offshore Systems, Inc.
PILOT	Payment in Lieu of Taxes
PILT	Payment in Lieu of Taxes
PSGP	Port Security Grant Program
PSI	Pacific Stevedoring, Inc.
SBH	Robert Storrs International Small Boat Harbor
SHARC	Subsistence Halibut Registration Certificate
SPC	Sustainable Practical Capacity
TAC	Total Allowable Catch
TALFF	Total Allowance Level to Foreign Fishing
TIF	Tax Increment Financing
TWIC	Transportation Worker Identification Credential
UMC	Unalaska Marine Center
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
WHEC	Warship High Endurance Cutter

Executive Summary

The Port of Dutch Harbor Ten-Year Development Plan is a comprehensive document for use in planning for the Port of Dutch Harbor's facilities needs. The plan provides analysis of the current conditions in the port, fleet composition, demand for facilities and services, and the facilities and services offered at competing ports in the region. After providing this background information, it presents tariff recommendations intended for the port facilities to be sustainable and charge rates that are comparable to other ports in the region. The plan communicates the findings of that analysis so that the City may make decisions regarding the types of investments to make in port and harbor infrastructure to accommodate the anticipated needs over the next ten years.

The Port of Dutch Harbor manages, maintains, and operates five City-owned marine facilities:

Unalaska Marine Center and U.S. Coast Guard (USCG) Dock. The Unalaska Marine Center (UMC) and the USCG Dock consist of approximately 2,051 linear feet of dock face. The UMC offers cargo, passenger, and other port services.

Spit Dock Facility. The Spit Dock facility measures 2,400 linear feet. This facility offers multiple berths with long and short-term moorage for vessels up to 200 feet in length.

Small Boat Harbor. The Robert Storrs International Small Boat Harbor facility consists of 1,232 linear feet of floats, comprising 71 slips. Long-term slips and transient moorage spaces are available for vessels up to 60 feet.

Light Cargo Dock. The Light Cargo Dock (LCD) was built in 2000 and consists of two sheet pile docks each having a 50-foot dock face with breasting dolphins located on either side of the sheet pile dock. The dock provides a total of 340 linear feet of space.

Over the eight-year period from fiscal year 2000 through 2008, port and harbor revenues have grown an average of 6 percent annually, while expenses have grown at only 4.8 percent each year. Since 2001, each linear foot of moorage space on the Spit Dock has produced annual revenues between $138 and $245, as compared with the range of $71 to $96 in the Small Boat Harbor.

The Port of Dutch Harbor currently has a 49-vessel waiting list for permanent moorage at the Small Boat Harbor, of which 70 percent are local. This suggests that an expansion of the Small Boat Harbor would provide significant benefits to local residents. However, the moorage revenues generated by a small boat are one-third to one-quarter of those generated by a large boat, due in part to rafting. Rafting can be accomplished at the Small Boat Harbor, but space constraints and navigational requirements make it difficult to raft a significant number of small boats. Unless fees at the Small Boat Harbor are raised, it is unlikely that moorage fees will generate enough revenue to amortize the capital investment of new small boat docks and floats. Small boat expenditures are also much lower than the expenditures that larger boats make in the community, so the benefits to local businesses are much less with small boats.

We assume that the population of Unalaska will remain stable over time, resulting in steady demand for small boat moorage with which to pursue recreational, subsistence, and state-water fisheries. Recent requirements for port security will require the Port to allocate staff time to ensure these requirements are met, reducing the staff time available for dealing with other matters, unless other personnel are added.

The competition from other ports, from Kodiak to Akutan, is primarily for vessels up to 150 feet in length. With the recently completed facilities and completion of those that are in the planning stages, we expect that there will be slightly more vessels than there are slips in the 60 to 150-foot class. If Carl

E. Moses Boat Harbor (CEM) is built, it will provide additional moorage for vessels in the 60 to 150 foot class. It is not clear what effect, if any, the opening of CEM would have on other port facilities in Unalaska. Competition may ensue to capture market share and increase occupancy rates, potentially reducing revenues for other harbors catering to these vessel sizes. However, Unalaska is a preferred location for moorage, which will provide it with some competitive advantage.

The Port of Dutch Harbor's database identifies 29 vessels greater than 200 feet in length that have used the UMC in the past decade, and another 30 or so freighters, tugs, and barges that are less than 200 feet in length. These two groups of vessels are the primary users of the UMC. Utilization of the UMC increased over the past several years but has declined significantly in recent months due to competition from DH Ports LLC's newly opened dock. Prior to the opening of the DH Ports facility, the UMC was still operating below the annual utilization threshold for expanding the facility. However, during peak periods, demand for dockage and moorage at the UMC exceeded availability, and potential improvements at the Light Cargo Dock were designed to help meet this need for certain vessel types. These LCD improvements may not be needed to help meet peak demand at the UMC for several years, but such improvements could enhance the revenue-generating capability of the LCD and improve the Port's financial situation.

Enabling vessels to use the UMC or LCD at times of peak demand will help to even out and improve the utilization of both facilities, and will allow the City to capture revenues from vessels that would otherwise be anchored, or using other facilities. Utilizing both facilities to accommodate periods of high demand will also allow the City to defer the cost of improvements to the UMC.

The following criteria are offered as preliminary considerations when allocating funds for public port and harbor infrastructure investments in the City of Unalaska:

- Availability of uplands
- Availability of utilities and facilities (restrooms, parking, etc.)
- Capital cost per berth or linear foot
- City ownership of uplands and tidelands
- Ease of permitting
- Expansion capability on uplands as well as waterside
- Potential for the investment to generate additional employment and income to businesses and households in the community
- Proximity to services and businesses
- Revenue-generating capability per berth or linear foot, and ability to amortize the investment
- Sustainability of facility based on market rates for moorage, dockage, and other services

Evaluating the findings of the demand analysis with the investment criteria suggests the following strategy and timing for development:

1. The Port of Dutch Harbor is facing a significant shortfall in revenues resulting from the DH Ports dock's effect on use of the UMC. To the extent possible, tariffs should be increased to reduce some of the shortfall. This plan presents recommended rate increases of 4.8 percent annually, matching the long-term growth rate of the Port's expenses. This includes an increase in the rates charged for Horizon Lines' use of the UMC, which means that the next preferential use agreement will need to include a rate increase similar to the increase

proposed for other rates. However, the Port cannot recover from its revenue shortfall solely by increasing rates. Additional changes are necessary.

2. A number of vessels in the 225 to 300-foot range have used the UMC for longer-term dockage although the cost for such moorage is a deterrent for increased use of the facility. Provided the LCD is capable of handling the load, this plan recommends that the Port allow 225 to 300-foot vessels to use the LCD for longer-term moorage. Based on the current rates, a suitable daily rate would be $430 per day, with a 15 percent discount for prepayment of less than 30 days and a 50 percent discount for prepayment of a full month. For vessels under 225 feet, standard Spit Dock rates would apply. By offering the LCD for longer-term use by larger vessels, the UMC will be free to handle shorter term, cargo-oriented needs, while also allowing for increased use of the LCD and increasing total revenues to the Port.
3. The City of Unalaska should consider the creation of a special ports tax in the amount of 1 to 1.2 mills to be applied uniformly to all taxable real property within the city limits. Alternatively, the City might consider a special ports tax at a higher mill rate that would apply to those properties in proximity to Dutch Harbor and extending to include the container storage areas. Further, the City should consider the creation of an improvement area in the vicinity of the CEM harbor development and use tax increment financing as a source of funding for the harbor project's debt obligations.
4. During the next ten years, the Port should focus resources on maintaining existing facilities and reconfiguring them to accommodate actual and anticipated changes in the local fleet. The one major new facility planned for the next ten years is the CEM harbor, which will serve a need for large vessel (60 to 150 feet) moorage.
5. Use of public facilities for cargo handling is expected to remain flat or decline in the future. The UMC will remain a priority facility for cargo because of its container ship capability, but it will see a reduction in other types of use due to the recently opened DH Ports dock. The UMC will reach capacity at some point in the future, but that point has been extended beyond the ten-year horizon due to the impact of the DH Ports dock. Once the UMC does begin to near its operational capacity, the LCD will be a likely candidate for improvements to handle cargo. Improvements to the LCD would provide an alternative location to the UMC for catcher processors, barges, trampers, and coastal freighters that may seek to load or offload cargo, particularly during peak seasons, and improve utilization.
6. With the development of CEM, utilization of the Spit Dock will likely decrease as vessels in the 60-foot to 150-foot range shift to using the new facility. This reallocation of vessels will allow for the Spit Dock to serve larger vessels, offering moorage to larger vessels that are not currently adequately served, as well as a fleet of vessels that have historically increased in size. Although the recommended moorage for the CEM harbor is higher than the Spit Dock, this analysis assumes vessel owners will be interested in moving to the CEM harbor. Past studies have shown that the top three things vessel owners are looking for are shore power, a slip, and location (access to town). The CEM harbor would provide these characteristics and would therefore be a more attractive moorage location for some vessel owners. At some point in the late 2010s or early 2020s, it may make sense to evaluate options for expanding or strengthening the Spit Dock to handle larger vessels of up to 250 feet. The mooring of more large vessels in the community would increase the amount spent by the fleet in local businesses and generate more income for local households. Long-term moorage should be located away from areas of high activity, and the Spit Dock is the appropriate location for this use provided it can operate or be expanded in such as way as to avoid disrupting operations at the LCD.

7. While other harbors in the region will compete with the CEM harbor for vessels in the 60 to 150-foot size class, Unalaska is the preferred moorage location for many vessel owners, especially for 150 to 250-foot vessels, and can command a price premium over other ports, although it may be necessary to adjust rates over several years to determine the extent of this premium. After CEM is built, the Small Boat Harbor will provide moorage for vessels shorter than 60 feet, the CEM Harbor will provide moorage for vessels 61 to 150 feet, and, with an expansion, the Spit Dock could be the primary mooring facility for vessels ranging from 151 to 250 feet. The LCD could provide moorage for vessels 225 to 300 feet in length.
8. Improvements to berths 3, 4, and 5 at the UMC will likely be required in the future to accommodate new ships that are expected on the Puget Sound-Alaska and Puget Sound-Asia routes. These ships were anticipated in the mid-2000s but their introduction has been delayed and, with the current global economic downturn, they may not be put into use for five to ten years. It is advisable that the Port maintain communication with Horizon Lines and other shipping companies to learn about planned changes in the container ship fleet using the Port of Dutch Harbor. More substantial improvements could be necessary if the Port wishes to remain an attractive stop for ships engaged in the trans-Pacific trade.
9. With increased security regulations and the TWIC program in effect, it is recommended that the Port add an item to the tariff that specifically addresses the cost of using port personnel for security purposes. It is recommended that the tariff include both regular and overtime rates for a port-provided watchman. It may optionally include a per-ton or per-passenger rate, depending on the nature of the security needs.
10. The Port and local businesses should work to market the Port of Dutch Harbor to potential users. The Port Director has evaluated marketing options, but local businesses need to be involved as well. Existing businesses have experience with attracting vessels and know what services will attract them. To attract additional vessels to the Port, it may be necessary to find ways to attract or recruit new companies to offer services in community.

1 Introduction

The Port of Dutch Harbor Ten-Year Development Plan is a comprehensive document for use in planning for the Port of Dutch Harbor's facilities needs. The plan provides analysis of the current conditions in the port, fleet composition, demand for facilities and services, and the facilities and services offered at competing ports in the region. After providing this background information, it presents tariff recommendations intended for the port facilities to be sustainable and charge rates that are comparable to other ports in the region. The plan communicates the findings of that analysis so that the City may make decisions regarding the types of investments to make in port and harbor infrastructure to accommodate the anticipated needs over the next ten years.

1.1 Definitions of Moorage and Dockage Used in the Development Plan

Specific definitions have been developed for moorage and dockage discussed in this plan. The following definitions are used throughout the plan:

- **Moorage:** Moorage is space available at a facility that provides long-term berthing of vessels. The term is also used when talking about the amount of money charged for a vessel to moor at a facility (*i.e.,* a moorage rate). Moorage capacity is expressed as the number of berths, based on the average size of vessels using the facility, not the number of vessels using a particular berth by rafting. The Small Boat Harbor and the Spit Dock are the primary moorage facilities in Unalaska.
- **Dockage:** Dockage refers to the berthing of a vessel at a dock that is designated for short-term loading and unloading of fish, fuel, and other cargo. The term is also used when talking about the amount of money charged for a vessel to dock at a facility (*i.e.,* a dockage rate). Dockage capacity is defined as the number of vessels that can use the available dock face at any given time without rafting, based on the average length of vessels that use each facility. Dockage facilities owned by the City of Unalaska are the Light Cargo Dock and Unalaska Marine Center.

2 Current Conditions

This section summarizes current conditions at the Port of Dutch Harbor and the City of Unalaska for operations and facilities, finances, services, and constraints. Because the City Council, City staff, and many members of the public are cognizant of much of this information, we summarize information that is widely known to keep the document to a readable length.

2.1 Operations and Facilities

The Port of Dutch Harbor website (City of Unalaska, 2008) provides the following information about its operations and facilities.

The Department of Ports and Harbors manages, maintains, and operates five City-owned marine facilities: the U.S. Coast Guard (USCG) Dock, Unalaska Marine Center (UMC), Spit Dock, Light Cargo Dock (LCD), and Robert Storrs International Small Boat Harbor.

USCG Dock and Unalaska Marine Center. The UMC and the USCG Dock consists of approximately 2,051 linear feet of dock face. The UMC offers cargo, passenger, and other port services. Horizon Lines operates a 30-ton container crane and rail system for containerized cargo and North Pacific Fuel operates fueling facilities. Fresh water, warehouse space, telephones, and storage areas are available. Depth at mean lower low water (MLLW) alongside the berthing area is 40 feet.

Spit Dock Facility. The Spit Dock facility measures 2,400 linear feet. This facility offers multiple berths with long and short term moorage for vessels up to 200 feet in length. Shore-power, refuse removal, and fresh water are offered.

Small Boat Harbor. The Robert Storrs International Small Boat Harbor facility consists of 1,232 linear feet of floats, comprising 71 slips. Long-term slips and transient moorage spaces are available for vessels up to 60 feet. Freshwater, shore-power, waste oil disposal, and refuse removal are available.

Light Cargo Dock. The LCD was built in 2000 and consists of two sheet pile docks each having a 50-foot dock face with breasting dolphins located on either side of the sheet pile dock. The dock provides a total of 340 linear feet of space. The water depth is limited to 25 feet MLLW for the north dock and shallows out to 20 feet MLLW at the south dolphin of the south dock.

More information about the existing port and harbor facilities available in Unalaska is contained in the Marine Facilities Maintenance Review, completed by PND Engineers in January 2004.

2.2 Finances

This section briefly summarizes the financial status of Unalaska's ports and harbors.

Table 1 provides a summary of earnings for the Ports and Harbors Enterprise Fund for fiscal years 2000 through 2008. Over the nine-year period, revenues have grown an average of 6.7 percent annually, while expenses have grown at 6.3 percent each year. The growth in expenses in 2008 reflects additional electricity needs at the UMC, which were paid by the U.S. Coast Guard. The long-term growth rate for expenses has been closer to 5 percent. As a result of the trend of revenue growth

exceeding expense growth, and shrinking net nonoperating expenses[1], net income before capital contributions, special items, and transfers has increased at an annualized rate of over 15 percent.

Table 1. Summary of Earnings, Ports and Harbors Enterprise Fund, in Thousands of Dollars, FY 2000-2008

	Fiscal Year									Annualized Change (%)
	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Operating Revenues	2,936	3,361	3,638	3,859	4,114	4,246	4,460	4,464	4,938	6.7
Operating Expenses	2,406	2,482	2,738	2,794	3,230	3,343	3,405	3,350	3,915	6.3
Income from Operations	530	878	901	1,065	884	904	1,055	1,114	1,023	8.6
Net Nonoperating Revenues (Expenses)	-200	-94	-113	-75	-55	-44	42	-4	2.3	
Net Income Before Capital Contributions, Special Items, and Transfers	330	785	788	990	829	860	1,098	1,110	1,025	15.2

Source: City of Unalaska (2001-2008)

Table 2 summarizes balance sheet information for the Ports and Harbors Enterprise Fund for fiscal years 2000 through 2008. Total assets have grown at an annualized seven percent over the past four years, compared with a nine percent annual increase in net assets. The substantial increase in assets between 2000 and 2001 represents construction of the Light Cargo Dock. The drop in current assets from 2006 to 2007 is due primarily to a reduction of the Ports and Harbors Enterprise Fund's cash and cash equivalents and money due from the General Fund.

Table 2. Comparative Balance Sheet, Ports and Harbors Enterprise Fund, in Thousands of Dollars, FY 2000-2008

	Fiscal Year									Annualized Change (%)
	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Current Assets	3,770	5,134	5,184	5,380	6,268	6,687	6,540	4,826	6,874	7.8
Noncurrent Assets	18,133	19,468	25,859	27,186	26,925	26,800	28,125	30,487	32,583	7.6
Total Assets	21,903	24,603	31,043	32,566	33,192	33,487	34,666	35,314	39,457	7.6
Current Liabilities	751	2,576	2,123	1,077	1,099	747	783	317	215	-14.5
Noncurrent Liabilities	2,014	1,649	1,268	865	440	0	36	33	253	-22.8
Net Assets	19,138	20,378	27,652	30,624	31,653	32,740	33,847	34,963	38,989	9.3
Total Liabilities and Net Assets	21,903	24,603	31,043	32,566	33,192	33,487	34,666	35,314	39,457	7.6

Source: City of Unalaska (2001-2008)

Using revenue information by facility for fiscal years 2001 through 2008, the following table (Table 3) shows the revenues earned per linear foot of moorage space for the Spit Dock and the Small Boat Harbor. From 2001 to 2005, revenues per linear foot of the Spit Dock were steady. In 2006 and 2007, however, they dropped substantially due to rationalization of the crab fleet and renovations being done to the Spit Dock. Spit Dock revenues increased again in 2008. Over the eight years shown

[1] Nonoperating revenues and expenses include gains (losses) on disposal of assets, interest income, and interest expense. For the years shown in the table, the net amount was an expense except for in 2006 and 2008.

in the table, revenues averaged almost $214 per linear foot, though 2007 revenues were only $138.43. During this time, revenues generated by the small boat harbor have remained stable, averaging $81.72. The average ratio of revenues per linear foot for the spit dock to the small boat harbor has been 2.6 over the last seven years, though in 2007 that ratio dipped for the first time below 2 at 1.7.

Table 3. Revenues Earned Per Linear Foot of Moorage Space, Spit Dock and Small Boat Harbor, FY 2001-2008

Fiscal Year	Revenues per Linear Foot of Moorage ($)		Ratio of Spit Dock to Small Boat Harbor
	Spit Dock	Small Boat Harbor	
2001	224.76	72.01	3.1
2002	206.88	71.34	2.9
2003	230.58	73.59	3.1
2004	230.37	83.52	2.8
2005	245.39	90.91	2.7
2006	191.73	95.99	2.0
2007	138.43	82.80	1.7
2008	242.68	83.58	2.9
Average	213.85	81.72	2.6

Source: City of Unalaska (2001-2008)

2.3 Services

The Port of Dutch Harbor provides a variety of services, depending on which facilities are used. Services include fresh water, shore-power, some fuel services, waste oil removal, refuse removal, telephones, security checks, warehouse space, and vessel storage.

2.4 Constraints

The Port of Dutch Harbor faces several constraints in developing new port and harbor infrastructure facilities. These include:

- Management changes have dramatically reduced the number of boats participating in the groundfish and crab fisheries, with crab rationalization resulting in a fleet reduction from a high of between 230 and 240 boats when the fishery was open access to 78 boats in 2006 and 40 boats in 2007 with rationalization.
- The new DH Ports dock and cold storage have altered the interaction of fishing vessels and trampers with the public port facilities and reduced demand for the City's port facilities; this situation has been seen with ASC's vessels and trampers. The decrease in revenues generated by the Unalaska Marine Center in 2008 as compared to 2007 is substantial. It is unknown if the decrease in use of the City's port facilities will continue or whether different types of vessels, such as oil support vessels, will increase their utilization of the City's port facilities.
- There is a scarcity of City-owned lands that can be developed at a reasonable cost for upland uses; constraining factors include physical constraints (e.g., steep slopes), costs for extending public services, and high construction costs.

- There is a limited amount of tidelands in locations that are cost-effective sites for development of port and harbor infrastructure facilities. The Carl E. Moses Boat Harbor (CEM) will be built on existing tidelands and additional land created from dredging.
- A substantial amount of moorage being added in the region competes with moorage facilities owned by the Port of Dutch Harbor.
- There is a growing but still limited capacity in the community to meet the maintenance needs of vessels, resulting in Unalaska capturing a larger part of the annual maintenance expenditures.
- Port security has become a big issue over the last five years and will continue to be a big issue in the future.

While these constraints do not preclude development of port and harbor infrastructure, they do increase uncertainty, hinder cost effective development, and inhibit the ability of the community to capture a large portion of the potential benefits from the maritime industry.

3 Factors Affecting Future Conditions

Developing a Ten-Year Development Plan for the Port of Dutch Harbor requires an examination of the future and the changes that will occur, and the effect that those changes will have on the demand for port and harbor infrastructure. The following sections describe potential changes in the fisheries in the region, marine cargo and transshipment, changes in tourism and local population growth, fuel and transportation costs, and other factors that may affect the Port in the future.

3.1 Fisheries Overview and Forecast

Unalaska/Dutch Harbor, by some measures, is one of the largest fishing ports in the US. It is the primary harbor and shore-based processing center of the crab, pollock, Pacific cod, and other groundfish fisheries of the Bering Sea and Aleutian Islands, which are among the largest fisheries in the world. This section provides a historical overview of the crab and groundfish fisheries in the Bering Sea, with a focus on the way changes have affected the number of vessels participating in the fisheries and consequently using the port and facilities available at Dutch Harbor.

The history of the fishing industry in Unalaska/Dutch Harbor can be summarized as occurring in two phases: 1) Expansion—often followed by collapse and rebuilding, and 2) Allocation and rationalization. All of the major fisheries have experienced these phases, although the timing has varied across the different species. The remainder of this summary will focus on these two phases and then examine the outlook for fisheries into the future.

3.1.1 Expansion, Collapse, and Rebuilding

This section describes the expansion, collapse, and rebuilding of the Bering Sea crab fishery and the expansion of groundfish fisheries during the latter half of the last century, and provides tables and figures showing catch volumes and the numbers of participating vessels.

3.1.1.1 Boom and Bust in the Bering Sea Crab Fishery

Unalaska/Dutch Harbor came into prominence as a fishing port during the expansion of the Bering Sea crab fisheries during the 1960s and 1970s, as demonstrated in Figure 1.

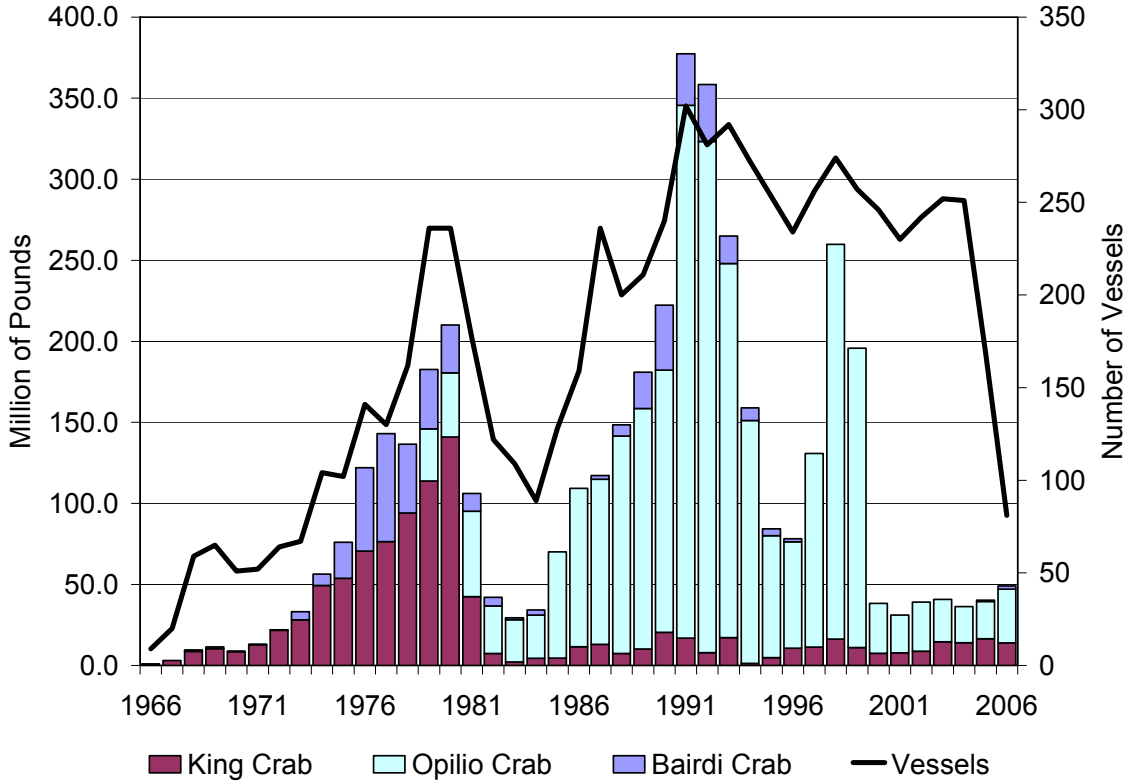
The crab harvest expanded rapidly and peaked in 1980. In that year, total crab harvests exceeded 210 million pounds with approximately 230 vessels involved. The king crab fishery collapsed in 1982, however, and between 1982 and 1985 harvests averaged only 44 million pounds. In 1984, the number of participating vessels dropped to fewer than 90.

Following the collapse of the king crab fishery, vessels and processors changed their focus to opilio crab (also known as snow crab). While not as large or valuable as king crab, the opilio fishery boomed in the late 1980s and peaked in 1991, when harvests exceeded 300 million pounds. In 1991, over 300 vessels registered to fish in the crab fisheries of the Bering Sea, and almost all of them at some point during the year called at Unalaska/Dutch Harbor.

The boom and bust cycle in the crab fishery continued during the late 1990s. Total crab harvests dropped in 1995 and 1996 to less than 100 million pounds, then jumped back up to over 240 million pounds in 1998, but then quickly crashed back down to less than 40 million pounds in 2000. During this period however, the number of vessels registered to participate remained relatively stable at

around 250. In 2005, the number of vessels in the fishery dropped sharply with the implementation of crab rationalization, which will be discussed later in Section 3.1.3.

Figure 1. Estimated Harvests and Vessels in the Bering Sea Crab Fisheries, 1966-2006



Note: King Crab is the sum of estimated harvests of red and blue king crab from the Bering Sea and Pribilof Island Fisheries. The number of vessels is estimated by taking the maximum number of registered vessels between the Bering Sea red king crab fishery and the Opilio fishery for the year.

Source: Adapted by Northern Economics from ADF&G, 2008

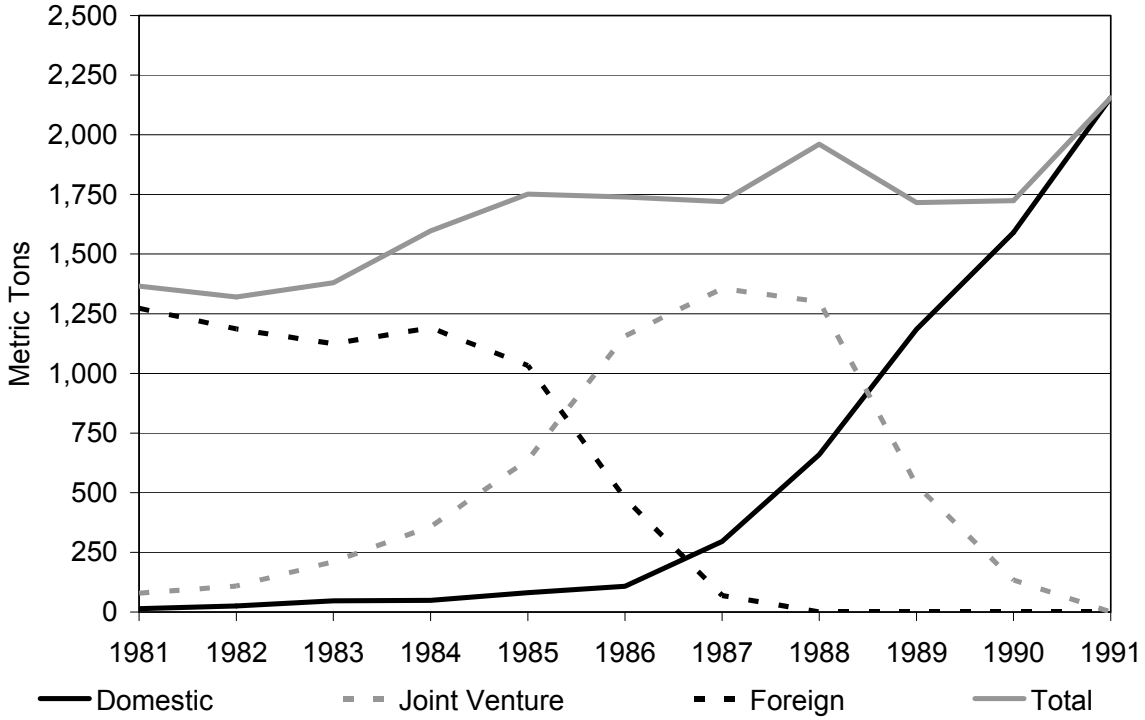
3.1.1.2 Beginnings and Expansion in the Bering Sea Groundfish Fisheries

When the Bering Sea crab fishery went bust in 1981 and 1982, fishermen began looking in earnest for other fisheries in the region to exploit. The huge groundfish stocks in the Bering Sea were a natural attraction. Following the passage of the Magnuson Act in 1976, the North Pacific Fishery Management Council (NPFMC) established the Bering Sea and Aleutian Island (BSAI) Groundfish Fishery Management Plan (FMP). The FMP established a process to "Americanize" the groundfish fisheries, by gradually reducing the Total Allowance Level to Foreign Fishing (TALFF) and encouraging US harvesters by setting aside growing amounts of the Total Allowable Catch (TAC) to Joint Venture Processors (JVPs) and to domestic processors (DAP). Joint ventures were encouraged early in the process because there were few US processors willing or able to process the huge volumes of groundfish that could be taken.

As shown in Figure 2, foreign direct harvests (TALFF) dominated the BSAI groundfish fisheries through 1985. While the first JVP operations occurred in the late 1970s (NPFMC, 2006), significant growth in the JVP effort did not occur until 1983. By 1986, JVP operation surpassed foreign fishing operations. Relatively small amounts of BSAI groundfish were processed by US domestic processors until 1987,

when domestic processors—primarily catcher processors—took nearly 300,000 MT of BSAI groundfish. US domestic processing doubled in 1988 to over 650,000 MT and nearly doubled again in 1989, when domestic processing exceeded combined foreign and JVP for the first time. The last foreign fishing in the BSAI was in 1987 and the last JVP operations occurred in 1990. By 1991, the BSAI groundfish fishery was fully Americanized.

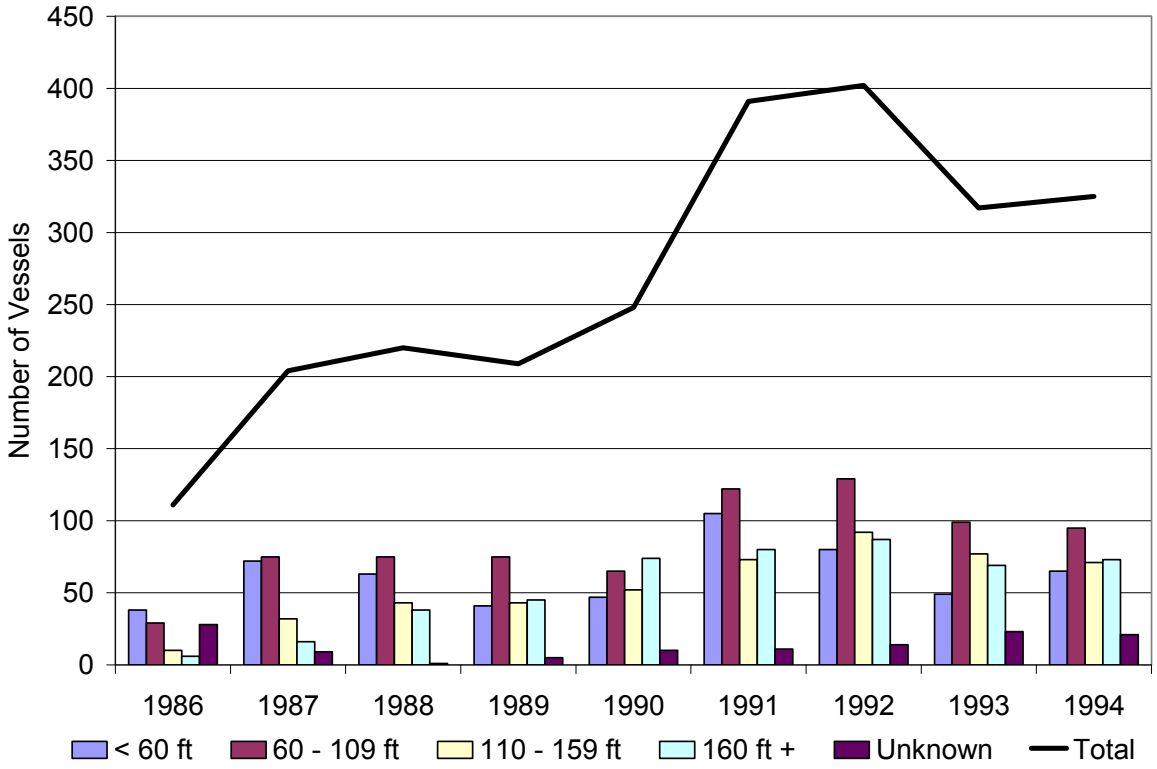
Figure 2. Growth of US Domestic Groundfish Harvests in the BSAI, 1981 - 1991



Source: Adapted by Northern Economics from Hiatt, 2000

Information on the number of vessels fishing in the BSAI groundfish fishery during the early years is somewhat sketchy. This was due in part to the data collection program, which concerned itself primarily with monitoring total amounts processed by the various sectors. In the operations involving motherships (both JVP and domestic), the actual catcher vessels involved in the harvest were only tracked in log books and observer accounts, which have never been processed into electronic formats. Figure 3 shows the number of US vessels by length operating in the BSAI groundfish fisheries between 1986 and 1994. The figure does not include catches delivered exclusively to motherships in either JVP or domestic operations. In 1986, just over 111 vessels participated; the number jumped to over 200 in 1987 and had doubled again to over 400 in 1992. The majority of boats were between 60 and 110 feet.

Figure 3. BSAI Groundfish Vessels by Length, 1986 - 1994



Note: Includes US motherships, and US catcher processors, and US catcher vessels delivering to shoreplants. Does not include catcher vessels delivering exclusively to motherships.

Source: Adapted by Northern Economics from Kinoshita, et al., 1996

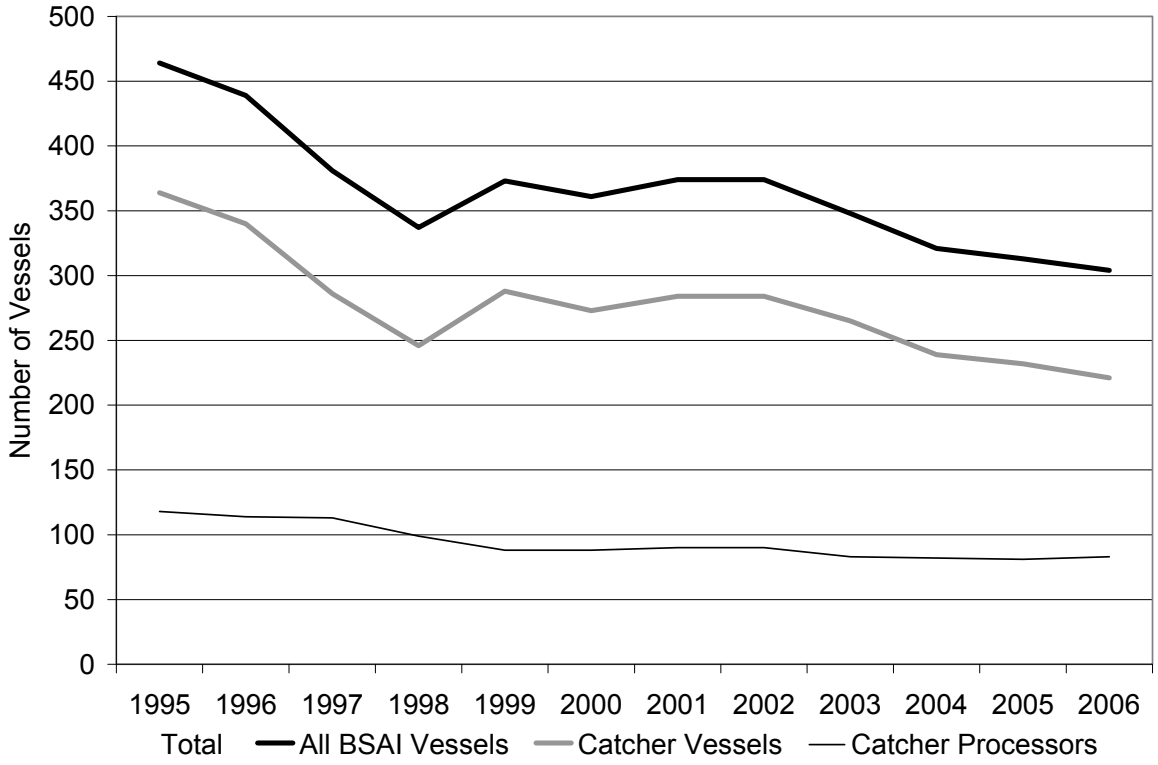
Figure 4 and Figure 5, along with Table 4 and Table 5, show the number of vessels participating in the groundfish fishery of the Bering Sea from 1996 to 2005.[2] Nearly all of these vessels utilized Unalaska/Dutch Harbor during the course of the fishing year. Figure 4 shows the total number of vessels as well as the number of catcher vessels (CVs) and catcher processors (CPs) that had landings in BSAI groundfish fisheries. The total declines from a peak of 464 in 1995 down to 337 in 1998. In 1995, 364 vessels operated as CVs and 118 operated as CPs.[3] Between 1999 and 2002, the number of vessels remained relatively stable. During this period there were an average of 379 vessels overall, 282 operating as CVs and an average of 89 operating as CPs. The number of participating vessels declined steadily since 2002.

The reasons behind the declining vessel number can be explained by Figure 5. The decline in the number of CVs from 1995 to 1998 was seen primarily in the fixed gear sectors—most likely explained by the implementation of individual fishing quotas (IFQs) and also by the realization by many fixed gear boats that margins in the BSAI Pacific cod fishery are low. The decline in participation by CPs was seen primarily in the Trawl sector.

[2] NMFS changed their reporting methods in their economic status reports beginning with their 1999 reports. This explains the different length categories shown in these tables and figures compared to Figure 3. In these tables and figures all catcher vessels including those delivering to motherships are included.

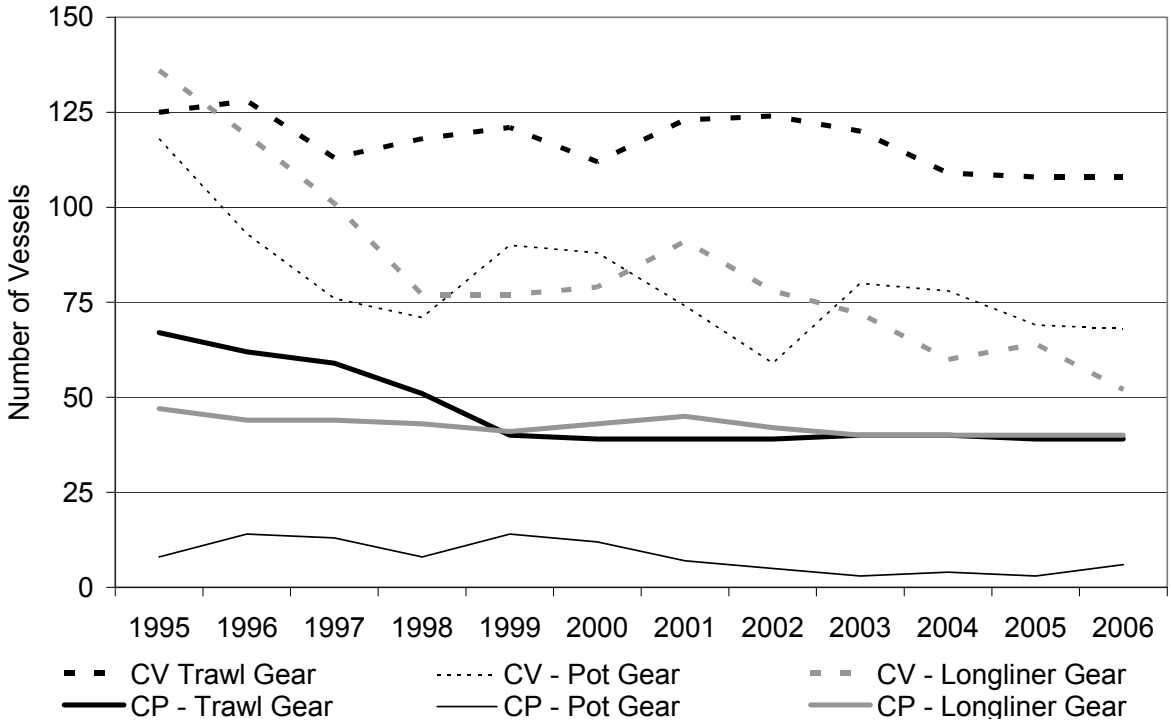
[3] Vessels that operated as both CPs and CVs are counted in both categories, thus adding the number of CPs and CVs will double count some vessels—18 vessels operated as both CPs and CVs in 1995.

Figure 4. Numbers of Harvesting Vessels in BSAI Groundfish Fisheries, 1995 - 2006



Source: Adapted by Northern Economics from Hiatt and Terry, 1999 and Hiatt et al., 2004 and 2006

Figure 5. BSAI Groundfish Catcher Vessels and Catcher Processor Counts by Gear, 1995 - 2006



Source: Adapted by Northern Economics from Hiatt and Terry, 1999 and Hiatt et al., 2004 and 2006

Table 4 provides details on participation by length class of catcher vessel by gear type. The 62 percent decline in longline participation between 1995 and 2006 was primarily seen in boats between 60 and 125 feet (down 83 percent), while longline boats less than 60 feet were down 45 percent. The 42 percent decline in pot boat participation was limited to larger vessel classes—the number of pot boats less than 60 feet participating in the BSAI groundfish fisheries has actually increased.

Table 4. Catcher Vessel Participation in BSAI Groundfish Fisheries by Gear Type, 1995 - 2006

	Longline Gear				Trawl Gear				Pot Gear			
	< 60 ft	60 – 125 ft	> 125 ft	All	< 60 ft	60 – 125 ft	> 125 ft	All	< 60 ft	60 – 125 ft	> 125 ft	All
1995	73	63	0	136	3	89	33	125	14	80	24	118
1996	59	58	2	119	5	91	32	128	5	64	24	93
1997	49	52	0	101	3	76	34	113	5	52	19	76
1998	39	38	0	77	6	78	34	118	4	46	21	71
1999	34	40	3	77	6	84	31	121	4	63	23	90
2000	50	28	1	79	3	80	29	112	3	60	25	88
2001	70	21	0	91	15	81	27	123	6	52	16	74
2002	61	17	0	78	17	82	25	124	8	37	14	59
2003	58	14	0	72	13	82	25	120	10	55	15	80
2004	47	12	1	60	4	79	26	109	14	49	15	78
2005	49	15	0	64	5	78	25	108	13	43	13	69
2006	40	11	1	52	5	78	25	108	15	43	10	68

Source: Hiatt and Terry, 1999 and Hiatt et al., 2004 and 2006

Table 5 shows CP participation by length and gear class. The numbers of freezer longliners are down 25 percent since 1995, almost all of which were smaller vessels less than 125 feet in length. The number of freezer longliners greater than 125 feet has increased by one since 1995. In the trawl sector, the most significant declines came in the relatively large vessel class (from 164 to 259 feet). Participation by pot catcher processors has generally declined, and since 2001, between three and seven vessels have participated.

Table 5. Catcher Processor Participation in BSAI Groundfish Fisheries by Gear Type, 1995 – 2006

	Longline Gear					Trawl Gear					Pot Gear				
	<125 ft	125 – 164 ft	165 – 259 ft	260 ft +	All	<125 ft	125– 164 ft	165 – 259 ft	260 ft +	All	<125 ft	125 – 164 ft	165– 259 ft	260 ft +	All
1995	19	16	12	0	47	10	7	32	18	67	4	3	1	0	8
1996	18	13	13	0	44	9	5	30	18	62	5	6	3	0	14
1997	18	15	11	0	44	12	5	26	16	59	6	4	3	0	13
1998	16	15	12	0	43	8	4	23	16	51	2	4	2	0	8
1999	15	15	11	0	41	9	4	13	14	40	3	7	4	0	14
2000	15	16	12	0	43	8	4	14	13	39	2	6	4	0	12
2001	15	16	14	0	45	8	4	13	14	39	2	4	1	0	7
2002	12	18	12	0	42	7	4	13	15	39	2	2	1	0	5
2003	11	18	11	0	40	7	4	13	16	40	2	1	0	0	3
2004	10	19	11	0	40	7	5	13	15	40	1	2	1	0	4
2005	10	19	11	0	40	6	5	13	15	39	1	1	1	0	3
2006	11	18	11	0	40	7	4	13	15	39	2	2	2	0	6

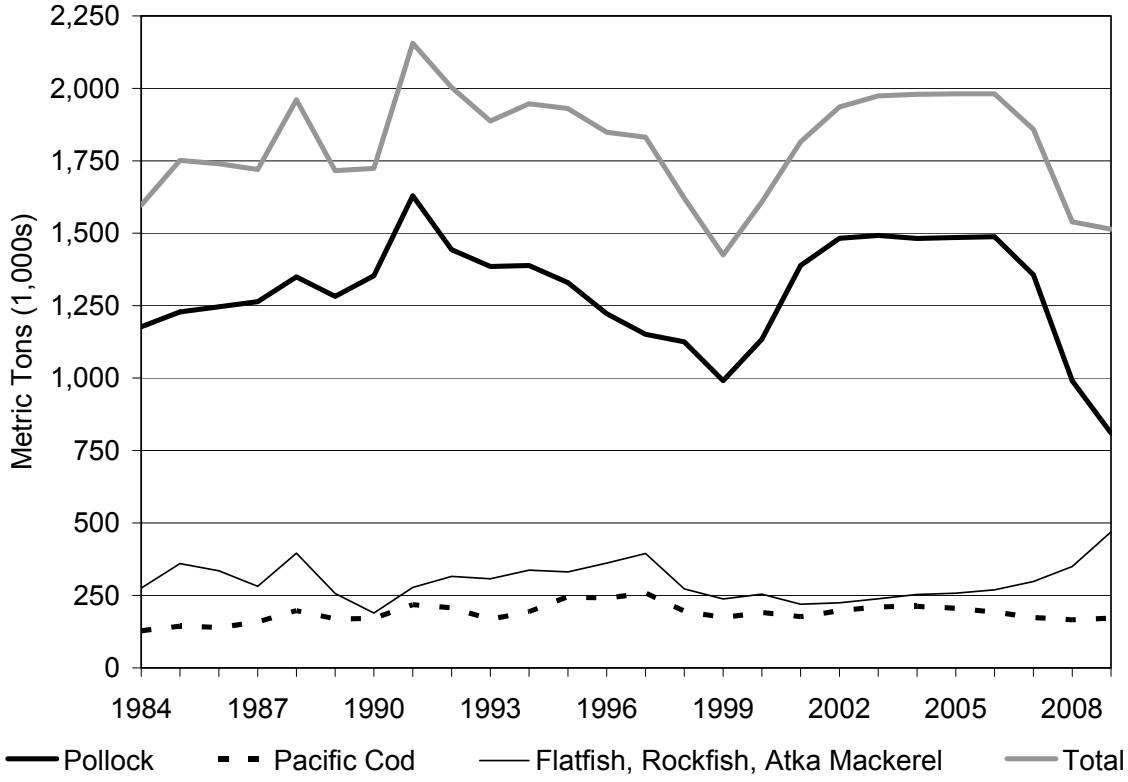
Source: Hiatt and Terry, 1999 and Hiatt et al., 2004 and 2006

The huge resource of groundfish in the BSAI is the underlying reason the fishing and processing vessels are active. As shown in Figure 6, the pollock resource dominates the other stocks in terms of tons of harvest. The pollock fishery is such a large resource that dedicated harvesting and processing sectors have developed both on-shore and at-sea to harvest and process the resource. The largest category of Trawl CPs are all dedicated to the pollock fishery, as are the vast majority of trawl catcher vessels larger then 60 feet. A dedicated fleet has also developed around the Pacific cod fishery—the freezer longline fleet of 40 vessels target Pacific cod almost exclusively.[4] The pot boats, both CV and CPs, also target Pacific cod almost exclusively when they are fishing for groundfish; however, the pot boats are primarily in the area to fish for king and opilio crab. The flatfish fisheries, along with the Atka mackerel and rockfish, are the primary targets of a group of smaller trawl catcher processors (generally up to 250 feet) that do not target the pollock fisheries and are only capable of processing fish into headed and gutted product (H&G Trawl CPs). In general, vessels other than the H&G Trawl CPs do not target flatfish, Atka mackerel or rockfish in the BSAI.[5]

[4] A few of the freezer longliners were originally developed for the sablefish fishery, but the relatively small TAC for sablefish and the ability of smaller CVs to profitably harvest sablefish under IFQs have limited the number of freezer longliners that fish for sablefish.

[5] H&G Trawl CPs also catch a significant portion of the Pacific cod TAC, although they do not generally target that species.

Figure 6. Harvests of BSAI Groundfish by Species Group, 1984 – 2009



Note: The "Total" includes harvests of sablefish and other groundfish species such as skates and sculpins as well as pollock, Pacific cod, flatfish, rockfish and Atka mackerel. Harvests for 2009 are projected based on 2009 TAC and ratio of 2008 catch to TAC.

Source: Adapted by Northern Economics from Hiatt and Terry (1999), Hiatt et al. (2004, 2006, and 2007), and NOAA Fisheries Alaska Region (2009)

3.1.2 Allocation Battles and Rationalization

The previous section described the numbers of vessels in the crab and groundfish fisheries of the Bering Sea. Vessels that exploit these fisheries are also the fishing vessels that utilize the port and harbor facilities at Dutch Harbor. In order to project how many vessels are likely to use the port and harbor in the future, it is necessary to understand the factors that shaped these fisheries. This paper has already described how the boom and bust cycle in the crab fisheries has affected the number of participating vessels, and has described the expansion of the domestic US groundfish fishery at the expense of foreign harvesters and processors.

Several factors led to the changes in numbers of vessels—obviously the size of the exploitable resource is critical. But regulatory changes also play a critical role in determining how many vessels will be participating. In general, the crab and groundfish fisheries have moved through several phases of management:

1) In the 1960s and early 1970s, both the crab and groundfish were generally managed as pure open access fisheries. Vessel could generally enter and exit as they pleased and harvest until the catch levels dropped off.

2) With the implementation of the Magnuson Act in 1976, the management regimes limited the total amount of harvest that could be taken, but still allowed open access to resources by any that wished.

3) Open access with limited harvests invariably led to allocation battles pitting one group of harvesters and processors against another. In these allocation battles each of the groups tried to obtain a larger share of the resource through political means via the resource managers.

4) Inevitably managers ended the open access to any and all participants and imposed restrictions on which vessels could fish with license limitation programs.

5) After the number of boats was limited, the allocation battles generally continued, and in the Bering Sea nearly all of the fisheries have become rationalized, with each harvesting operation receiving an allocation of a fixed share of the resource that they have an exclusive right to exploit on an annual basis.

Several example of this process are described below:

- **Allocations of Groundfish between US and Foreign Interests:** The first major allocation battle was described in the previous section. The implementation of the Magnuson Act gave the US exclusive fishing rights to the 200 mile Exclusive Economic Zone (EEZ) off the US coastline and authorized the NPFMC to set fishery policy for the offshore waters in the BSAI. One of the first actions the NPFMC took was to set total allowable catch limits on the previously unlimited harvests of the groundfish resources of the Bering Sea. Along with the imposition of TACs, the NPFMC gave US harvesters priority access to the resource.

- **Gear Splits for Sablefish:** The first real allocation battle between US harvesters and processors was the gear split for sablefish in the BSAI and the Gulf of Alaska (GOA) in 1985. Sablefish was one of the first fisheries to become fully Americanized. In 1984 and early 1985, large pot catcher processors that were idled because of the bust in the crab fisheries found they could profitably utilize pots to harvest sablefish in the deep waters along the Aleutian Islands and along the Alaska Peninsula. In 1985, longline CVs in the GOA believed the pot CPs would pre-empt their planned harvests. In 1985, the NPMFC banned the use of pot and trawl gear targeting sablefish in the much of the GOA and established fixed gear/trawl gear splits for sablefish in the BSAI. This was a precursor to the allocation battles to come.

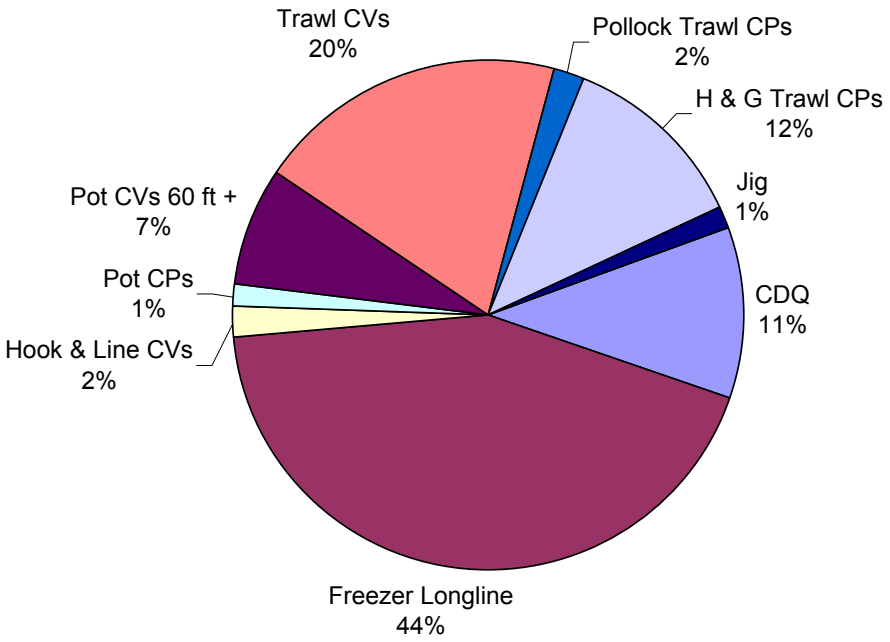
- **Ban on Roe Stripping:** During the mid to late 1980s, the pollock fishery in the GOA developed around a shore-based fleet of trawl CVs delivering to processing facilities in Kodiak. During the same period, US investors were also developing trawl catcher processors to exploit the resources, primarily in the BSAI. In the late winter and spring of 1989, several of the trawl CPs came down into the GOA and harvested large quantities of pollock during the spawning season, extracting the highly value roe and discarding the low-valued flesh. The unexpected and early harvest pre-empted the Kodiak-based fishery. In 1990, the NPFMC approved a ban on roe stripping in both the GOA and the BSAI. Because there was, at the time, only a very limited market with very low prices for H&G pollock, the ban on roe stripping had the allocative effect of precluding the H&G trawl CPs from the targeted pollock fishery.

- **Inshore-Offshore Allocation for Pollock:** Immediately following the ban on roe stripping came proposals to develop a more permanent solution to the problem of one sector pre-empting another sector in the pollock fisheries of both the GOA and the BSAI. In 1992, the NPFMC approved inshore-offshore allocations of pollock. In the GOA, the allocation extended to Pacific cod as well. In the GOA, the effect of the allocations was to completely eliminate the at-sea pollock fishery in the GOA, and to severely limit the amount of Pacific

cod that could be harvested and processed at-sea by vessels longer than 125 feet. In the BSAI, the pollock fishery was divided into two sectors: inshore, which was allocated 35 percent of the pollock, and offshore catcher processors and motherships, which were allocated 65 percent of the pollock. The inshore-offshore allocations were reauthorized in 1995 and approved again by the Council in 1998.[6, 7] The inshore-offshore allocation contributed to the slowing of growth in the number of vessels fishing for pollock in the Bering Sea.

- **Gear Splits for Pacific Cod:** In 1992 the Council approved an allocation that would divide the BSAI Pacific cod TAC into several separate gear TACs. Over several iterations, the Pacific Cod gear splits have become one of the more complex allocations in the fishery and over the years have greatly influenced the number of vessels in the fishery. The gear splits for 2008 & 2009 are shown in Figure 7.

Figure 7. Current Gear Splits in the BSAI Pacific Cod Fishery



Source: Adapted by Northern Economics from NOAA Fisheries, 2008

- **IFQs for Sablefish and Halibut:** The allocation issues in the sablefish fishery continued after the 1985 gear split. In 1992, after many years of debate and analysis, a final rule on individual fishing quotas (IFQs) was approved by the secretary of commerce. The IFQ program (which was not implemented until the 1995 fishing season) would issue each qualifying vessel a share of the fixed gear TAC for sablefish and halibut. The sablefish and halibut fisheries became the first rationalized fisheries in Alaska, and eventually reduced the overcapitalization that had plagued the fishery and caused season lengths to fall to a matter of days. The IFQs in sablefish and halibut are likely one of the primary causes of the reductions in participation by fixed gear vessels in the years 1995 to 1998, as shown in Figure 5.

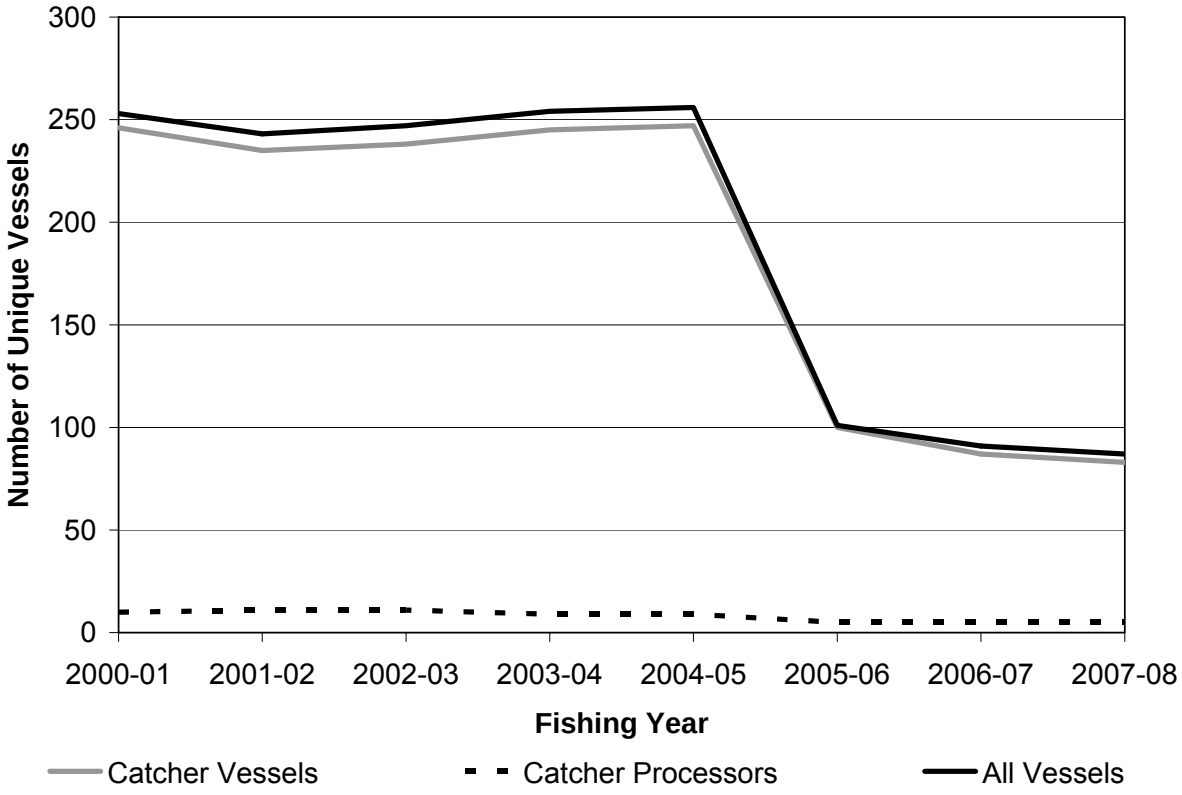
[6] The "Inshore-Offshore 3" was superseded by the American Fisheries Act before it was implemented.

[7] The inshore offshore allocations in 1992 also created the first Community Development Quota (CDQs).

- **License Limitation for Groundfish and Crab Vessels:** The NPFMC began studies to limit the number of vessels in BSAI groundfish and crab fisheries as early as 1990 with its first examination of a vessel moratorium. The NPFMC approved a license limitation program for crab and groundfish that was finally implemented in 1998. From that point forward, no new vessels could enter any of the groundfish or crab fisheries without replacing an existing vessel of a similar or shorter length. The licenses included area-specific endorsements, which kept vessels from participating in areas in which they had no previous history—no longer could vessels that had fished exclusively in the GOA enter the fisheries in the BSAI and vice versa. While the license limitation program did not explicitly reduce the number of vessels in the Bering Sea crab and groundfish fisheries, it effectively limited the growth of the fleets.[8]
- **American Fisheries Act:** The American Fisheries Act (AFA) was approved by the US Congress late in 1998 and was implemented in 1999 for catcher processors and in 2000 for the inshore sector. AFA had the effect of rationalizing the BSAI pollock fisheries by allowing the formation of cooperatives. AFA also fixed the number of catcher vessels (112) and catcher processors (19) that could target pollock. The ability to form cooperatives gives vessel owners the ability to optimize the number of boats that are active, and allows them reduce the numbers if pollock TACs drop (as occurred in 2008) or if fuel expense dictate. In 2006 there were 16 AFA Trawl CPs that participated in the pollock fishery (Pollock Conservation Cooperative, 2007). The numbers of AFA catchers vessels active in the BSAI pollock fishery has declined more significantly—by 2003 there were only 93 active vessels and by 2008 the number had dropped to 87 (Furuness, 2008).
- **Crab Rationalization:** Rationalizing the Bering Sea crab fisheries has been one of the more significant challenges that the NPMFC has worked through. The NPFMC made their final approval of the preferred alternative in the Crab Rationalization Program in June 2003 and fishing under the program began in 2005. The program established IFQs for harvesters with a requirement that 90 percent of the IFQ be matched to processors that were issued Individual Processing Quota (IPQs). In addition, IFQs were issued to qualifying crew members. The program made it possible for the fishing fleet to consolidate by allowing the formation of cooperatives among initial recipients. Through use of the cooperative vehicle, the number of unique vessels that were active in the Bering Sea crab fisheries dropped from 256 in the 2004-05 fishing year to 100 in the 2005-06 year (see Figure 8). By the 2007-08 fishing year, the number of active vessels had fallen to 87 (NPMFC, 2008). The consolidation represents a 66 percent decline in the number of vessels between 2005 and 2007.

[8] In the BSAI, vessels less than 32 feet were not limited. In addition, the limitations do not apply to vessels fishing exclusively in state waters.

Figure 8. Unique Numbers of Vessels Participating in the Bering Sea Crab Fisheries 2000-2008



Note: At least four vessels have acted as both catcher vessels and catcher processors during the period shown. The total avoids double counting and is the number of unique vessels.

Source: Adapted by Northern Economics from NPMFC, 2008

- **Amendment 80 Rationalizes the H&G Trawl CP Fishery:** In June 2006, the NPMFC approved Amendment 80 to the BSAI Groundfish FMP. The action created separate allocations of BSAI groundfish species for the Non AFA Trawl Catcher Processor Sector (which are also known as the H&G Trawl CPs). As indicated earlier the H&G Trawl CPs have fished primarily on the flatfish, rockfish and Atka mackerel stocks and also have considerable incidental catches of Pacific cod. These vessels range from 125 ft to 250 ft. The allocations allow this sector to form cooperatives among themselves and thus optimize their fishing practices. There are 28 vessels that qualify to participate in the sector (NPMFC, 2007). In 2008, the first year of fishing under the program, industry members report anecdotally that the number of vessels has not declined from 2007. Industry members indicate, however, that some consolidation may occur in the future, but it is unlikely to exceed 25 percent.

3.1.3 The Future

As discussed above, nearly all of the groundfish and crab fisheries of the BSAI have been effectively rationalized and major shifts in the number of fishing vessel in the area are unlikely to occur because of regulatory actions. The following sections describe some of the issues that could affect the number of fishing vessels that are likely to use Unalaska/Dutch Harbor in the future.

3.1.3.1 Reductions in BSAI Pollock TAC

For 2008 the TAC for BSAI Pollock was set at 1.0 million MT down from 1.4 million MT in 2007 and 1.5 million MT in 2006. The downward trend in the pollock TAC is expected to continue with the 2009 TAC. In 2009 and possibly for 2010, the pollock TAC is expected to stay the same at best, and at worst to drop to 900,000 MT or less. There are signs, though, that the 2006 pollock year class is strong, and this could mean that higher TACs may be seen again in the future. With lower pollock TACs and with expectations for continued high prices for fuel, the number of vessels fishing under AFA could decline further.

3.1.3.2 Quota share program for GOA groundfish fisheries

The North Pacific Fishery Management Council is considering management measures intended to improve the economic efficiency of groundfish fisheries in the GOA. A number of alternative measures have been proposed, including allocating quota shares to qualified processors.

Historically, relatively small amounts of groundfish harvested in the GOA have been delivered for processing in Unalaska/Dutch Harbor. Consequently, the overall effects of a quota share program for GOA groundfish fisheries is expected to have a negligible impact on Unalaska/Dutch Harbor's seafood industry. However, certain (albeit minor) segments of the fishing fleet could be affected depending on how quota shares are allocated. In particular, many of the vessels 60 feet or less that deliver fish to Unalaska processors rely heavily on Pacific cod and other groundfish fisheries in the western and central GOA, and the rationalization program could affect their continued participation.

Currently the GOA rationalization program does not appear to be moving quickly through the NPFMC process, and it does not appear that it will be approved or implemented within the next few years.

3.1.3.3 BSAI Pacific Cod Area Split

In February 2007 the NPFMC was presented with a discussion paper regarding apportionment of BSAI Pacific cod sector allocations between the BS and AI subareas, should the ABC/TAC be split in the future. If such an allocation split were to occur, there may be some ramifications for Unalaska/Dutch Harbor. Depending on how allocations are made, there could be some minor movement of vessels and processing out of Unalaska/Dutch Harbor to Adak.

3.1.3.4 Expansion of the Eastern Aleutian District Tanner crab fishery

After being closed by the State of Alaska at the end of the 1994 season, the commercial C. bairdi Tanner crab fishery for the Eastern Aleutian District—the Tanner crab fishery near Dutch Harbor—reopened on January 15, 2004 with a guideline harvest level of 87,891 pounds in Makushin Bay and 47,219 pounds in Unalaska Bay. The Unalaska Bay portion of the fishery closed on January 19, and the Makushin Bay portion closed on February 3. The 2004 harvest level was far below the harvest levels attained during the 1970s and 1980s, when annual catches averaged about 600,000 pounds (at its peak in 1977, the Dutch Harbor Tanner crab harvest reached 2,494,631 pounds) (ADF&G, 2008).

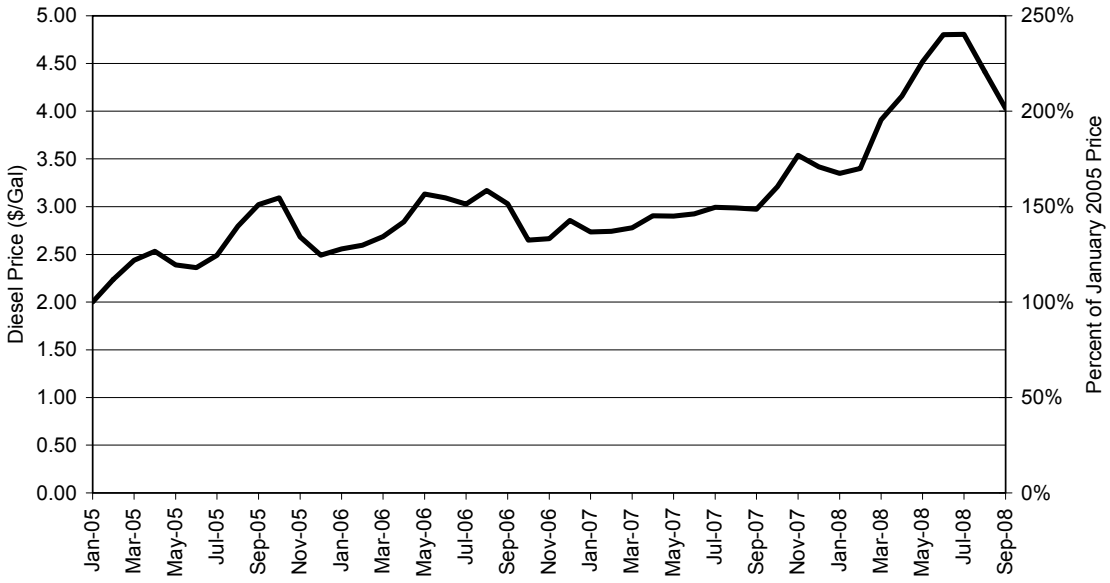
This fishery is suitable for smaller craft, as boats can fish near Dutch Harbor and deliver there.[9] In 2004, seven vessels over 60 ft. (four of which are owned by residents) and 21 vessels under 60 ft. (20 of which are owned by residents) had Dutch Harbor Tanner crab interim use permits. Twenty-five vessels were on the preseason registration list for the 2004 season, but only 14 actually participated in the fishery during that season. In 2007 there were 22 resident permitted tanner crab Dutch Harbor vessels and 1 non-resident permitted vessel under 60 ft. Only 17 of these permits were fished with landings totally 60,778 pounds and gross earnings at $90,073. No landings were made by vessels over 60 ft.

The Eastern Aleutian District Tanner crab fishery is an open-access fishery. Consequently, the number of vessels participating in the fishery could increase. However, there is a gear limit of 300 pots for the Eastern Aleutian District fishery, and it is unlikely that more than about 30 vessels would be willing to share this limit. Further, a limit of around 10 pots per boat would probably be attractive only to smaller vessels.

3.1.3.5 Cost of Fuel

The high cost of fuel has made it very expensive to operate fishing vessels during the last few years. Figure 9 shows the average US West Coast prices for No. 2 diesel since January 2005. Diesel prices have increased over 200 percent since 2005 and in July 2008 hit a peak at $4.96. Since then prices have fallen off dramatically, but it is unlikely that prices will drop back down to 2005 levels. The higher diesel prices are likely to reduce the number of vessels that can earn profits by fishing. Operators will also try to cut back on the number of trips they take, and are also likely to cut back on seasonal relocations. For vessels that operate primarily out of Unalaska/Dutch Harbor, this likely means that the more vessels will over-winter, and that fewer vessels will take long trips to the lower 48 for maintenance.

Figure 9. West Coast No. 2 Diesel Retail Sales Prices, January 2005 – September 2008



Source: Adapted by Northern Economics from Energy Information Administration (2008)

[9] There is a vessel length limit of 58 feet for the Unalaska Bay portion of the fishery, but no length limit for the Makushin Bay.

3.1.3.6 King Salmon Bycatch Limit in the Bering Sea Pollock Fishery

In April 2009, the NPFMC approved a hard-cap on the incidental catch of king salmon in the Bering Sea Pollock Fishery (Hopkins, 2009). In years of high salmon abundance, the cap has the potential to shut down the pollock fishery before the Pollock TACs are taken. In addition, the incentive programs designed to keep incidental catch of king salmon below the cap are likely to cut into profits even if the entire pollock TAC is harvested.

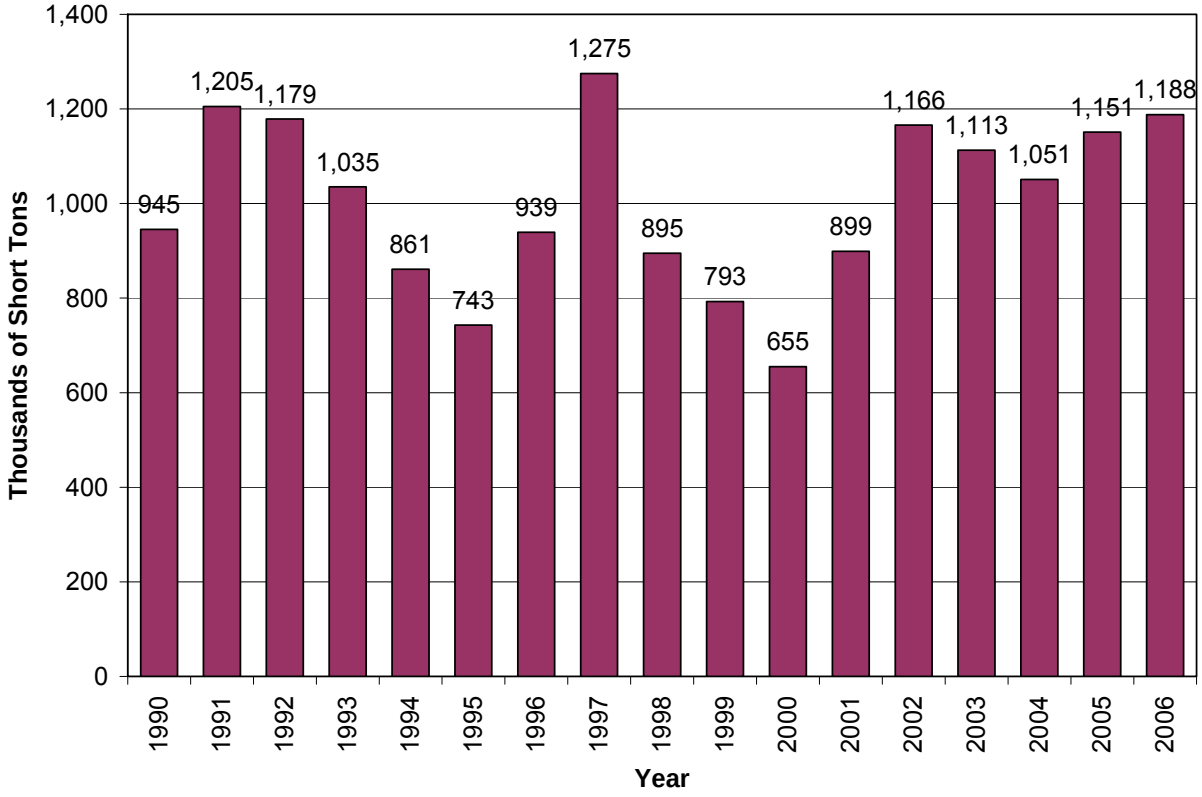
3.1.4 Summary and Conclusions

Over the last thirty years, the fleets fishing Bering Sea crab and groundfish resources have experienced periods of growth and decline due to changes in stock levels and changes in regulatory regimes. In general, it appears as though the regulatory regimes that are currently in place are relatively stable and that they will no longer be a significant influence on the number of vessels that are actively fishing. However, changes in stock levels and other exogenous factors, such as the price of fuel and global consumer demand the region's seafood, will continue to influence the number of vessels that utilize the port and harbor facilities at Unalaska/Dutch Harbor. Given the high cost of fuel, and generally low levels of pollock and crab in the region, we forecast stable to slightly lower numbers of vessels of all sizes over the next several years.

3.2 Marine Cargo and Transshipment

The Port of Dutch Harbor is one of Alaska's most productive ports for transshipment of cargo destined to and from other locations in western Alaska. Figure 10 provides estimates of the total volume of freight moving through the Port of Dutch Harbor and private facilities elsewhere in the community. These volume estimates include foreign and domestic receipts and shipments.

Figure 10. Freight Traffic for Unalaska Bay and Island, 1990-2006



Source: USACE (2008)

The City of Unalaska has the westernmost container terminals in the state. These include the container berth at the UMC and the American President Line (APL) facility. Unalaska is strategically located on the Great Circle Route between northern Asia and the west coast of the U.S., and is a reason why Dutch Harbor has become a major transshipment point for western Alaska. Seafood products from Bristol Bay, Akutan, and other seafood processing facilities in the region move by tug and barge to Unalaska where they are typically transshipped to container ships or other vessels destined for the ultimate marketplace.

In addition to container ships, freight movements to and from the community are also handled by tug and barge sets and small coastal freighters for domestic movements, and foreign break-bulk freighters capable of holding frozen product, often called trampers, that are primarily engaged in moving seafood products to foreign countries.

The container ships can only call at the largest facilities in Unalaska, the UMC and APL docks. Tug and barge sets can call at many of the private docks in the community, as well as the UMC and APL facilities. Coastal freighters typically call at private docks to offload freight destined to companies owning or operating those facilities. Coastal Marine has its own docking facility in East Channel. Trampers are typically at anchor in Captains Bay or Summer Bay, but do call at seafood processors and other private and public docks to take on product or replenish their supplies and fuel. Alaska Marine Pilots restrict travel through East Channel to vessels less than 420 feet in length so larger trampers cannot call at the processor docks located in Iliuliuk Harbor.

Future marine cargo movements will continue to be driven primarily by exports and requirements of the seafood industry operating in the community and the region. The first quarter earnings call for

Horizon Lines, Inc. included a discussion of the impact of declining Pollock quotas on outbound shipments. In the call, John Keenan, President of Horizon Lines, LLC, reported a softening of shipments on the order of 100 containers per month (Seeking Alpha, 2008).

The Horizon Lines container ships used in the Puget Sound-Alaska routes will likely be replaced with larger ships within the next few years as they seek to stay competitive with Totem Ocean Trailer Express on the Tacoma-Anchorage leg of the route. Horizon Lines still uses the same ships as it did 5 years ago but is in the process of assessing options for ships used in Alaska, based on the demand of northbound trade. It did invest in a new, larger crane in Dutch Harbor in 2008 to accommodate larger Maersk vessels heading to Asia (Privratsky, 2008).

In October 2007, DH Ports LLC announced that it would build a new dock and cold storage facility in Dutch Harbor (Welch, 2007). DH Ports is a joint venture between American Seafoods and Pacific Stevedores. The 1,000-foot dock was designed by PND, Inc. Figure 11 is a photo of the new dock being built by DH Ports, taken in June 2008. The new DH Ports dock began operations in the summer of 2008, several months ahead of the planned January 2009 opening for the entire facility. The initial effect of the DH Ports dock on the public docks was a 75 percent reduction in offloads and tramper business during the Pollock B season (Osterback, 2008).

Figure 11. DH Ports LLC's Dock

Source: Mike Fisher, Northern Economics, Inc.

3.3 Tourism

Unalaska has a steady tourism industry and a Convention and Visitors Bureau. About five years ago, the tourism industry experienced a large increase, though tourism visits have been steady since.

Tourist draws include the National Park Service facilities, the Museum of the Aleutians, sport fishing, and ecotourism. Charter fishing became a major attraction in the mid-1990s when world record sport halibut were caught in Unalaska Island waters in 1995 and 1996, with the latter fish, at 459 pounds, still representing the world record.

The following subsections provide information on cruise ships, charter fishing boats, and sailboats and yachts that call at the Port of Dutch Harbor.

3.3.1 Cruise Ships

Unalaska has been a port of call for several cruise ships, with the cruise season extending from May through October (Sunderland, 2008). Table 6 shows the number of cruise ship calls recorded by the Port of Dutch Harbor. Cruise ship calls in May and September are typically the result of ships repositioning from Asia to North America (May), or from North America to Asia (September). Cruise ship calls in June through August are more often associated with smaller adventure cruise ships that transit the Bering Sea into the Arctic Ocean and the edge of the ice pack.

Table 6. Cruise Ship Calls at the Cargo Dock and UMC, 1998-2007

	Month					
Year	April	May	June	July	August	September
1998						1
1999					1	
2000		1				1
2001		1	1	1	1	
2002			3			
2003		1				
2004					1	1
2005	10	1				
2006		1	1			5
2007						1

Source: Port of Dutch Harbor Daily Vessel Check Database

The Daily Vessel Check Database does not have records of all the cruise ship calls in Unalaska. Cruise ships normally call at the City Dock, but if space is not available, the ships will use private docks and those visits are not included in the database. In 2003, there was only one cruise ship in the community, due to the economic downturn and concerns about SARS. In 2005 and 2006, cruise ships used the Light Cargo Dock instead of the UMC. Cruise ships used the Light Cargo Dock for 10 days in April 2005 and 5 days in September 2006.

Table 7 lists cruise ships that have visited Unalaska/Dutch Harbor from June 2005 to September 2008.

Table 7. Cruise Ship Calls in Unalaska/Dutch Harbor, 2005-2008

Month	Spirit of Oceanus	Clipper Odyssey	Staten-dam	Silver Shadow	Bremen	Seven Seas Mariner	Hamse-atic
June 2005	10th, 24th						
July 2005	26th	15th, 25th					
August 2005	9th						
May 2006			13th				
June 2006	13th, 27th			7th			
July 2006	29th	11th					
August 2006	12th						
September 2006	11th				7th	23rd	
July 2007	8th, 22nd						
August 2007		3rd					
September 2007	13th						11th
July 2008	13th, 27th	24th					
September 2008	17th				8th		

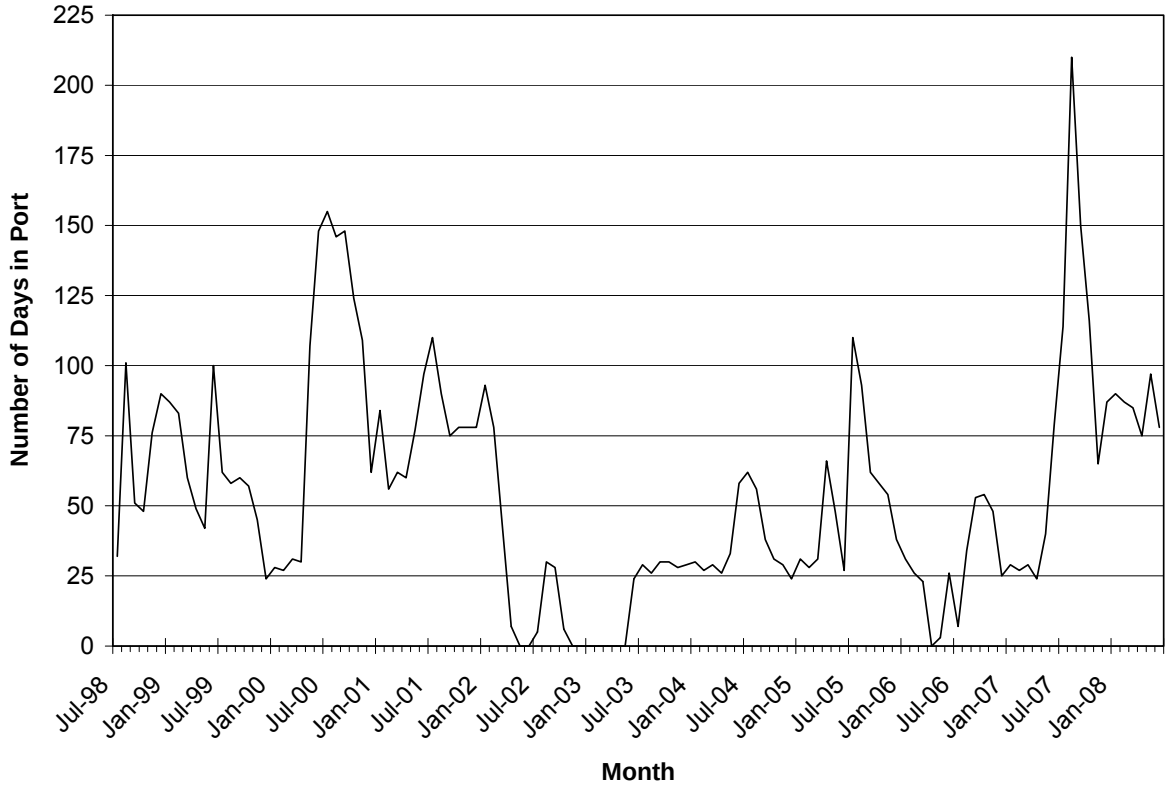
Source: UPDHCVB (2008) and Sunderland (2008)

3.3.2 Charter Boats

Unalaska has been home to several charter boats. However, there has been a drastic reduction in charter businesses in Unalaska recently. There is currently only one charter operator with a license. The Grand Aleutian Hotel used to have a charter operation (started around 1998 to 2000), but it only ran for about 5 years, as it wasn't generating enough profit (Sunderland, 2008).

Historically, charter vessels have taken customers on sport fishing cruises to catch sockeye salmon, silver salmon, pink salmon, halibut, and Dolly Varden. The Daily Vessel Check Database shows that 22 unique charter vessels used public facilities for moorage in the five years from 2004 through 2008. The database shows that over the past several years, the number of berth-days spent at facilities has remained steady. A change in the recording method for vessels with permanent moorage in the Small Boat Harbor is reflected in the drop in berth-days starting in March 2002. Figure 12 shows charter vessel berth-days by month for July 1998 through June 2008.

Figure 12. Charter Vessel Berth-Days by Month, July 1998-June 2008

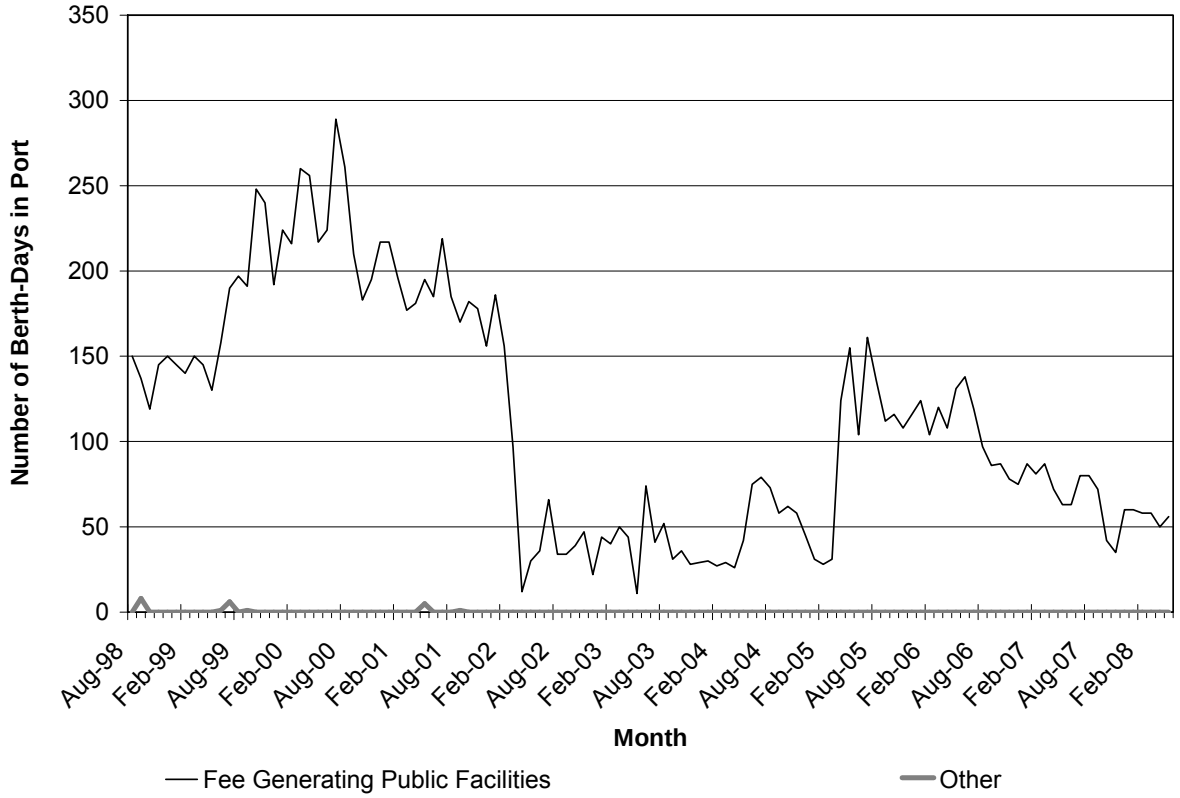


Source: Port of Dutch Harbor Daily Vessel Check Database
Note: Berth-days after February 2002 reflect changes in the method for recording permanent moorage of vessels in the SBH.

3.3.3 Sailboats and Yachts

Approximately 100 different sailboats and yachts have used public moorage in Unalaska in the past ten years from 1998 to 2008. The number of berth-days spent in Unalaska peaked in 1999 and 2000, followed by a sharp decline in 2002. From 2002 through early 2005, usage was relatively stable, and then increased substantially in late 2005 and early 2006. Usage has slowly declined since 2006 through May 2008. Figure 13 shows berth-days by month for sailboats and yachts that have used public facilities between August 1998 and May 2008.

Figure 13. Sail Boat and Yacht Berth-Days by Month, August 1998-May 2008



Source: Port of Dutch Harbor Daily Vessel Check Database
Note: Berth-days after February 2002 reflect changes in the method for recording permanent moorage of vessels in the SBH.

3.4 Government Research and Enforcement Vessels

In recent years, there has been an increased federal presence in Unalaska.[10] The U.S. Coast Guard now has a marine safety detachment in the community (after community representatives lobbied for one for many years, citing the importance of commercial fishing in the community and the Bering Sea region), although the base is considerably smaller than those in some other Alaska coastal communities, such as Kodiak. The Port of Dutch Harbor provides preferential berthing space for USCG vessels.

USCG vessels frequently use Unalaska as a re-supply base while performing routine activities, such as search and rescue, law enforcement, marine environmental protection, and science work support. Many of the vessels are in the 378-foot Warship High Endurance Cutter (WHEC) class. Since the closure of Adak Naval Air Station, the USCG has expressed an interest in taking their mid-patrol breaks in Unalaska (City of Unalaska, Port of Dutch Harbor Master Plan, 2000). A typical mid patrol break is 72 hours after 45 days of patrol. Two to three cutters operate in the Bering Sea and North Pacific during the heaviest fishing seasons.

[10] In addition to expanded U.S. Coast Guard facilities, U.S. Customs and Immigration and Naturalization Service personnel and offices are now located in Unalaska. As discussed elsewhere in this document, there is not a permanent office for issuing Transportation Worker Identification Credential (TWIC) cards.

Prior to construction of the existing facility for use by the USCG, cutters had an agreement with their fuel vendor to dock up to 72 hours at their facility. There were no utilities at the vendor's dock, and it was difficult for the cutters to remain for their full break period during busy fishing season due to the necessity of fueling the fishing fleet (City of Unalaska, Port of Dutch Harbor Master Plan, 2000). However, the USCG and City of Unalaska dedicated a newly built pier in mid-2003 (USCG 2004). The new pier aids the many USCG cutters and crews that use the port as a forward supply stop while patrolling on the Bering Sea. Table 8 shows the increased use of public facilities and this pier over time.

Table 8. Estimated Number of Days U.S. Coast Guard Vessels were Berthed in Port of Dutch Harbor at Public Facilities, 1999-2007

Vessel Name	Vessel Length (ft.)	Number of Port Days								
		1999	2000	2001	2002	2003	2004	2005	2006	2007
Acushnet	152	0	0	0	0	5	1	10	11	14
Alex Haley	282	0	4	1	0	7	13	0	45	10
Boutwell	378	0	0	0	0	0	0	6	0	0
Chase	378	0	0	0	0	7	0	0	0	4
Hamilton	378	0	0	9	0	0	3	0	5	0
Healy	420	0	0	0	0	0	12	6	0	7
Hickory	225	0	0	0	0	3	5	3	8	1
Ironwood	180	1	0	0	0	0	0	0	0	0
Jarvis	378	0	1	0	0	5	6	16	9	1
Long Island	110	0	0	0	0	0	0	3	0	2
Mellon	378	0	0	0	0	0	0	5	0	16
Midgett	378	0	0	0	0	4	11	10	0	7
Monroe	N/A	0	0	0	0	0	0	3	0	0
Morgenthau	378	0	1	0	0	7	5	9	11	0
Munro	378	0	0	0	0	4	0	5	6	3
Mustang	110	1	0	0	0	0	0	0	0	0
Polar Star	399	0	0	0	2	0	0	0	0	0
Roanoke Island	110	0	0	0	0	0	0	0	0	1
Rush	378	0	0	0	1	4	0	6	0	0
Sherman	378	0	0	0	0	9	5	4	0	0
Spar	225	0	0	0	0	2	3	13	5	5
Storis	230	0	0	3	0	7	9	8	8	0
Sycamore	225	0	0	0	0	0	0	2	4	0
Total		**2**	**6**	**13**	**3**	**64**	**73**	**111**	**113**	**71**

Source: Port of Dutch Harbor DVC Database

The pier is a 526-foot extension of the Dutch Harbor city dock and gives priority to USCG cutters. The pier was specially built with USCG-compatible electrical shore ties, concrete apron, large parking lot for loading, and a shore side facility with phone booth and restrooms. Fishing vessels and other vessels may use the USCG extension but must move when a cutter comes into port. As a security measure, other vessels may not moor closer than 50 feet on either end of a cutter. The USCG paid

$8.1 million for the pier. The city charges USCG cutters for their time at the pier and for water, sewage, electricity, and phone. Mooring fees are based on the length of the cutter and the actual services received.

The State of Alaska makes extensive use of the Port of Dutch Harbor, as the Alaska Department of Fish & Game (ADF&G) vessel P/V *Stimson* has a reserved portion of the Dutch Harbor Spit Dock (Table 9).[11] This vessel is the largest patrol vessel in the State's inventory. A number of other government vessels use Port of Dutch Harbor facilities regularly.

Table 9. Estimated Number of Days State of Alaska and Other Government Vessels were Berthed in Port of Dutch Harbor at Public Facilities, 1999-2007

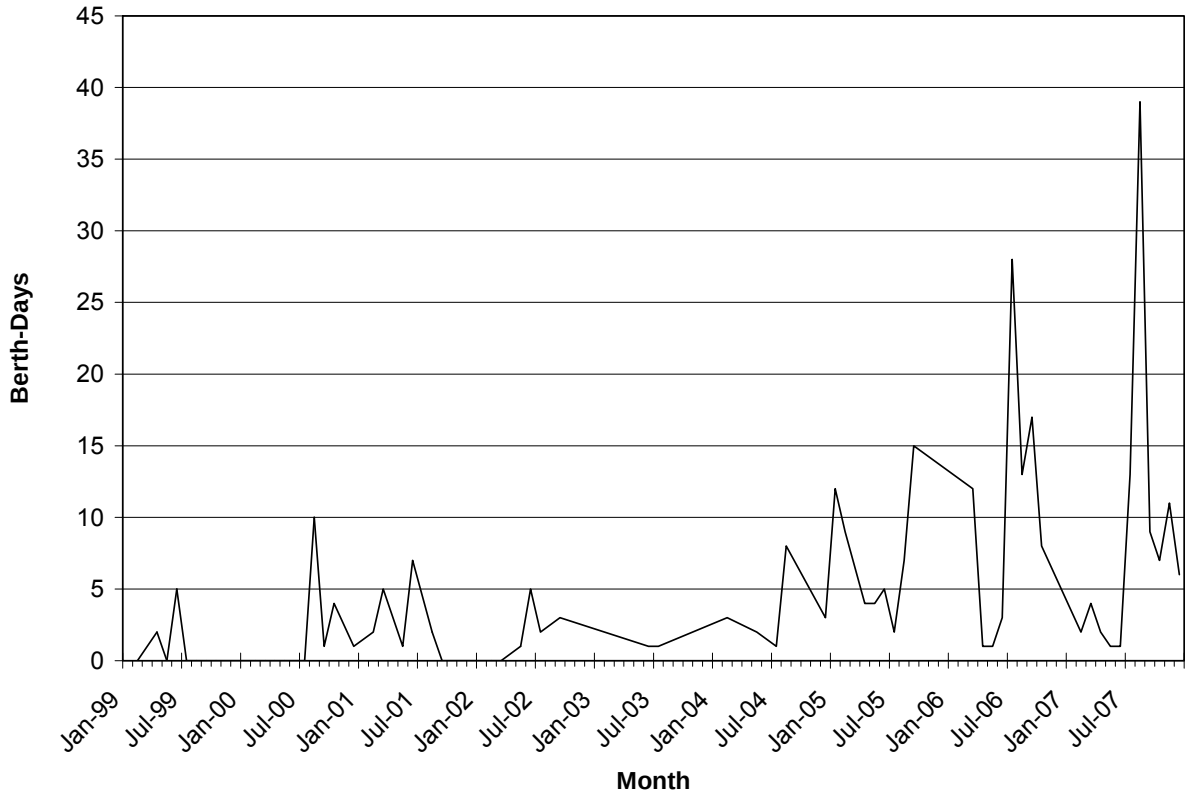
	Year								
Vessel Name	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
ADF&G (vessel unknown)	189	125					58		
Defender III							43		
NOAA					113			2	1
Pacific Knight							337	338	40
Resolution					2		1		
Retriever						1			
Troopers Skiff					3			6	
Stimson	184	204	205	149	141	157	234	245	208
Tiglax		3	2				5		2
Troopers (vessel unknown)								1	19
Wolstad	1		4			1			
Total	**374**	**332**	**211**	**149**	**259**	**159**	**678**	**590**	**269**

Source: Port of Dutch Harbor DVC Database

The Port of Dutch Harbor is also a port-of-call for domestic and foreign research vessels. These vessels include government research vessels, such as the NOAA fisheries and oceanographic research ship *Miller Freeman*, and charter research vessels, such as the R/V *Auriga* and F/V *Webbslinger II*. Figure 14 summarizes research vessel traffic over the past 9 years.

[11] ADF&G also has an office located in Dutch Harbor.

Figure 14. Estimated Number of Days Research Vessels were Berthed at Public Facilities in the Port of Dutch Harbor, January 1999 to December 2007



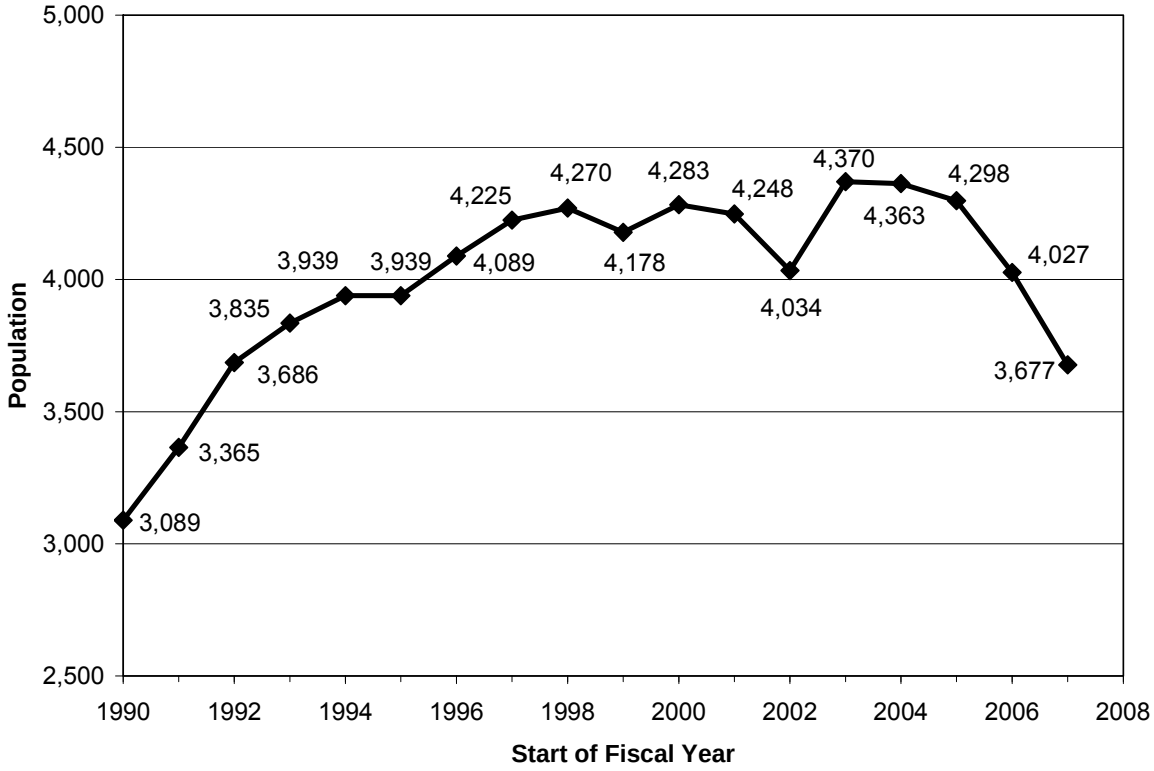
Source: Port of Dutch Harbor DVC Database

3.5 Population Growth

The population of Unalaska/Dutch Harbor grew from 3,089 in 1990 to 4,280 in 2000 (US Census Bureau). After the 2000 Census, ADOL&WD estimates the population remained steady and peaked at 4,370 in 2003 before falling sharply in 2006 and 2007 due to out-migration, primarily to Municipality of Anchorage and the Matanuska-Susitna Borough (ADOL&WD, 2008). The ADCCED certified population was 3,678 on July 1, 2006 (ADCCED, 2008).[12] Figure 15 shows the population for FY 1990 to 2007.

[12] It should be noted that the ADCCED population for 2006 is consistent with the ADOL&WD population for 2007 because the ADCCED population is mid-calendar year while the ADOL&WD population is based on the fiscal year.

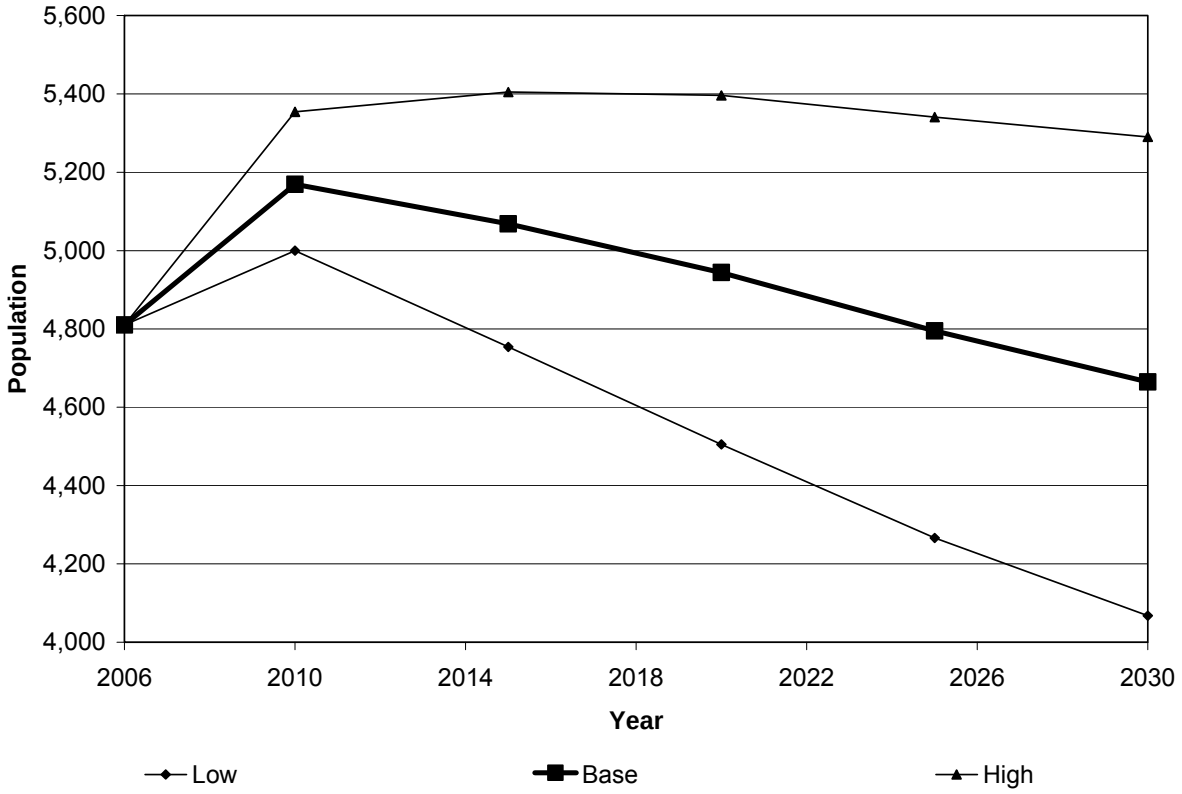
Figure 15. Unalaska/Dutch Harbor Population, FY 1990-2007



Source: ADOL&WD (2008)

The Southwest Alaska Transportation Plan, updated in 2002 prior to the sharp drop in Unalaska's population, provides forecasts for the population of communities in Southwest Alaska (Parsons Brinckerhoff, *et al.*, 2002). The plan projected Unalaska's population will be 5,630 in 2020, with a population for the Aleutians West Census Area of 7,090. Alaska Population Projections, prepared by ADOL&WD in 2007, looks at the population of boroughs and census areas. It suggests a base population in the Aleutians West Census Area of 4,944 in 2020, declining to 4,665 by 2030 (ADOL&WD, 2007). This is a significantly lower population than is presented in the Southwest Alaska Transportation Plan. Figure 16 shows this forecast. It is important to note that ADOL&WD's projections show a decrease in the census area population in all cases, even in the high case, after peaks in 2010 or 2015.

Figure 16. Population Projection for Aleutians West Census Area, 2006-2030



Source: ADOL&WD, 2007

3.6 Subsistence and Recreational Users

In 2004, it was reported that there was a growing charter halibut fishery out of Dutch Harbor. Halibut fishing was usually most productive during July and August, although fish could also be taken in deeper waters from late spring through June (ADF&G, undated). In 1996, the Chamber of Commerce and the Convention and Visitors Bureau joined forces to sponsor the Unalaska World Record Halibut Derby, which used to occur annually June 1-September 15. Currently, however, there is only one sport charter boat still in business in Unalaska. According to Tom Enlow, General Manager of the Grand Aleutian Hotel, the decline in sport fishing is not so much related to stock size, or competition with commercial harvest or fisheries management, but due to access. It is very costly to access Unalaska due to unpredictable weather, airline reservations, and numerous substitute sport fishing sites in the region. At the same time, however, Unalaska is enjoying stable numbers of ecotourists who are interested in exploring the region.

As in many Alaska rural communities, subsistence activities in Unalaska are important to household economies of local residents. A 1994 survey of approximately 700 year-round Unalaska households conducted by the ADF&G Division of Subsistence estimated that 96.8 percent of the households used subsistence resources (Sepez, et al., 2004). Approximately 91.9 percent of households used salmon, and 94.6 percent used non-salmon fish species, including halibut, Pacific cod, herring, rockfish,

sablefish, and char.[13] In addition, 13.8 percent used marine mammals for subsistence, and 86.5 percent used marine invertebrates. The survey calculated an annual subsistence resource consumption rate of about 195 pounds per capita based on a total "effective population" of 1,825 individuals.[14] Of the subsistence total, 28 percent was salmon, 42 percent was non-salmon fish, 5 percent was land mammals, 5 percent was marine mammals, 1 percent was birds and eggs, 14 percent was marine invertebrates, and 6 percent was vegetation. It is within the Unalaska Bay area that most, if not all, subsistence activities occur during most of the year. These activities primarily take place from May through August.

In 2005, 217 households in Unalaska held subsistence salmon harvesting permits (Fall, et al., 2007). Drainages flowing into Unalaska Bay produce pink, chum, sockeye, and coho salmon, which are harvested in commercial and sport fisheries as well as subsistence fisheries (ADF&G, undated). The majority of the sockeye salmon harvest is taken in the subsistence fishery occurring in Reese Bay, which is approximately 5 miles west of Unalaska Bay. The majority of the coho salmon subsistence fishery harvest comes from the vicinity of the Nateekin River and Broad Bay, both of which are located within Unalaska Bay. Fishing opportunity in these drainages normally peaks during September. Although salmon returns to streams near the major population centers are relatively small, large returns do occur on other more remote areas that are accessible only by boat or by floatplane. One of the more well-known of these areas is Volcano Lake, which typically provides exceptional angling opportunity for sockeye salmon during June and July and then again for coho during August.

In May 2003, the National Marine Fisheries Service (NMFS) finalized federal regulations for a subsistence halibut fishery in Alaska. According to these regulations, those planning to harvest halibut for subsistence purposes must first obtain a subsistence halibut registration certificate (SHARC). In 2006, 12 households in the Aleutians West census area held SHARCs (ADF&G, 2007).

The concern felt toward environmental pollution is reflected by the fact that Unalaska residents typically avoid use of at least some subsistence resources (such as intertidal invertebrates) in the immediate harbor area (Northern Economics, Inc. and EDAW, Inc., 2001). Red tide is also a concern in Unalaska's vicinity. Red tides and paralytic shellfish poisoning have affected several areas of Alaska's waters, primarily along the southern coasts ranging from southeast to southwest parts of the state (Marine Advisory Program, 1996). Possible sources of contamination cited by residents include vessels and various shore-based commercial activities (and even earlier military activities) dating back to at least the World War II era. While contemporary environmental regulations have reduced the environmental damage caused by current harbor related activities, the impact of pollution on subsistence uses of marine resources is clearly a complex, on-going problem.

3.7 Air Transportation

Further expansion of Unalaska's sport fisheries and its tourism sector in general has been hampered by expensive and inconvenient transportation access. With the decline in the total allowable catch for crab, and a reduction in the number of groundfish vessels that accompanied enactment of the American Fisheries Act (AFA), fishery-related passenger transportation demand declined. The decreased demand was accompanied by the discontinuation of long-time air service provider Reeve

[13] The local Qawalangin Tribe of Unalaska holds a Subsistence Halibut Registration Certificate, which allows them to harvest halibut for subsistence (Sepez et al., 2004). In addition, the Unalaska Native Fishermen's Association acquired a herring gill-net quota for the small boat fleet of the City and a 2 percent quota of Pacific cod in federal waters.

[14] ADF&G's estimate of "effective population" is based on a unique determination of long-term residency and therefore differs from other population counts such as those provided by the U.S. Bureau of the Census.

Aleutian Airways. By early 2001, the community was served by only one jet flight per day and Alaska Airlines terminated that service in January 2004. Peninsula Airways (PenAir) now offers turboprop service to and from the community, with a minimum of two flights per day during off-peak travel periods and a maximum of four flights per day during peak travel periods. Traveling during peak periods remains a challenge for the fishing industry, however, and some vessels have been kept in other southwest Alaska ports because it's easier to find airplane seats to reach in January (Wilt, 2008).

Unalaska residents report that the decline in transportation service over the years has had an impact on a range of businesses in the community as well as mail and freight. Moreover, frequent weather-related flight delays and cancellations routinely cause Unalaska to be ranked among the airports with the worst schedule reliability rates in the nation. The reliability of air service has improved with the cessation of jet service and initiation of service with PenAir's smaller aircraft that can land in worse weather conditions than jet airliners.

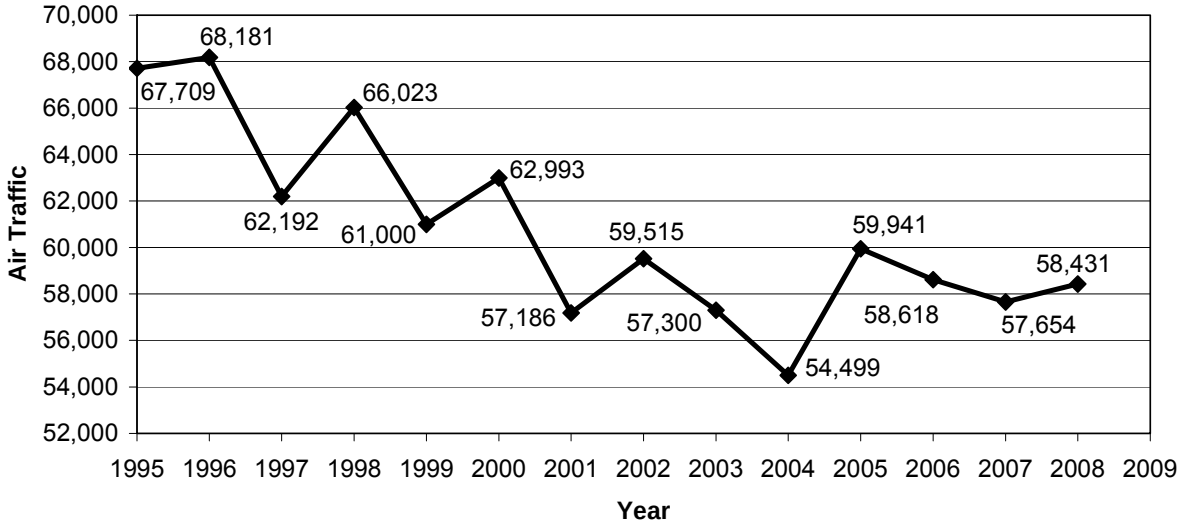
Table 10 provides information on passenger counts at the community airport for the period 1999-2008. Figure 17 is a chart showing the trend in air traffic for the period of 1995 to 2008. In both the table and the chart, the numbers represent the total count of enplanements and deplanements, rather than the number of round trips taken by passengers. After peaking in 1996, the total number of passengers shows a decreasing trend to 2004. Traffic has increased since 2004 but is still much lower than it was in the mid-1990s.

Table 10. City of Unalaska/Port of Dutch Harbor Airport Passenger Count, FY 1999-2008

	Year									
Quarter	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Q1	12,909	16,312	15,906	16,086	15,502	14,853	14,835	14,517	14,281	15,436
Q2	15,863	13,740	12,596	13,612	13,512	12,130	13,975	13,443	12,321	13,317
Q3	17,672	16,461	14,696	15,466	14,027	13,994	15,751	14,850	14,991	14,676
Q4	14,556	16,480	13,988	14,351	14,259	13,522	15,380	15,808	16,061	15,002
Total	**61,000**	**62,993**	**57,186**	**59,515**	**57,300**	**54,499**	**59,941**	**58,618**	**57,654**	**58,431**

Source: Miller, 2008
Note: Data in the table are the number of enplaned and deplaned passengers.

Figure 17. City of Unalaska/Port of Dutch Harbor Airport Passenger Count, FY 1995-2008



Source: Miller, 2008
Note: Data in the table are the number of enplaned and deplaned passengers.

3.8 Port Security Issues

In light of national security concerns that have continued since September 11, 2001, the USCG, working with state agencies and industry, has increased security to improve the safety of passengers, vessels, cargo, and terminals. The Port of Dutch Harbor and other facilities in Unalaska/Dutch Harbor are required under the Maritime Transportation Security Act of 2002 (MTSA) to prepare and submit a security plan.[15] Specific language from MTSA follows (107th Congress, 2002):

> ''(c) VESSEL AND FACILITY SECURITY PLANS.—(1) Within 6 months after the prescription of interim final regulations on vessel and facility security plans, an owner or operator of a vessel or facility described in paragraph (2) shall prepare and submit to the Secretary a security plan for the vessel or facility, for deterring a transportation security incident to the maximum extent practicable.
>
> ''(2) The vessels and facilities referred to in paragraph (1)—
>
> ''(A) except as provided in subparagraph (B), are vessels and facilities that the Secretary believes may be involved in a transportation security incident; and
>
> ''(B) do not include any vessel or facility owned or operated by the Department of Defense.
>
> ''(3) A security plan required under this subsection shall—
>
> ''(A) be consistent with the requirements of the National Maritime Transportation Security Plan and Area Maritime Transportation Security Plans;
>
> ''(B) identify the qualified individual having full authority to implement security actions, and require immediate communications between that individual and the

[15] The USCG estimated in 2002 that 10,000 U.S. flag vessels, 5,000 facilities, and 50 outer continental shelf facilities were required to submit security plans by December 31, 2003.

> appropriate Federal official and the persons providing personnel and equipment pursuant to subparagraph (C);
>
> ''(C) include provisions for—
>
> ''(i) establishing and maintaining physical security, passenger and cargo security, and personnel security;
>
> ''(ii) establishing and controlling access to secure areas of the vessel or facility;
>
> ''(iii) procedural security policies;
>
> ''(iv) communications systems; and
>
> ''(v) other security systems;
>
> ''(D) identify, and ensure by contract or other means approved by the Secretary, the availability of security measures necessary to deter to the maximum extent practicable a transportation security incident or a substantial threat of such a security incident;
>
> ''(E) describe the training, periodic unannounced drills, and security actions of persons on the vessel or at the facility, to be carried out under the plan to deter to the maximum extent practicable a transportation security incident, or a substantial threat of such a security incident;
>
> ''(F) be updated at least every 5 years; and
>
> ''(G) be resubmitted for approval of each change to the vessel or facility that may substantially affect the security of the vessel or facility.

Response Management Associates, Inc. offers a pamphlet that summarizes the major sections required for each facility security plan (RMA, Inc., 2003).

A security plan prepared by the City of Unalaska is in place. The effects of the security plan are uncertain at this time due to the confidential nature of each facility's plan. The plan may or may not increase costs for the Port, but they will surely affect the allocation of costs, as additional staff time will be required to implement and enforce the plan.

Government funding has been made available for security-related upgrades. The Port Security Grant Program (PSGP) offers "grant funding to port areas for the protection of critical port infrastructure from terrorism. PSGP funds help ports enhance their risk management capabilities, domain awareness, training and exercises, and capabilities to prevent, detect, respond to, and recover from attacks involving improvised explosive devices and other non-conventional weapons." Funding for FY 2008 was $388.6 million (FEMA, 2008). In 2003, Horizon Lines received money from this program to put up security fencing at its facility in Dutch Harbor (Congressman Don Young, 2003).

Another change in port security issues is the introduction of the Transportation Worker Identification Credential (TWIC) card. TWIC is a common identification credential for all personnel requiring unescorted access to secure areas of MTSA-regulated facilities and vessels, and all mariners holding Coast Guard-issued credentials. This card will initially be used as a form of identification for verification. The Coast Guard will be conducting random inspections of TWICs. During this process the Coast Guard agent will scan the TWIC to verify the person holds the appropriate credentials. The TWIC may be integrated into existing secure area carded access systems (TSA, 2008).

A mobile issuing office was open in Dutch Harbor for local issuing of TWICs in mid-July 2008. The TWIC Enrollment Center in Anchorage is the closest issuing office for those who were not issued

TWICs during the remote visit. If a host area has a minimum of 50 applicants, it can request an additional mobile office (TSA, 2008).

With increased security regulations and the TWIC program in effect, it is recommended that the Port add an item to the tariff that specifically addresses the cost of using port personnel for security purposes. It is recommended that the tariff include both regular and overtime rates for a port-provided watchman. The Port of Valdez terminal tariff (City of Valdez, 2008) provides guidance for the tariff language. Proposed text for a new tariff item is shown below:

> *Security that is required by the owner, shipper, or USCG regulation will be provided by the Port and will be assessed per hour at:*
>
> *a. Watchman, per person, regular rate* *$_____*
>
> *b. Watchman, per person, overtime rate* *$_____*

The regular rate and overtime rate should reflect the cost of providing port personnel and any additional demands on their time.

The Port may also consider security charges based on tonnage or passengers, depending on the nature of the security needs. The Port of Anchorage terminal tariff (Municipality of Anchorage, 2005/2006) provides guidance for the tariff language. Proposed text for an activity-based security item is shown below:

> *Pursuant to the establishment of the Office of Homeland Security in 2001 and Maritime Transportation Security Act of 2002, the Port of Dutch Harbor will assess a security fee in order to defray expenses associated with mandated security measures.*
>
> *Port Security Fees*
>
> *Cargo Vessels*
>
> *Not withstanding any other schedule of charges, the Port of Dutch Harbor shall assess a security surcharge of $_____ per ton for all commodities crossing the Port of Dutch Harbor facilities.*
>
> *Non-Cargo Vessels*
>
> *Not withstanding any other schedule of charges, the Port of Dutch Harbor shall assess a security fee on the gross tons of all vessels calling at the Port facilities. The security fee shall be $_____ per ton.*
>
> *PASSENGER*
>
> *Not withstanding any other schedule of charges, the Port of Dutch Harbor shall assess a security fee of $_____ per passenger embarking or disembarking at the Port facilities.*

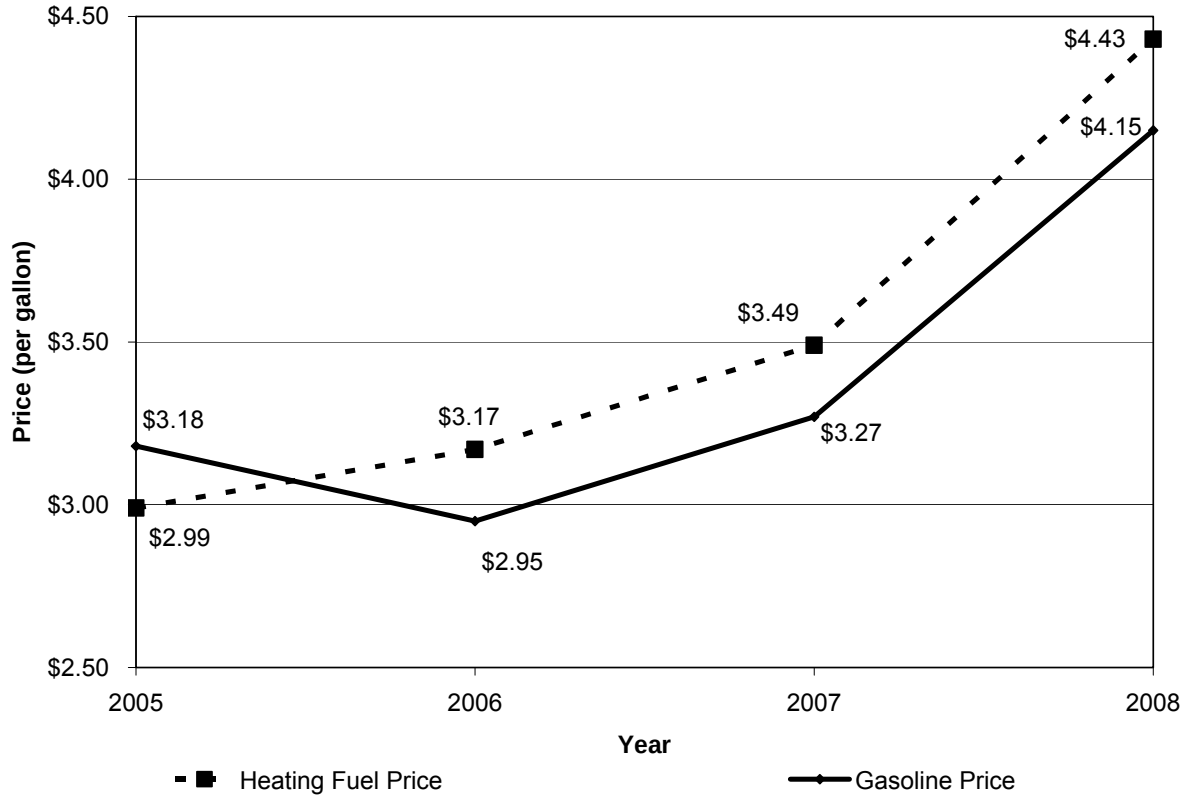
3.9 Fuel Prices and Transportation Costs

High fuel costs have impacted the cost of transportation and the price of goods available in Unalaska. Due to the fact that the fuel price increase has occurred rapidly in recent years, it is hard to determine at what level fuel prices will stabilize and what structural changes, if any, might occur in the local economy and industry based on those prices.

Figure 18 shows gasoline and heating fuel prices in Unalaska/Dutch Harbor for 2005 to 2008, based on information from the Alaska Department of Commerce, Community, and Economic Development.

Between 2006 and 2008, gasoline prices increased by $1.20 per gallon, an increase of more than 40 percent over the $2.95 price in 2006. More information about fuel prices is found in section 3.1.3.5.

Figure 18. Gasoline and Heating Fuel Prices in Unalaska/Dutch Harbor, 2005-2008



Source: ADCCED (2005, 2007-2008)

The immediate effect of the increase in fuel prices has been an increase in the cost of transporting inbound/outbound goods and vessels. All three types of increases affect the local economy. Unalaska's City Manager commented in late June that a single green bell pepper at a local grocery store was priced at $8, several times the price of a bell pepper in Anchorage (Hladick, 2008). High fuel prices will also affect outbound cargo, increasing the cost of seafood products shipped out of the community. More time is needed to determine the effect on demand of higher seafood prices, especially since international exports have benefited from a weak U.S. dollar during the same time that fuel prices have been high.

Fuel prices have also had an impact on the supply side of the fishing industry. It is not cost-effective for vessels to travel hundreds of miles north to fish for pollock. Vessels that do not fish because of fuel prices instead sit at the dock, reducing the processing activity in Unalaska/Dutch Harbor. While this may provide moorage revenues to the Port, it reduces the amount of activity in the local economy.

It is common for large commercial fishing vessels to travel from Western Alaska to the Puget Sound region for off-season maintenance work. Increasing fuel costs have reduced this travel to some extent, due to the high cost of the trip. One vessel recently made the trip for approximately $20,000 to $30,000, and larger vessels have spent between $60,000 and $80,000 on the trip (Wilt, 2008). The addition of services such as Magone Marine Service's 1,000-ton dry dock has also served to keep

vessels in the community for maintenance work. The community benefits from a good reputation for work done locally, in comparison to work done in other communities such as Seward, which is one of the places where vessels had previously gone for major maintenance.

Larger vessels have also left the state to return to the Puget Sound region during the off-season. Higher fuel prices directly affect the cost of making that trip. If fuel prices stay high, it is likely that more of the larger vessels will remain in the state year-round, either in Dutch Harbor or in other ports that can handle them. This will serve to increase utilization rates at local marine facilities. Recreational vessel owners may not be willing to travel as far as commercial vessel owners for needed services and are more likely to use maintenance services locally or elsewhere in the region.

3.10 Land Availability and Land Ownership

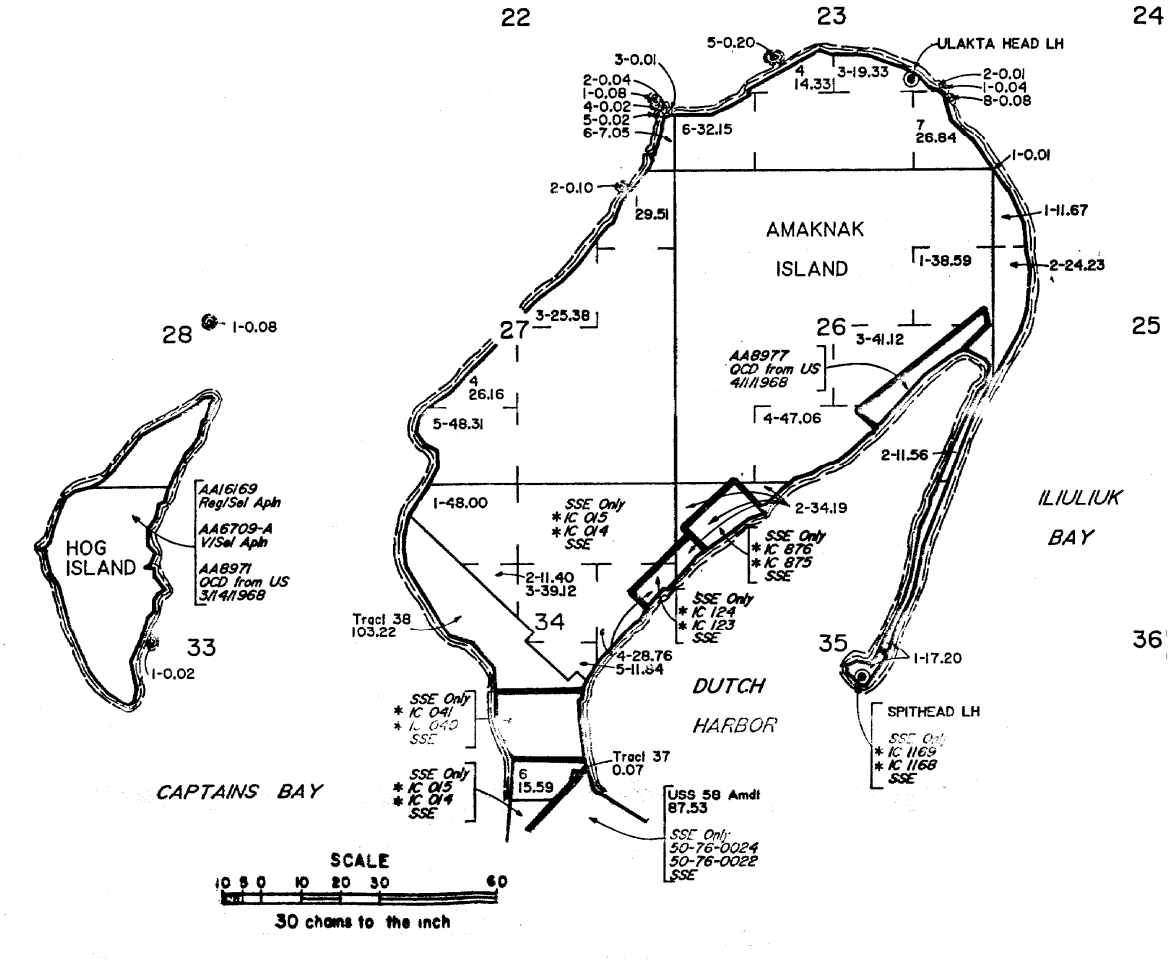
The availability of developable land in Unalaska for economic development projects in general is limited by physical constraints and land ownership patterns. One of the largest private landowners in Unalaska is the Ounalashka Corporation (OC). In the environs of the existing port and harbor facilities, plus the proposed facility at CEM, the City owns 95 percent of the tidelands, while OC owns 5 percent (Hall, 2004). However, OC is the primary landowner of the uplands, with 5 percent of the uplands in other private corporate ownership. It is critical that port and harbor improvements and uplands development be coordinated through the city's capital improvement program. Commercial and industrial development is most economically viable when coordinated with the extension of public services and infrastructure improvements. Public improvements such as extensions of electrical lines and roads are expensive infrastructure projects to retrofit to commercial and industrial development.

Zoning designations in the project area provide for potential orderly development. Tidelands and land in the vicinity of the anticipated port and harbor improvements are zoned Developable Tidelands and Marine Dependent/Industrial (City of Unalaska, 1996). The uplands near Airport Beach Road and Gilman are zoned General Commercial. Parcels south of Airport Beach Road near the proposed port improvements are zoned Marine Related/Industrial.

Overall, the City of Unalaska encompasses 116 square miles of land and 99 square miles of water. The City holds title to title to 1,194.85 acres of land. Unalaska obtained title from the State of Alaska to 35 tideland areas for a total of 1,540 acres. The City also received all of its 1,280-acre entitlement through Section 14(c)(3) of the Alaska Native Claims Settlement Act (ANCSA). This section requires that village Native corporations re-convey a certain portion of lands to which they receive title back to the municipalities in their selection areas. In Unalaska, approximately 616 acres of these lands were set aside for watershed, 300 acres for roadways, and the remaining amount for small parcels for the sanitary landfill, sewage treatment plant, and other uses.

A plat map of the Dutch Harbor area is shown in Figure 19.

Figure 19. Plat Map of Dutch Harbor Area



Source: City of Unalaska Planning Department

Land ownership in vicinity of the port facilities in Dutch Harbor is summarized in Table 11.

Table 11. Land Ownership Information in Port of Dutch Harbor

Tax ID No.	Owner	Legal Description
01-08-100	State of Alaska	Airport Property- BLM TR. 38 T72S, R117W S.M.
01-09-200	City of Unalaska	Tract Am Ballyhoo Dock Subdivision, Addition No. 1
01-09-201	Valdez Petroleum Terminal	Portion of Tract A, Ballyhoo Dock Subdivision, Addition No. 1
01-09-300	City of Unalaska	Tract A, UTS 101 – UMC Dock
01-09-301	Horizon Lines (Owned by City of Unalaska)	Tract A, UTS 101 – UMC Dock – Possessory interest
01-09-302	Valdez Petroleum Terminal (Owned by City of Unalaska)	Tract A, UTS 101 – UMC Dock – Possessory interest
01-09-400	City of Unalaska	ATS 1394
01-09-500	Ounalashka Corporation	Ballyhoo Mountain
02-05-100	Western Pioneer Inc.	GSA 7 & 8
02-05-101	Valdez Petroleum Terminal	GSA 7 & 8
02-05-150	Ounalashka Corporation	Tract A, Base of Spit Subdivision
02-05-200	Western Pioneer Inc.	ATS 1404
02-05-230	Ounalashka Corporation	ATS 1354, Tract C
02-05-241	Ounalashka Corporation	Spit Dock Parking
02-05-242	Ounalashka Corporation	Spit
02-05-243	Ounalashka Corporation	Spit- Cargo Dock Uplands
02-05-250	Ounalashka Corporation	ATS 1416
02-05-300	Ounalashka Corporation	ATS 1219
02-05-500	City of Unalaska	UTS 101, Tract B
02-05-501	Magone Marine Services (Owned by City of Unalaska)	Tract B, UTS 101 – Possessory interest
02-05-750	FDOC, Inc. (a subsidiary of the Ounalashka Corporation)	Tract B, Cormorant Add No. 1
02-05-775	FDOC, Inc.	Tract C, Cormorant Add No. 1
02-06-100	Ounalashka Corporation	Tract D, Cormorant Add No. 1
02-07-500	City of Unalaska	Cormorant Add No. 1
02-07-700	Ounalashka Corporation	Tract A, Cormorant Subdivision
02-07-701	Ounalashka Corporation	Portion of Tract A, Cormorant Add No. 1
02-08-200	City of Unalaska	Tract B, ATS 1354 – Spit Dock
02-08-100	Ounalashka Corporation	Tract A, ATS 1354

Source: City of Unalaska Planning Department (2008)

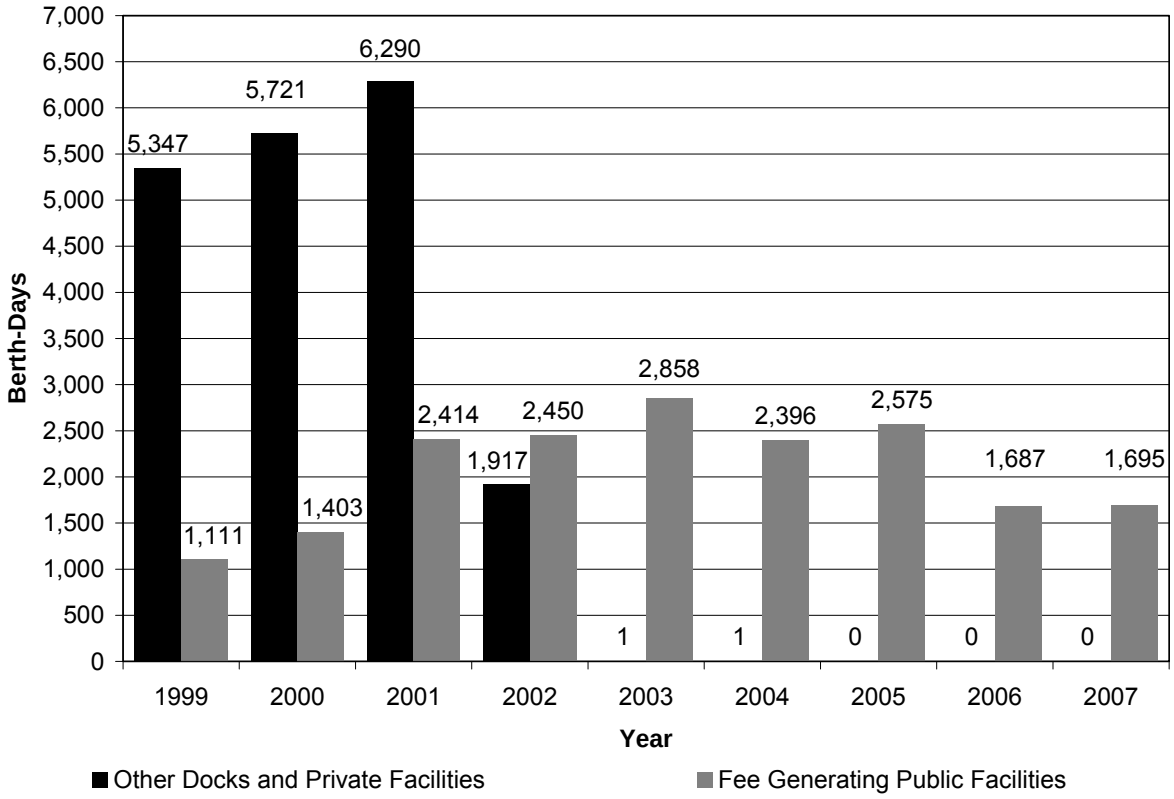
3.11 Vessel Expenditures

The number of vessels that utilize public facilities is the ultimate driver for the Port of Dutch Harbor's financial situation and the impact it has on the rest of the City of Unalaska. Therefore, changes in the fleet composition are an indicator of changes in the financial contribution of vessels to the local economy. This section discusses the impact of crab rationalization and the American Fisheries Act (AFA) on berth-days for crabber and AFA vessels, and attempts to quantify the impacts of vessels by examining vessel expenditure information.

One impact of the crab rationalization program has been a reduction in the number of vessels that are active in regional crab fisheries. The Port Director indicated that crab rationalization has reduced the number of boats participating in the crab fleet from a high of between 230 and 240 boats when the fishery was open access to 78 boats in 2006 and 40 boats in 2007 (Osterback, 2008).

Information from the Port of Dutch Harbor Daily Vessel Check Database was used to develop Figure 20, which shows the number of berth-days per year for AFA vessels using all facilities in Unalaska/Dutch Harbor. An upward trend is apparent from 1999 to 2003, but since 2003 usage at public facilities has declined. As measured by berth-days at Unalaska facilities, AFA had no discernible impact on the berth-days required by the AFA fleet. In other words, even though the number of catcher processors declined with the implementation of AFA, the longer operating period for the remaining ships resulted in even more berth-days than experienced prior to AFA.

Figure 20. Berth-Days for AFA Vessels at All Facilities in Unalaska/Dutch Harbor, 1999-2007

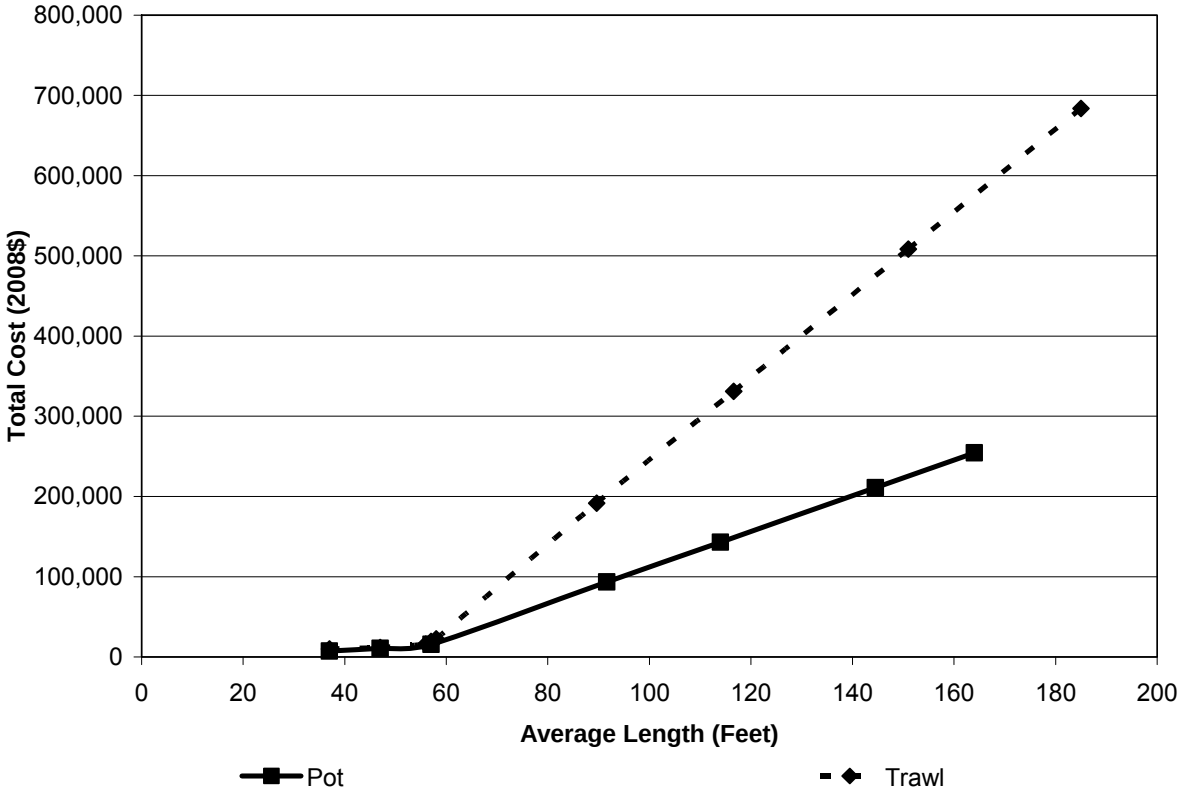


Source: Port of Dutch Harbor Daily Vessel Check Database
Notes: The Port stopped tracking vessel use of private facilities mid-year 2002.

Despite the lack of visible impact in the number of berth-days, AFA may have had other impacts on the fleet calling at Unalaska/Dutch Harbor. While the number of berth-days recorded for AFA vessels increased from 1999 to 2003 and then declined through 2007, berth-days may not have a direct correlation with fishing activity and local financial impacts. As Figure 21 shows, vessel length has a significant impact on the amount of expenditures made in the community. The figure shows expenditure estimates for pot and trawl vessels from 1995 and 1999 studies. As vessel lengths increase, the total expenditures increase, highlighting the greater importance of larger vessels in the local economy. While longer operating seasons would result in a vessel spending more in a given

year, the experience of business closures with in Unalaska following implementation of AFA indicates that this additional spending by the remaining vessels does not equal the amount spent by the larger number of boats prior to AFA.

Figure 21. Dutch Harbor Vessel Expenditures



Source: Vessels 20-60 feet: Northern Economics, Inc. (1995); Vessels 61-180 feet: Northern Economics, Inc. (2000); BLS (2008)

Note: Expenditure amounts are shown in 2008 dollars. Amounts were inflated from the original reports using the CPI-U for Transportation in Anchorage to the first half of 2008. Overall, pot fishing vessels reported lower costs than trawl fishing vessels of similar length in the 1995 Bristol Bay-Aleutian Islands vessel survey.

Vessels operating from Dutch Harbor would be expected to spend more money in the community over longer operating periods. However, the increase may be a marginal gain and not fully offset the loss of expenditures by another vessel. As reported earlier, the reduction in the number of catcher processors from implementation of AFA corresponded with a reduction in the number of support service businesses in the community, although the breadth of services appeared to remain the same. A reduction in the number of crab boats operating in the BSAI could have even larger adverse impacts because of the large number of vessels that have withdrawn from the fishery. Withdrawal of these vessels signifies lost opportunities to capture expenditures within the community.

4 Demand Analysis

This section covers the demand for moorage and dockage, services, and other facilities in Unalaska. This section also discusses the competitive environment in which City-owned facilities operate, both in terms of private services offered in the community and in comparison with nearby ports and harbors.

4.1 Demand for Moorage and Dockage

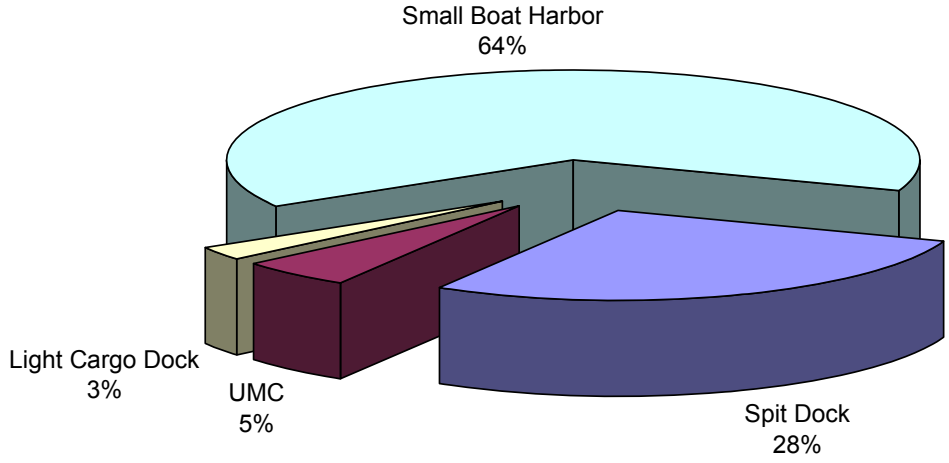
This subsection discusses the demand for moorage and dockage at public facilities: fleet composition, facility utilization, length of stay, types of moorage, and the impacts of weather on anchorages. A limited discussion on private docks is included as well, since total moorage and docking capacity depends on both public and private offerings. Moorage demand at the small boat harbor includes commercial vessels as well as boats used for recreation and subsistence use, by residents of the community and non-residents. Moorage demand at the Spit Dock and private facilities is primarily for vessels between 60 feet and 200 feet in length. Vessels larger than 200 feet in length might be seeking moorage in the community, but the UMC is at present the only public facility that can accommodate vessels of that size. With the exception of the U.S. Coast Guard and State of Alaska vessels, the Port of Dutch Harbor only permits boats to moor at the dock for a short period if they are not actively engaged in cargo operations. When vessels are engaged in cargo operations they are docking at the facility and this term is used to indicate the need of vessels engaged in cargo offloading or loading operations to be at the dock face. This report often talks about the fishing fleet and the fleet's moorage needs, but it should be remembered that catcher processors have dockage requirements as well, often using the UMC for offloading their seafood product and taking on supplies.

The public facilities in Unalaska/Dutch Harbor have a combined capacity to accommodate approximately 111 vessels at a given time. This is calculated by adding the number of slips in the Small Boat Harbor (71) with the equivalent number of slips[16] at the Spit Dock (31), UMC (6)[17], and Light Cargo Dock (3). The equivalent number of slips is based on average vessel lengths for each facility and the linear feet of dock available, assuming no rafting. Figure 22 shows how the total moorage capacity is divided between the Small Boat Harbor and other public facilities.

[16] The equivalent number of slips is calculated by dividing the dock face by the average length of vessel using the facility. The average vessel for both the Spit Dock and the Light Cargo Dock are assumed to be 120 feet, which is consistent with the prior version of the Ten-Year Port and Harbor Development Plan. However, this current plan assumes rafting occurs, resulting in 31 effective "slips" at the Spit Dock, based on the maximum number of vessels using the Spit Dock at a given time in 2008. There has been a general downtrend in the maximum number of vessels using the facility over the past decade. The prior version of the Development Plan estimated the average vessel length for the UMC was 350 feet, which yields 6 "slips," consistent with the number of berths.

[17] For the purposes of this analysis, equivalent slips at the UMC are calculated. However, for the rest of this plan, the UMC is treated as a dock, and berthing at this facility is treated as dockage.

Figure 22. Distribution of 111-Vessel Moorage Capacity at Public Facilities in Unalaska/Dutch Harbor, 2008



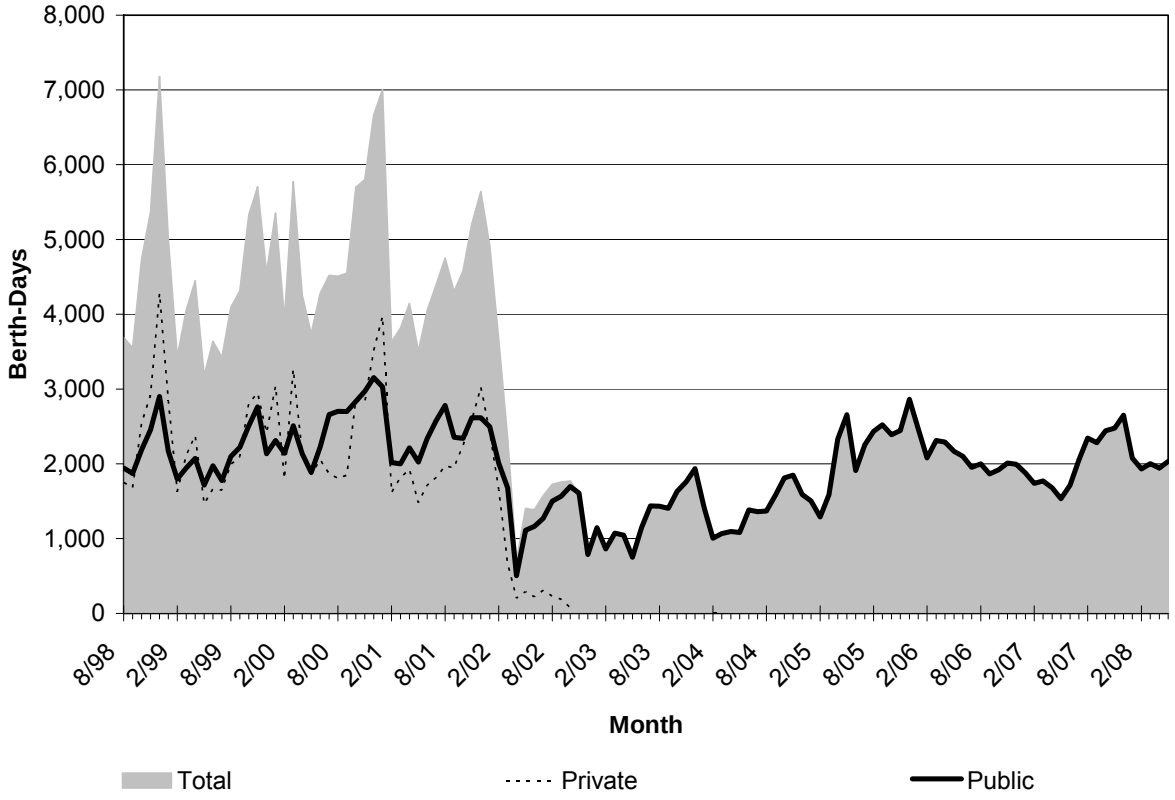
Source: Port of Dutch Harbor Daily Vessel Check Database

More information about berth-days[18] and utilization of facilities is contained later in this section. Figure 23 shows the number of berth-days recorded at public and private facilities for August 1998 through May 2008.[19]

[18] Berth-days are a unit created to measure utilization. Berth-days are calculated as the number of vessels that are recoded in the Port of Dutch Harbor Daily Vessel Check Database per day, and the daily count is added together to determine the berth-days over a period. For example, a vessel using a facility for ten days would count as ten berth-days. If two vessels used a facility for three days and one vessel used the facility for four days, the total activity would add to 10 berth-days (two vessels at three days plus one vessel at four days gives 2*3+1*4=10 berth-days).

[19] February 2002 is the last full month for which berthing data was collected regularly for private facilities.

Figure 23. Berth-Days Recorded at Public and Private Facilities, August 1998-May 2008



Source: Port of Dutch Harbor Daily Vessel Check Database

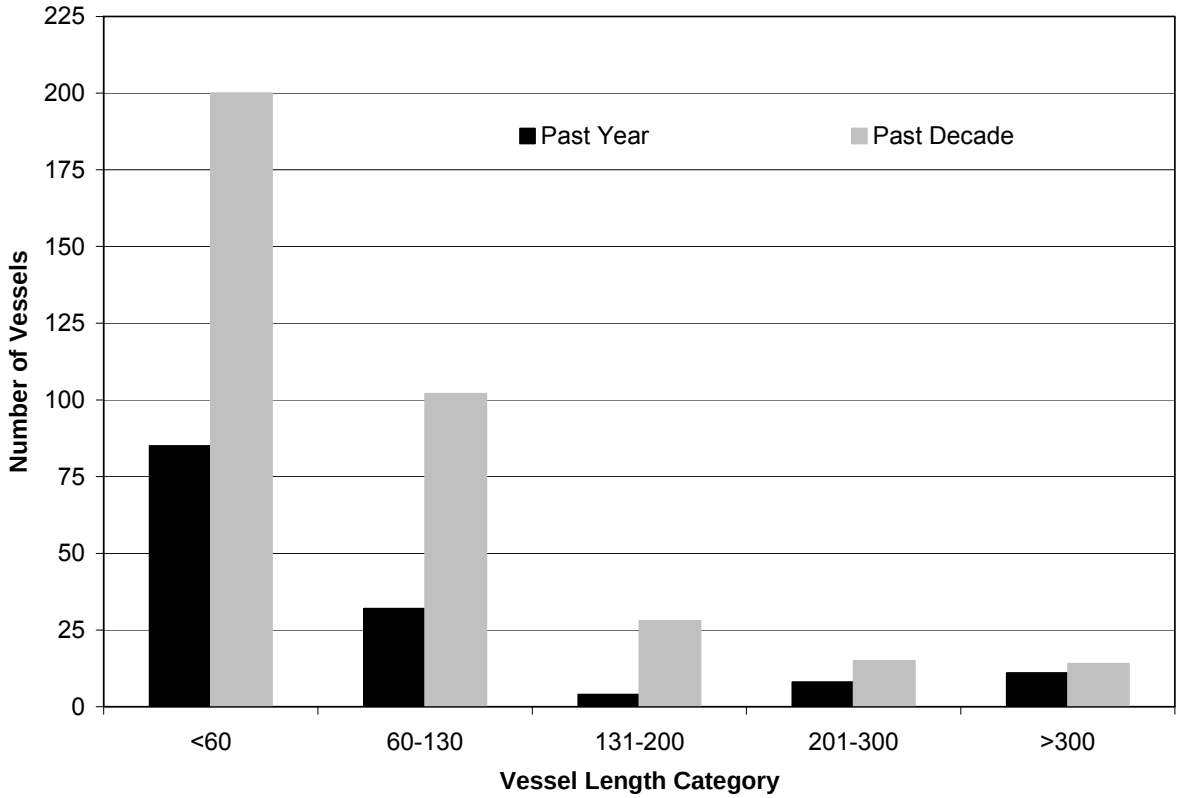
4.1.1 Size Class of Vessels

The Port of Dutch Harbor's billing database shows 313 unique vessels that paid for moorage at a public facility at least once between June 1998 and May 2008. Over the one-year period from June 2007 to May 2008, the billing database identifies 93 unique vessels. This section categorizes those vessels by size classes, and discusses future demand for facilities for those sizes. The size classes were developed to enable an evaluation of demand for specific facilities. Boats less than 60 feet in length are the primary vessels using the Small Boat Harbor. Vessels greater than 200 feet in length are generally not permitted to moor at the Spit Dock. These large vessels can and do use the UMC while not engaged in cargo operations or fueling, but since vessels moving cargo have preference at the UMC, vessels not engaged in such operations must move when requested. Boats between 60 and 200 feet in length currently use the Spit Dock for moorage, and the proposed harbor at the Carl E. Moses Boat Harbor would provide moorage for boats from 60 to 150 feet in length.

Figure 24 shows the current demand for moorage and dockage facilities by size class, as measured by length overall in feet, where the current demand is segmented into two groups, the first group being vessels that have visited most recently within the past 10 years and the second group being vessels that have visited most recently in the past year. The billing database serves as the primary source of data for the figure, though the waiting list for the small boat harbor (discussed later in this section) is included as well. Three vessels without length information have been omitted, so the figure shows 310 vessels that have visited in the past 10 years and 91 that have visited in the past year. Vessels shown in the figure that are less than or equal to 300 feet in length represent moorage demand. The

14 vessels shown that exceed 300 feet in length represent dockage demand, since no moorage facilities can handle vessels of that size.

Figure 24. Current Demand for Moorage and Dockage Facilities, by Size Class



Source: Port of Dutch Harbor Billing Database, Port of Dutch Harbor Small Boat Harbor Waiting List

Vessels under 60 feet are primarily customers of the Small Boat Harbor. Vessels in the 60-200 foot range typically use the Spit Dock for moorage, or the Light Cargo Dock and UMC for dockage. Vessels over 200 feet are typically handled at the UMC, except for vessels that are able to maneuver in to the Light Cargo Dock. It has been proposed that vessels in the 200-300 foot range be able to use the Light Cargo Dock for long-term moorage.

As shown in the figure, about 14 percent of the vessels using public facilities in the past year were over 200 feet long, creating a great deal of demand for the UMC. Up until recently, utilization of the UMC had remained steady over the past several years, and it was thought that if demand increases for that facility, improvements will eventually be needed to accommodate the increased demand for large vessel dockage.

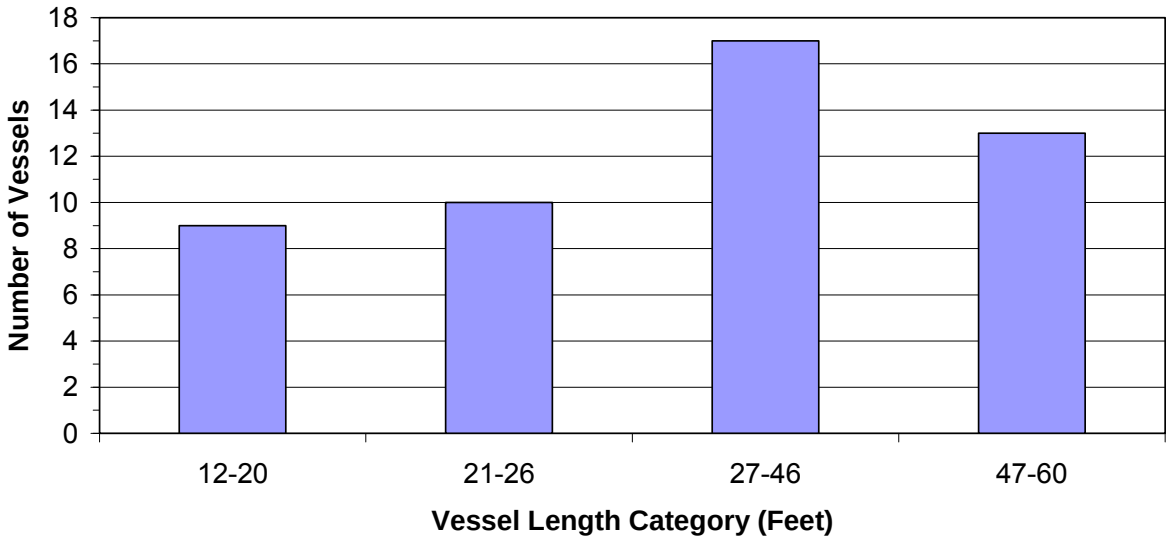
A short-term solution that was considered in response to the high UMC utilization was to direct as much traffic as possible to the Light Cargo Dock, and vice versa, to balance demand. This would improve utilization at both facilities, and allow vessels seeking long-term dockage (such as trampers) the ability to remain docked without limiting access for other vessels. Moving demand to the Light Cargo Dock would provide a financial benefit to the City despite a reduction in the wharfage charged at the UMC: shifting demand from one facility to the other still allows the City to capture revenues from the activity, while deferring the high cost of improvements to the UMC. It would also allow the

City to capture revenue from vessels that would otherwise be anchored in the bay. Using this strategy, UMC upgrades could be deferred for several years.

However, with the opening of the DH Ports facility the situation has changed and utilization of the UMC will likely remain lower than it otherwise has. With the exception of maintenance and functionality, the timing of UMC upgrades and expansion—and use of the Spit Dock to balance UMC demand—will likely be deferred much longer than originally estimated.

The Port of Dutch Harbor currently has a 49-vessel waiting list for permanent moorage at the Small Boat Harbor, up from 38 vessels five years ago. All of these vessels are 60 feet in length or shorter. Figure 25 shows the distribution of vessel sizes for the waiting list. Sixteen of the vessels on the list are classified as pleasure craft (33 percent of the total, up from 18 percent in 2003), nineteen (39 percent) are fishing vessels (crabbers, longliners, or small fishing vessels), and one is a charter vessel. The remaining vessels cannot be classified. Some vessel owners are discouraged by the long waiting time to obtain a slip in the Small Boat Harbor and, consequently, have not registered on the waiting list. As a result, the waiting list likely underestimates the actual number of vessels under 60 feet that are seeking moorage. Seventy percent of the vessels on the waiting list have a local post office box address, which suggests that an expansion of the Small Boat Harbor would provide significant benefits to local residents.

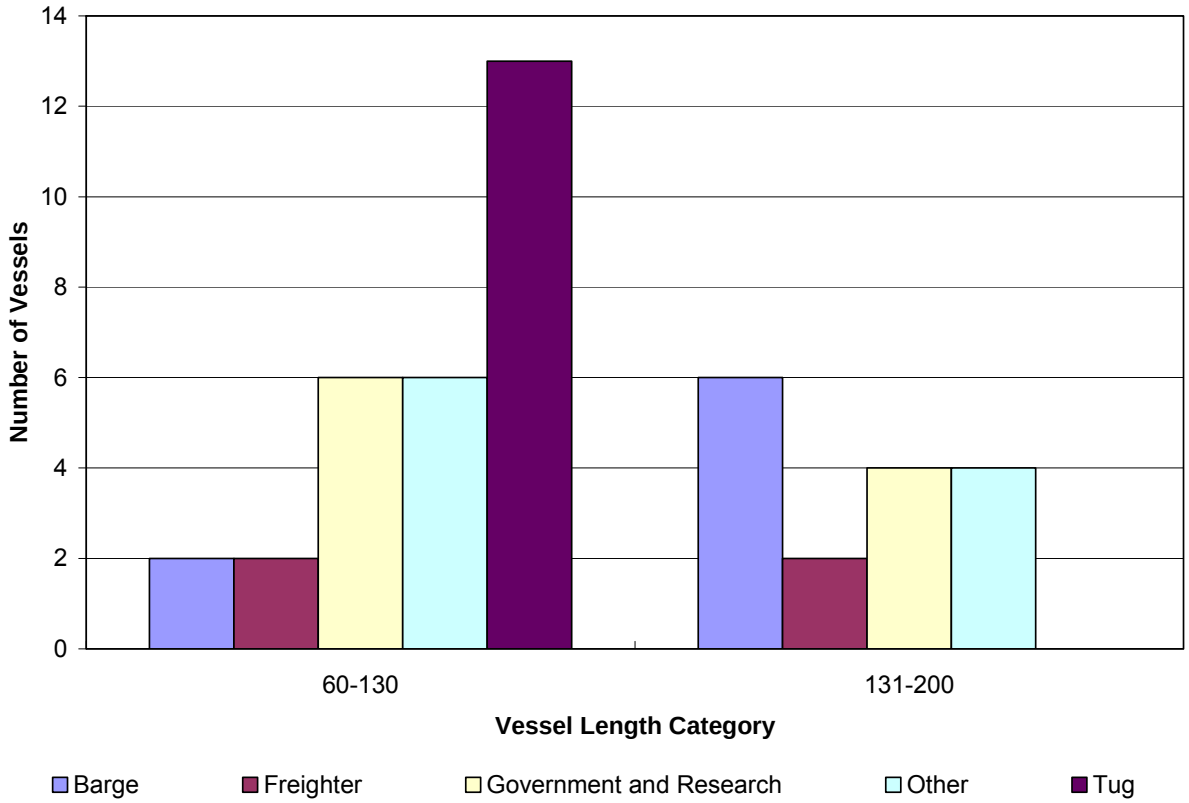
Figure 25. Vessels on Small Boat Harbor Waiting List, by Size Class



Source: Port of Dutch Harbor Small Boat Harbor Waiting List

The following four figures provide additional information on non-fishing vessels, since a number of these types of vessels may need dockage rather than moorage, and vessels larger than 200 feet in length, which generally cannot use the Spit Dock for moorage, and use the UMC for cargo movements and limited moorage. Figure 26 shows the number of non-fishing vessels under 200 feet in length that used public facilities in the one-year period from June 2007 to May 2008.

Figure 26. Number of Non-Fishing Vessels Under 200 Feet in Length, June 2007-May 2008

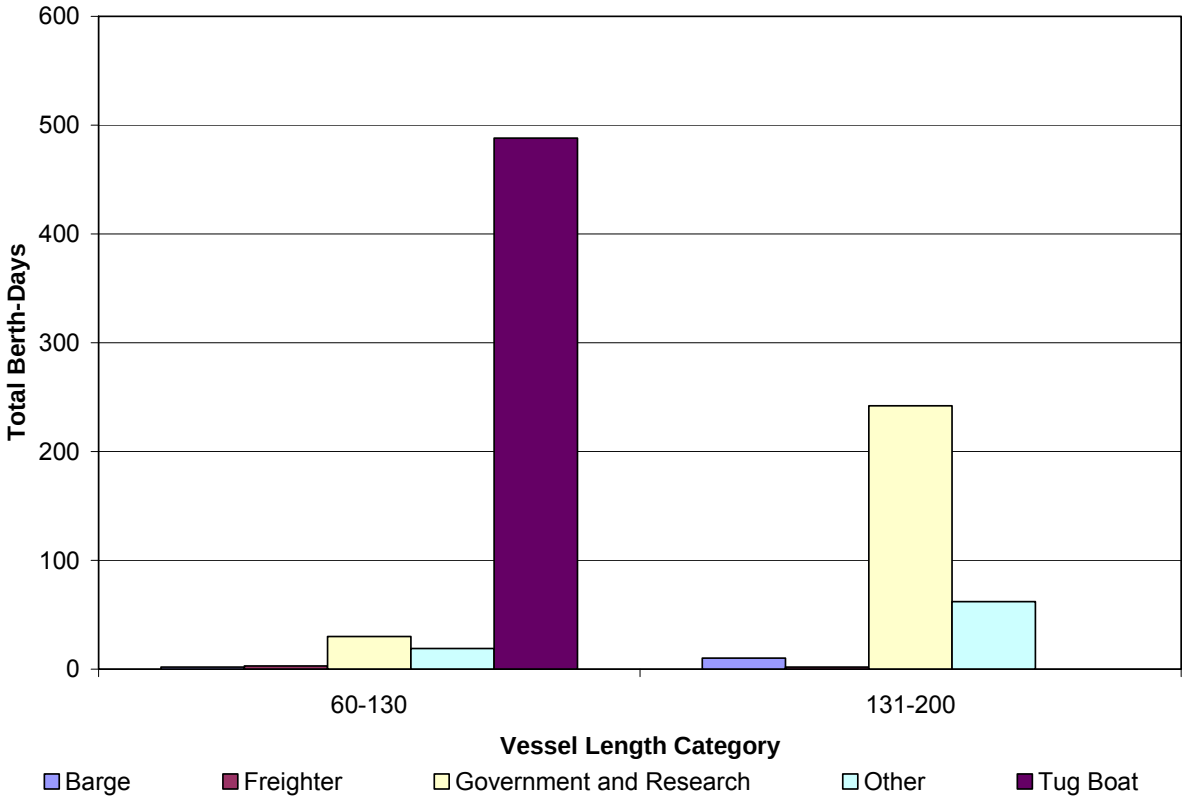


Source: Port of Dutch Harbor Billing Database, 2008 data

Note: The number of vessels shown represents an aggregation where the vessel type could be adequately identified. Barge includes both freight and fuel barges. Freighters include domestic freighters and other container ships. Government and Research includes research and Coast Guard vessels. The Other category includes cruise ships, ferries, houseboats, pleasure craft, sailboats, and other vessel types. Vessels of unknown length are not included. To appear in the figure, the vessel's most recent visit must have been between June 1, 2007 and May 31, 2008, according to the Port of Dutch Harbor Billing Database.

As a comparison to Figure 26, Figure 27 shows the total berth-days spent at public facilities in Unalaska by non-fishing vessels under 200 feet of length. Again, the figure is based on data from the one-year period from June 2007 through May 2008. The number of berth-days for barges and freighters is very low. This reflects the short duration of berthing for these vessels, as well as the frequency of port calls. Government and research vessels shown in the figure spent a considerable number of berth-days in Unalaska, since many had permanent moorage or longer durations of stay.

Figure 27. Total Berth-Days of Non-Fishing Vessels Under 200 Feet in Length, June 2007-May 2008

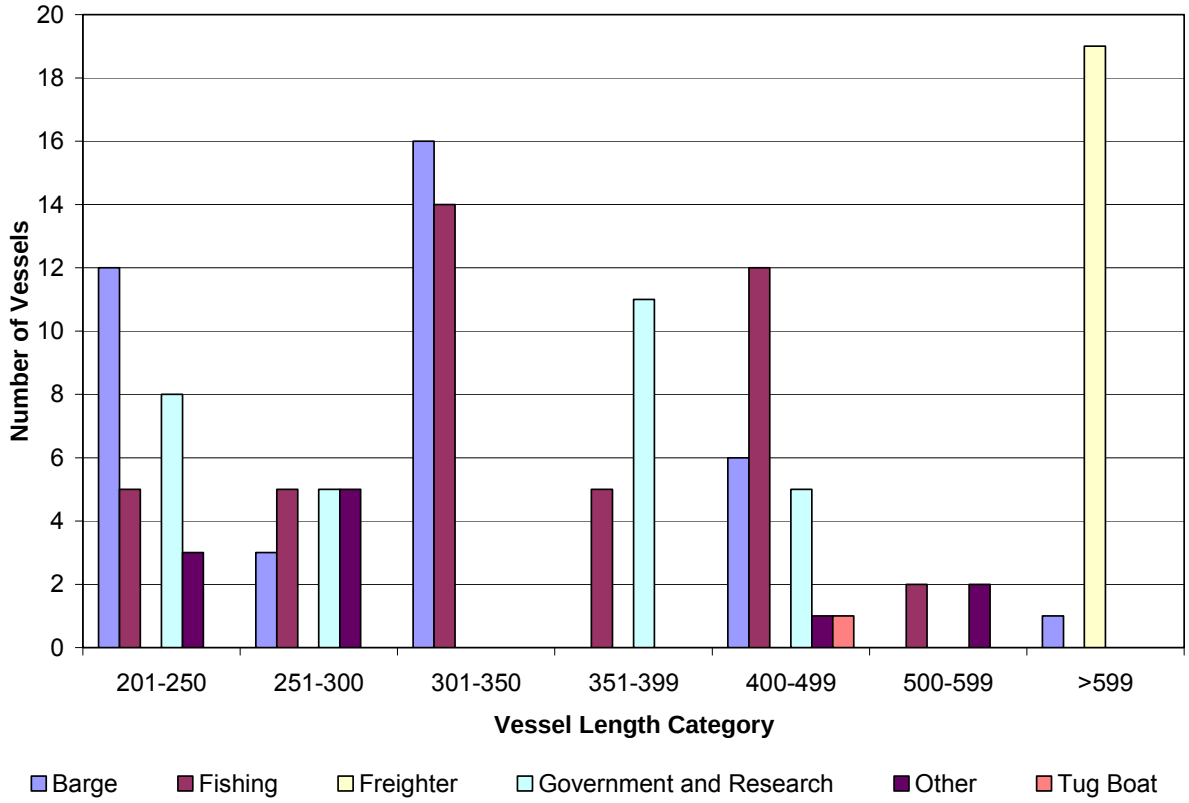


Source: Port of Dutch Harbor Daily Vessel Check Database, 2008 data

Note: The number of vessels shown represents an aggregation where the vessel type could be adequately identified. Barge includes both freight and fuel barges. Freighters include domestic freighters and other container ships. Government and Research includes research and Coast Guard vessels. The Other category includes cruise ships, ferries, houseboats, pleasure craft, sailboats, and other vessel types. Vessels of unknown length are not included. To appear in the figure, the vessel's most recent visit must have been between June 1, 2007 and May 31, 2008, according to the Port of Dutch Harbor Billing Database.

Figure 28 shows the number of vessels exceeding 200 feet in length that used public facilities during June 2007 through May 2008.

Figure 28. Number of Vessels Over 200 Feet in Length, by Type and Length, June 2007-May 2008

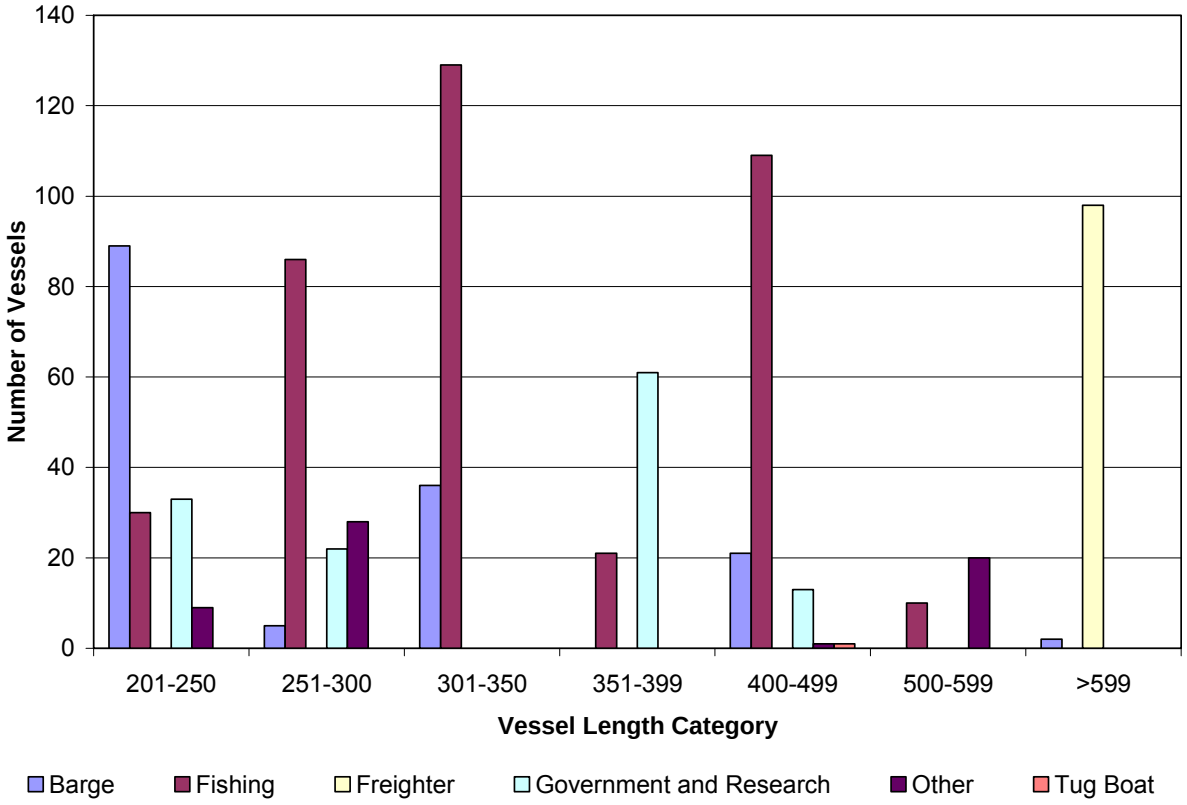


Source: Port of Dutch Harbor Daily Vessel Check Database, 2008 data

Note: The number of vessels shown represents an aggregation where the vessel type could be adequately identified. Barge includes both freight and fuel barges. Freighters include domestic freighters, Sealand D-7s and D-9s, and other container ships. Government and Research includes research and Coast Guard vessels. The Other category includes cruise ships, ferries, houseboats, pleasure craft, sailboats, and other vessel types. Vessels of unknown length are not included. To appear in the figure, the vessel's most recent visit must have been between June 1, 2007 and May 31, 2008, according to the Port of Dutch Harbor Billing Database.

Figure 29 shows the number of berth-days for vessels exceeding 200 feet of length, as a comparison with the vessel counts shown in Figure 28. In the 200-250 foot length class, barges had the greatest number of berth-days. From 250 to 350 feet, fishing vessels had the most berth-days.

Figure 29. Total Berth-Days of Vessels Over 200 Feet in Length, by Type and Length, June 2007-May 2008



Source: Port of Dutch Harbor Daily Vessel Check Database, 2008 data
Note: The number of vessels shown represents an aggregation where the vessel type could be adequately identified. Barge includes both freight and fuel barges. Freighters include domestic freighters, Sealand D-7s and D-9s, and other container ships. Government and Research includes research and Coast Guard vessels. The Other category includes cruise ships, ferries, houseboats, pleasure craft, sailboats, and other vessel types. Vessels of unknown length are not included. To appear in the figure, the vessel's most recent visit must have been between June 1, 2007 and May 31, 2008, according to the Port of Dutch Harbor Billing Database.

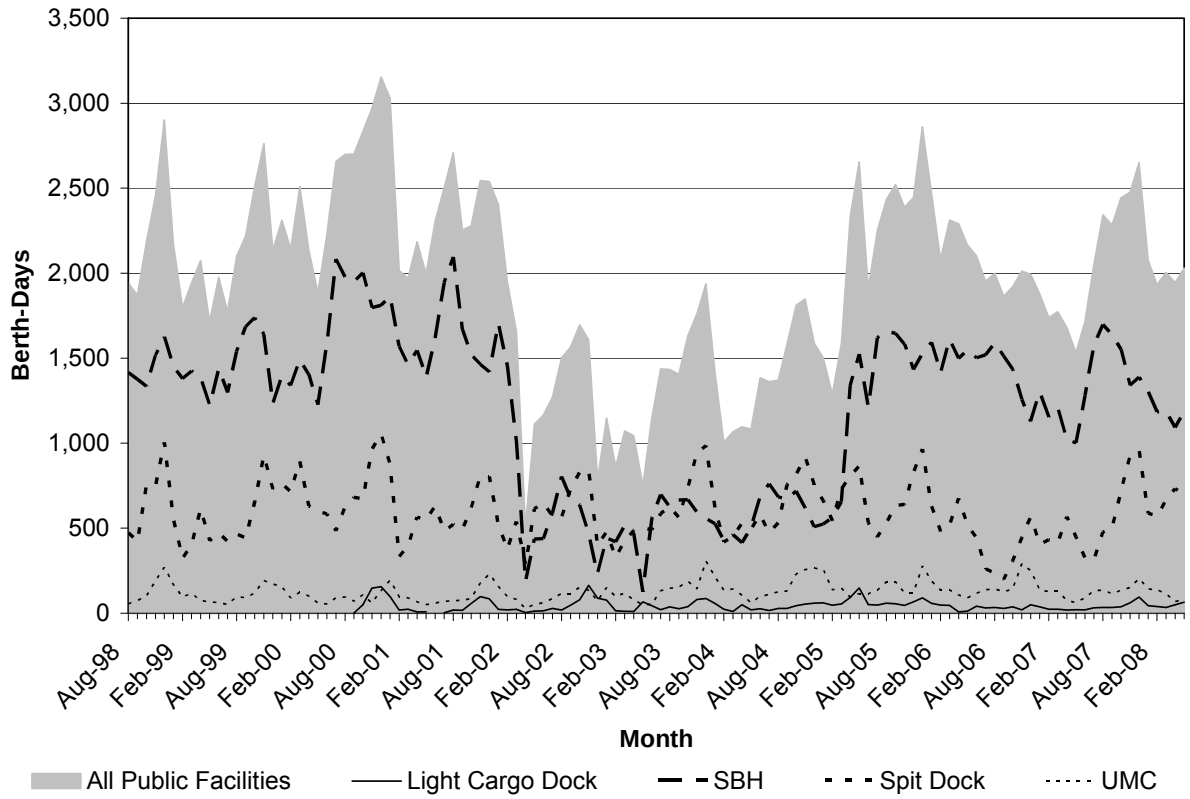
4.1.2 Duration

This section presents information on the duration of stay for vessels that use public facilities, measures of the utilization rate for those facilities, and the seasonality of use. This analysis contributes to the development plan by providing background information for determining future facility demand.

Facility utilization information came from the Daily Vessel Check (DVC) database for the Port of Dutch harbor. The analysis focuses on four public facilities: the Light Cargo Dock, Small Boat Harbor (SBH), Spit Dock, and Unalaska Marine Center (UMC). Data for these facilities is available for July 24, 1998 through June 25, 2008. The first activity recorded at the Light Cargo Dock occurred on September 30, 2000, and the level of usage increased quickly after that first docking.

For June 2007 through May 2008, the DVC database contains records for 25,949 berth-days at public facilities. This compares to 22,446 database records for the same one-year period in 2006-2007. The total berth-days recorded in the DVC database are shown graphically in Figure 30.

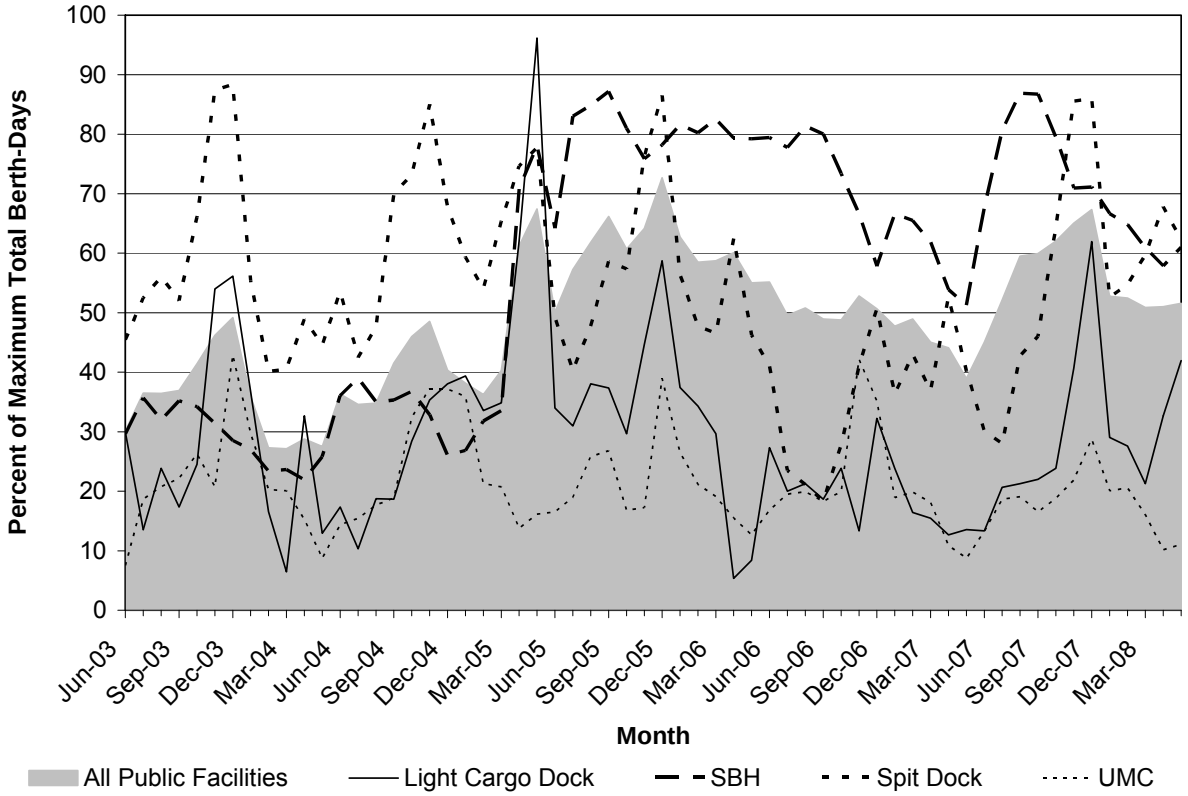
Figure 30. Total Berth-Days for Public Facilities, by Month, August 1998-May 2008



Source: Port of Dutch Harbor DVC Database

Using the database, the total berth-days were tallied for each full month from June 2003 to May 2008. Using the maximum berth-days for any month during the period, utilization rates were calculated for each of the four facilities. Figure 31 shows monthly utilization rates for the five-year period.

Figure 31. Total Berth-Days for Public Facilities as Percent of Maximum, by Month, June 2003-May 2008



Source: Port of Dutch Harbor DVC Database

As seen in the figure, utilization rates show growth over time. Utilization rates help to signal demand for new facilities. As the utilization rate approaches 100 percent, the risk increases that existing facilities will not be able to handle demand, causing delays or requiring vessels to use competing facilities. Therefore, it is important to watch utilization rates over time.

At the Light Cargo Dock, utilization rates over the last year (June 2007 through May 2008) have ranged from 13 to 62 percent, with an average of 30 percent. Small Boat Harbor utilization rates have ranged from 58 to 87 percent, averaging 71 percent. The Spit Dock's utilization has ranged from 28 to 86 percent, with an average of 57 percent. Finally, the UMC operated at 10 to 29 percent capacity, averaging 18 percent. It should be noted that the size of vessels at the moorage facilities would affect the utilization rates as expressed in berth-days. For example, a 60-foot vessel would account for one berth day while two 30-foot vessels would account for two berth-days.

Another measure of utilization for the UMC is the average number of vessels at the UMC each day during the month, which may be compared with the number of available berths (six at the face and seven with the inclusion of a recent berth on the landward side of the U.S. Coast Guard expansion). A utilization rate of about 80 percent is a real-world sustainable practical capacity (SPC) for cargo docks (VZM/TranSystems Corporation, 1999), and as utilization begins to approach that percentage, planning must be done for meeting the future demand[20]. The SPC for the UMC, assuming that all

[20] The SPC is 75 to 85 percent of the maximum practical capacity (MPC) of a facility, with the latter being the level of activity at the high end of a realistic operating scenario. The SPC should represent a level of activity that is economical and safe. For instance, if vessel operators could be persuaded to wait, demand for UMC dockage

seven berths are included in the analysis, is about 2,000 berth-days per year or about 170 berth-days per month. During the one-year period from June 2007 through May 2008, the DVC database shows 1,507 total berth-days, which averages 126 per month. Table 12 shows the average utilization of UMC for 1998 through 2008. In the table, 1998 and 2008 are each partial years. Utilization is calculated on the actual number of days that the facility was used, not the number of days in each year.

Table 12. Average Utilization at Unalaska Marine Center

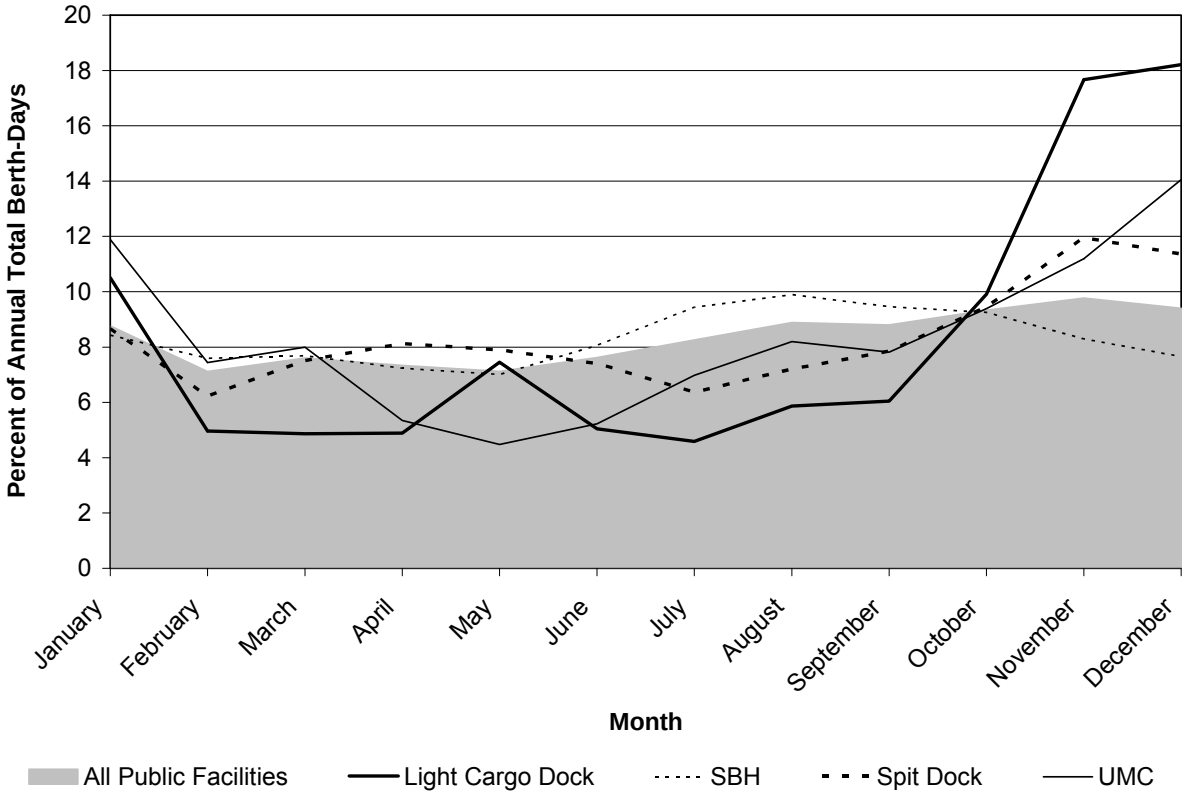
		Average of Utilization (%)	
Year	Days of Data	6 Berths	7 Berths
1998	146	80.6	
1999	346	62.8	
2000	341	55.6	
2001	333	63.6	
2002	310	61.9	
2003	337	80.0	68.6
2004	351	89.0	76.3
2005	352	89.3	76.5
2006	355	87.5	75.0
2007	355	70.1	60.1
2008	172	62.6	53.7

Source: Port of Dutch Harbor DVC Database

Figure 32 shows the seasonality of facility usage for each of the four facilities, based on nine complete years of data from 1999 to 2007. The Light Cargo Dock has the greatest seasonal variation, followed by the UMC, the Spit Dock, and the SBH. Overall, the greatest level of use occurs during August through January, with a peak in November and December.

could in theory increase to the point where a constant queue would be formed with vessels waiting to access the facility, so that each berth at the UMC would be occupied almost constantly. However, as a practical matter, this would be uneconomical—the vessels would incur significant opportunity costs while waiting to use the facility—and unsafe—the heavy traffic at the dock could jeopardize equipment and workers on the dock and other vehicular traffic and pedestrians on the road, and the queue of vessels waiting could present a hazard to other vessels trying to operate in the area. Therefore, the SPC—at about 80 percent of the MPC—is a reasonable upper limit for activity.

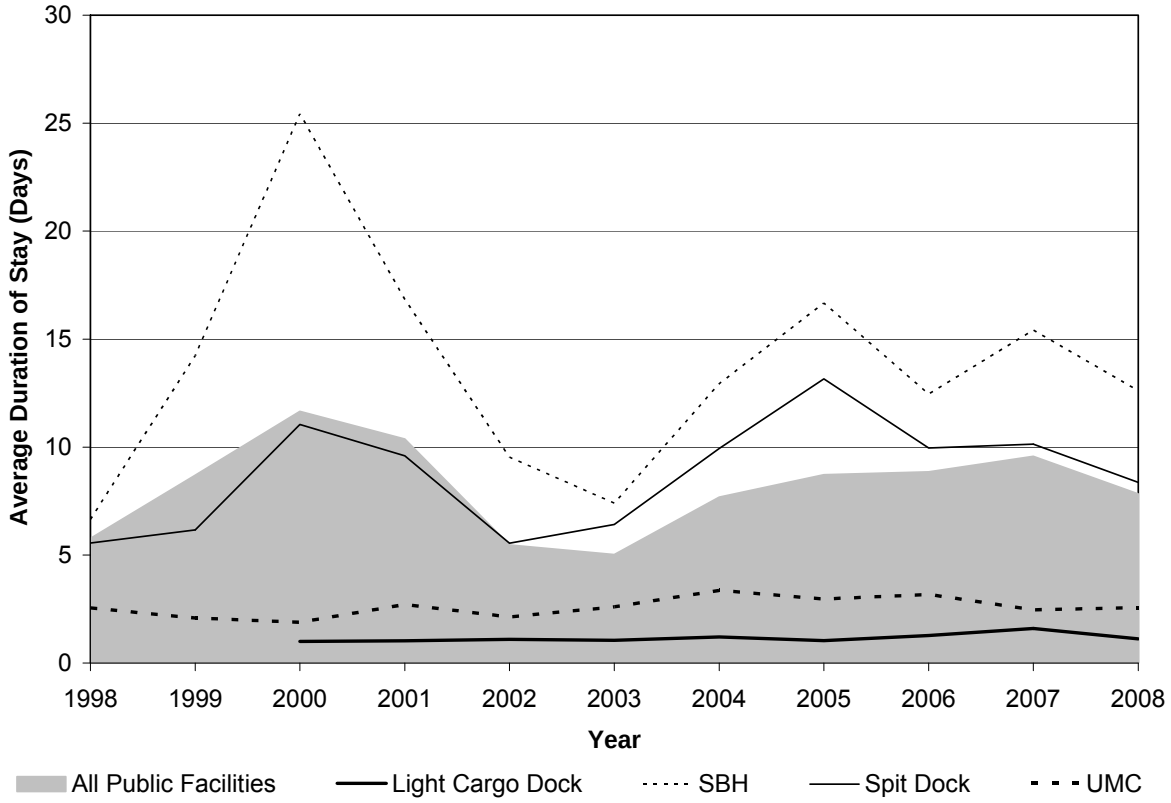
Figure 32. Seasonality of Facility Usage, by Facility, 1999-2007



Source: Port of Dutch Harbor DVC Database

The duration of stay has multiple interpretations, and the type of facility has a great deal of influence on the measure. Longer stays may mean more revenues for the Port, although if a vessel is paying for permanent moorage or if multiple vessels utilize the slip regularly, revenues may be the same. Shorter durations and a high rate of transient moorage may provide greater revenues for the Port than would longer stays and permanent moorage. With cargo operations and other commercial uses, shorter durations are expected, and, in fact, the figure shows that the Light Cargo Dock and UMC durations of stay are shorter than the other facilities. The SBH has the longest duration of all facilities. Because of the multiple influences on the average duration of stay, it is important to corroborate its meaning with other measures.

Figure 33. Average Duration of Stay for All Vessels Using Public Facilities, by Facility, 1998-2008



Source: Port of Dutch Harbor DVC Database
Notes: Duration of stay is reported in the month containing the last day of moorage. In the event that moorage covered two calendar years, the duration in each year is reported separately. This is not expected to have a major effect on the average duration calculations. In 2002 and 2003, a change in reporting resulting in permanent moorages not being reported the same as transients. No duration information is available for those moorages, so permanent moorages in April 2002 and later are not included in the duration calculation.

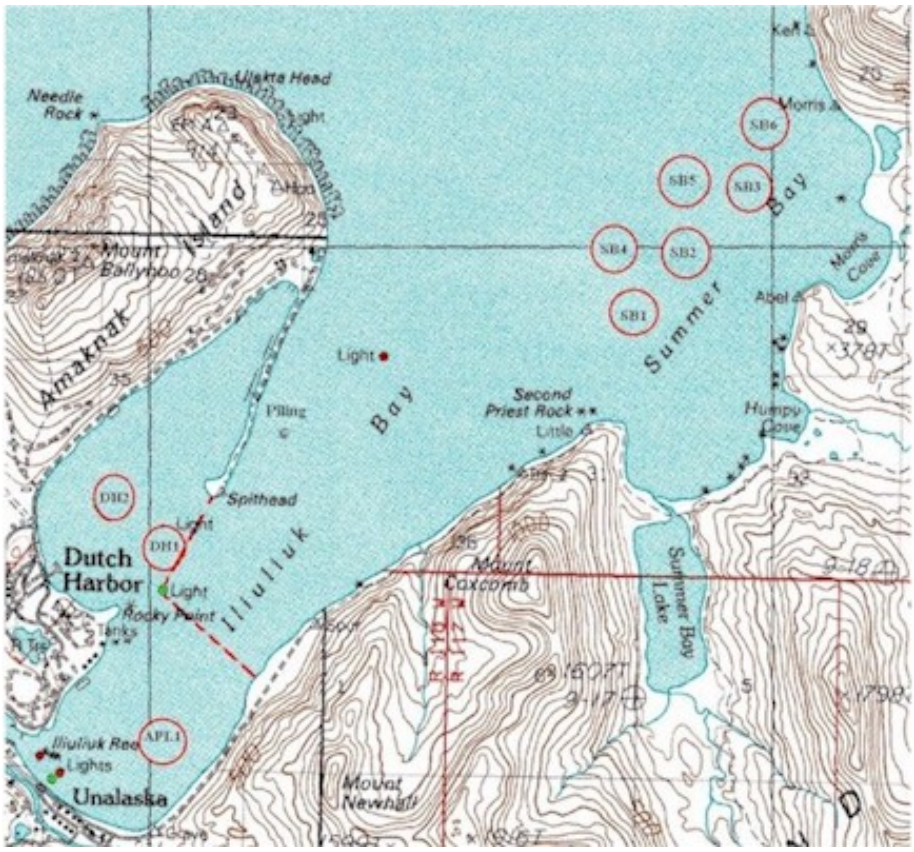
4.1.3 Large Vessel Anchorages

The Port of Dutch Harbor has limited large vessel anchorages due to water depth, the potential for fouling anchors on World War II debris of cables and chains, and poor bottom holding characteristics in some areas. The Alaska Marine Pilots Association has, over many years of experience, defined and developed the 18 anchorages shown in the following three figures as suitable for large vessels at anchor in the Port. Vessels may drag anchor while at these locations, and vessels have gone aground during storm conditions. As reported in the next section, vessels at anchor have special operating regulations in the Aleutian Islands due to the frequent and severe storms that impact the area. Most of the anchorages are in state waters and use state submerged tidelands. Two or three of the anchorages in Captains Bay may be located on the City of Unalaska submerged tidelands.

Break-bulk cargo vessels, or trampers, are the primary vessels using these anchorages. They often lie at anchor for several weeks and receive product from catcher processors and other vessels that come into Dutch Harbor to offload to the trampers or to cargo docks in the City. These trampers call at the UMC dock to load product and/or replenish their fuel and water supplies, as well as other private docks in the community. The proposed improvements at the Light Cargo Dock would provide another docking facility for trampers.

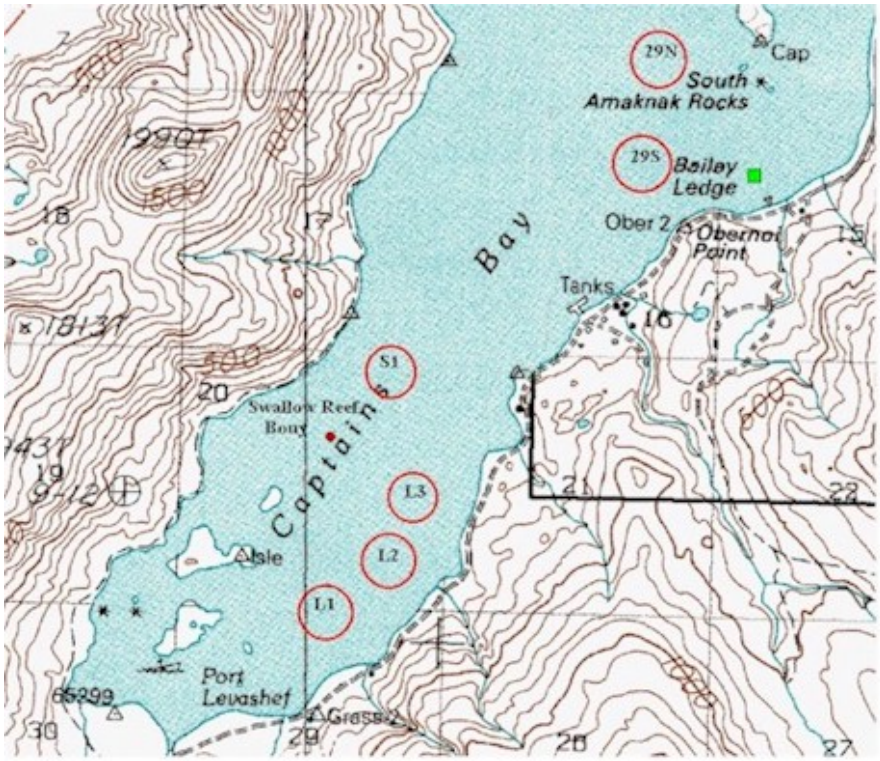
Following the three maps, Figure 37 shows the number of berth-days recorded for vessels anchoring at those designated locations, for the period of August 1998 through March 2002. The Port of Dutch Harbor stopped tracking anchorage in these locations after March 11, 2002. The downward trend in the number of berth-days for vessels at these anchorages reflects the consolidation in the industry following implementation of the American Fisheries Act and, to some extent, expansion of cold storage facilities in the community. Data are not available to determine changes since March 2002.

Figure 34. Iliuliuk Bay/Dutch Harbor Large Vessel Anchorage Locations



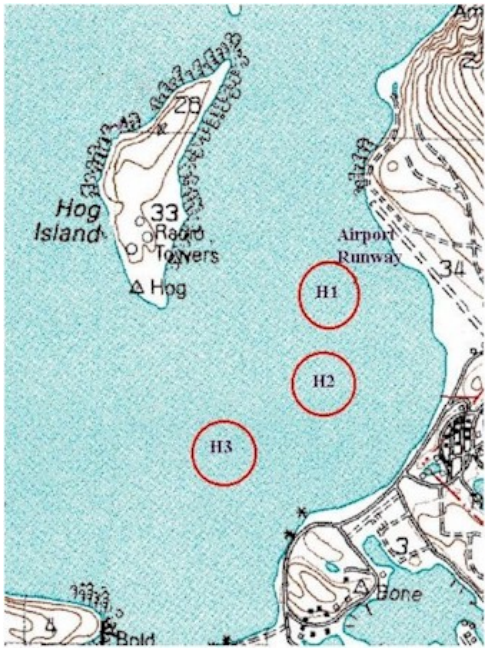
Source: Port of Dutch Harbor (2004)

Figure 35. Captains Bay Large Vessel Anchorage Locations



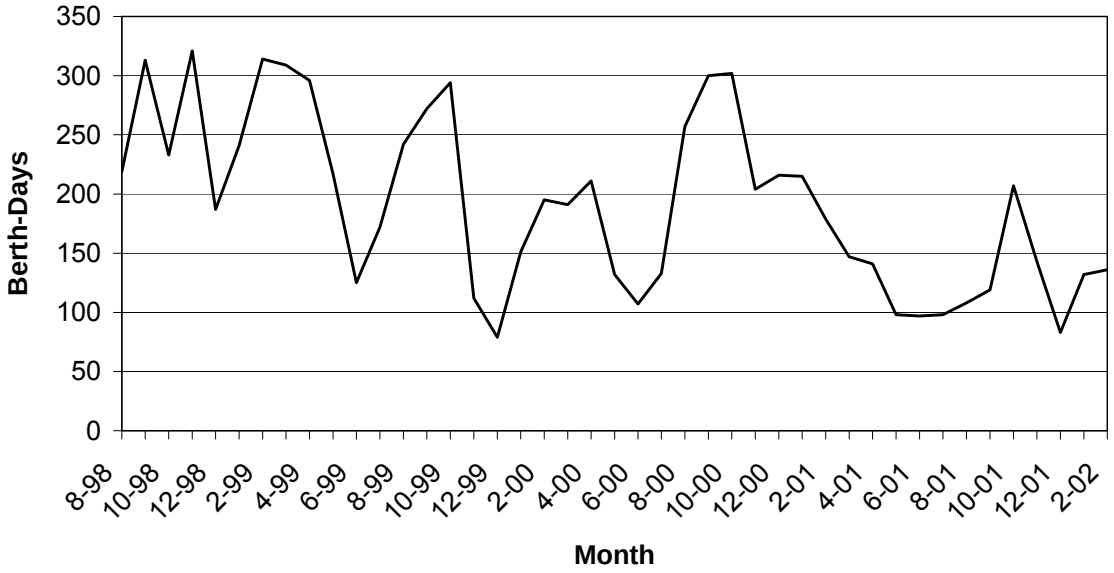
Source: Port of Dutch Harbor (2004)

Figure 36. Unalaska Bay/Hog Island Large Vessel Anchorage Locations



Source: Port of Dutch Harbor (2004)

Figure 37. Berth-Days for Vessels Anchored at Designated Anchorages, August 1, 1998 to March 11, 2002



Source: Port of Dutch Harbor DVC Database

4.1.4 Weather Impacts

The U.S. Coast Guard and the Port of Dutch Harbor have established guidelines for vessels at anchor in ports or roadsteads (a partly sheltered anchorage such as those shown in the previous three figures) during severe weather in the Aleutian Islands. Severe weather is defined as sustained winds over 45 nautical miles per hour, or storm warnings issued by the National Weather Service. Vessels are required to carry spare anchors, minimum amounts of anchor chain, and maintain an adequate anchor watch. In addition, when weather conditions become severe, the USCG, the Port of Dutch Harbor, and the Alaska Marine Pilots conference to discuss the severity of the storm, vessels presently at anchor in the port, and which vessels are likely to be at risk. This information is then passed to the vessels for their use in planning for the weather event. Vessels can be ordered to change anchorages or put to sea in the event that the vessel poses a safety risk.

4.1.5 Utilization and Capacity of Privately Owned Facilities

This section summarizes conversations held with several owners or operators of private facilities. Interviewees were requested to provide information about changes in capacity and utilization over the past five years, comment on what changes might take place at their facilities in the future, and comment on new public and private facilities planned for or needed in the community. The summaries are presented in alphabetical order.

Alyeska Seafoods, Inc.

Northern Economics staff interviewed Sinclair Wilt of Alyeska Seafoods, Inc. on June 25, 2008 (Wilt, 2008). This section summarizes the conversation.

Prices for surimi have skyrocketed, more than doubling since last year. Alyeska produces pollock fillets, as well, and the company is installing a tunnel freezer for fillets. Though its production is currently focused more on surimi, the freezer was an investment it decided to make in late 2007 or early 2008.

In general, shoreplants are being hit hard by fuel prices. Fishing vessels are traveling farther and farther to reach the fish, increasing costs and making it harder to bring product back to shore for processing. Once it has the product on shore, Alyeska is consuming over one million gallons of ultra low sulfur diesel annually for its operation, which is a major cost especially with the increase in fuel prices. With the cut in quotas, the cost per pound of product has gone up. Fuel has also affected transportation and electricity costs. Alyeska has switched to fluorescent lighting to reduce costs. The City is considering the feasibility of geothermal power, which would also help power costs.

Wilt thinks the new DH Ports facility will be good for the community and will help to consolidate outgoing shipments. He doesn't see a big need for Alyeska to use the new facilities, though it could if a need arises. Wilt thinks the City needs a small boat harbor. The proposed Carl E. Moses Boat Harbor meets that need. He sees Magone's dry dock as a very good benefit for the local fleet.

Alyeska uses Horizon to handle its shipments. If the preferential use agreement goes away, it would increase Horizon's costs and in turn increase Alyeska's costs. Maersk has indicated that it will build sixteen 4,500 TEU ships. Horizon has already installed a new crane to handle these larger, post-Panamax ships. Horizon put in a second crane which, despite being controversial, has proven to be beneficial when access to the port is delayed due to the weather.

American Seafoods Company (ASC)

Northern Economics staff interviewed Jack Pound of American Seafoods Company on June 26, 2008 (Pound, 2008). This section summarizes the conversation.

The new DH Ports facility will consist of a 1,000-foot dock at about -45-foot water and an 80,000-square foot (200 feet by 400 feet) cold storage. The cold storage is designed to be expanded. No dry storage or office space is available on-site at the new facility. It will have twelve truck bays.

Pound sees the facility improving product quality for catcher processors enabling them to be competitive with shore-based processors since it will allow product to be stored out of the elements and handled on an even and paved (mud-free) surface. The resulting product packaging will be clean, dry, and day stamped, increasing its value in the market. The operation still isn't perfect, however, due to the capacity constraint of only handling one ship at the dock when a 600-foot tramper is docked there. ASC still plans to use the City's dock, at least initially. It would be nice for the UMC to have more space, a larger warehouse, and a freight transit area in the future.

ASC is considering placing a barge in the community to process fish oil for energy and to produce fish oil supplements.

Pound would like to see UMC Position 3 filled in and for a warehouse to be constructed in conjunction with that. He also thinks the City needs to do something about mud at the City dock, which creates a mess when trying to work with product there.[21]

[21] Paving of the backreach for UMC positions 4 through 7 is planned for 2010 and included in the Capital and Major Maintenance Plan. Design work is planned for 2009.

Magone Marine Services

Northern Economics staff interviewed Dan Magone of Magone Marine Services on June 30, 2008 (Magone, 2008). This section summarizes the conversation.

Magone Marine Services provides moorage and repair for vessels. Typically moorage is provided free of charge while the vessel is repaired. The company recently added a 1,000-ton floating dry dock and has a deep draft 300-foot by 90-foot dock. Magone expects to see more business for dock facilities in the future.

Magone doesn't think the City needs more docks, but he thinks a small boat harbor is needed. That need will be addressed now that the CEM harbor is finally happening.

Economic prospects for the community will be affected by fisheries and oil development. The fisheries are reasonably healthy, but it remains to be seen if world markets will be able to afford seafood products at their full cost, especially with the recent doubling of fuel costs. As for outer continental shelf oil development, he thinks it would have a large impact on businesses in Dutch Harbor. If oil development occurs, those with expanded docks would benefit and those without would be hurt.

Magone thinks the City needs to develop an energy plan after CEM is complete. The high cost of electricity is prohibitive and places a burden on customers. Electricity bills are two to three times as much as they were when he built his facility.

North Pacific Fuels (NPF)

Northern Economics staff interviewed Mark Hughes of NPF on June 24, 2008 (Hughes, 2008). This section summarizes the conversation.

North Pacific Fuels is the operator at the Crowley dock. NPF operates the dock under a lease, with the next renewal coming up in 2009. Hughes knows of no plans for either party to change the leasing arrangement at this time. NPF has looked at purchasing the dock in the past. When asked about Shell's exploration activities, Hughes indicated that their use of Crowley's dock is a rumor at this point, though it could certainly be something they're considering. Hughes thinks NPF and Shell could potentially share use of the dock, though that may require some amount of expansion.

Offshore Systems, Inc. (OSI)

Northern Economics staff interviewed Jarred Davis of OSI on June 24, 2008 (Davis, 2008). This section summarizes the conversation.

OSI currently employs 35 to 40 people total, depending on the season. Rather than lay people off during the off-season, it shifts its employees' duties to maintenance during slower periods and offers a 6-month on, 1-month off rotation. The company has plans for expansion over the next few years. It has permits to fill in the lagoon near the reef dock, which will add 400 to 500 linear feet of dock. OSI also plans to increase its power generation (it is not on Unalaska's electrical grid), wastewater treatment capacity, housing capacity (the most immediate need), and its warehouse space. Eventually OSI may add to its cold storage capacity, which is currently 3,000 metric tons.

Asked about Unalaska port infrastructure needs, Davis thinks the community needs more dock space and cold storage capacity. He thinks the need extends beyond what is being added at the new DH Ports facility and that the new facility won't affect OSI's operations. Threats to the community and its marine-related industries are the risk of environmental disasters, a lack of fish, and high fuel prices. Davis commented that the rack rate for diesel #2 was $4.47 per gallon at the time of the interview.

Pacific Stevedoring, Inc. (PSI)

Northern Economics staff interviewed Mark Stewart of Pacific Stevedoring, Inc. on June 25, 2008 (Stewart, 2008). This section summarizes the conversation.

PSI is working with ASC on the new DH Ports facility. The prior ASC dock was old and needed to be replaced and modernized. The cold storage will handle 30,000 tons of product. ASC and Glacier Fish will be served at the new dock. It will also be able to handle smaller shipments from fishing vessels and other communities in the region such as Saint Paul. The facility was built to improve cargo handling and to move cargo out of the elements. It will increase productivity and improve product quality, which should translate into the ability to get better prices.

The new facility will benefit operations because now trampers can be called in as needed, rather than having them wait in the community for one to two months. The turnaround time will be much faster, allowing a tramper to be loaded in three to four days. The largest tramper is 4,500 tons, so the facility will be able to load more than 6 trampers if the cold storage facility is full.

Stewart indicated that the industry is doing well. He doesn't feel PSI has lost much, if any, business from last year's quota reduction. When asked about the community's needs in the future, he said that additional dock space is needed, beyond what the new dock has added. The City needs more space to tie up vessels after the fishing seasons are finished. There's also a lack of storage space; there are only two cold storage facilities in Unalaska, the new facility and OSI's facility.

UniSea, Inc.

Northern Economics staff interviewed Don Graves of UniSea, Inc. on June 26, 2008 (Graves, 2008). This section summarizes the conversation.

UniSea has seen an increase in crab. Graves thinks the crab fishery has seen a low and will start to have vessels return in the future, though not enough to reach anywhere near the number of vessels there used to be. Pollock has been down and will probably be down again next year, but he's starting to see an increase in fish size, which is positive. There has been an influx of small boats (40 to 70 feet) in the community that are involved in the cod fishery.

Graves has heard from vessel owners that they can't wait for the CEM harbor to be built. Trips to Seattle during the off-season are just too costly due to fuel prices. Magone's facilities can handle typical crabbers as well as trawlers, but larger vessels have to leave the community for maintenance.

Most of the UniSea fleet ties up at the company's dock. It is one of the largest, if not the largest private continuous docks. A lot of these vessels would try to get reserved moorage in the CEM harbor once it is available. UniSea plans to rebuild and slightly extend its dock; it has permits for this work.

Graves thinks the new DH Ports facility will put more product through the community. It will greatly increase power demand from the City's grid. He thinks it will reduce use at UMC, though the facility is very busy and this reduction of use wouldn't necessarily be a bad thing.

Graves thinks the community needs a boat lift, something that would handle mid-sized vessels in the cod fishery. Locating the lift adjacent to CEM may be appropriate. At present, these vessels have to run to King Cove, Kodiak, or Seattle to be lifted. The old Walashek facility, now owned by Harbor Crown, has not been maintained and is not suitable. He also thinks the community needs a laundry facility (likely as a private venture), now that the smaller fleet is arriving; he expects it to continue growing.

4.2 The Competitive Environment

This subsection considers the competitive environment in which the Port of Dutch Harbor's moorage facilities operate. It considers facilities, services, and pricing for moorage within the Southwest Alaska region, highlighting major facilities from Unalaska to Kodiak. The distance between Unalaska and Kodiak, the nearest cargo port, is sufficiently large that the two facilities experience very little competition with the other. Subsequently, the competitive environment for dockage and cargo movements is not compared.

The Port of Dutch Harbor holds the market niche for 15 to 250-foot vessels and is the preferred moorage location for this vessel size class. Unalaska provides several benefits for vessels using its facilities that are not offered to the same extent by other ports in the Aleutians. Those benefits include lower fuel costs, air access, a clinic, and other community facilities.

The following sections discuss competing moorage facilities (Section 4.2.1) and the rates charged at each (Section 4.2.2).

4.2.1 Competing Moorage Facilities

City of King Cove

King Cove has two public harbors, a deepwater pier, and a 150-ton lift. The North Harbor, which is the older of the two harbor basins, provides moorage space for vessels of up to 60 feet in length. It houses the local fleet and, at peak usage, holds 100 to 120 fishing vessels. The South Harbor was opened in October 2001. It was constructed primarily for vessels participating in the crab fishery and has space for up to 40 of these larger vessels. The South Harbor was constructed because many boats were unable to dock and/or moor at King Cove due to a lack of capacity. This was particularly the case for crab fishermen (ISER, 2007).

Currently, there is shore-power at both of the harbors, and the South Harbor has three-phase power. Service at the South Harbor was added to encourage more fishermen to moor in King Cove. The harbor office is located next to the South Harbor and contains amenities for the fishermen such as restroom and shower facilities, and telephone service.

Currently there are no plans for further expansions, though the City is pursuing money from the State of Alaska's Municipal Harbor Grant program for float replacement and other maintenance in the older North Harbor.

City of Sand Point

Sand Point's boat harbor has four docks, 134 slips, and a 150-ton lift. The original harbor was built for the Sand Point salmon fleet, which mainly consists of boats less than 59 feet in length. The harbor is very full during the off-season and may be over capacity during the groundfish season. It accommodates vessels up to about 60 feet, but there is limited space for these vessels. Many have to raft up against a dock.

Construction of a new harbor is underway. The breakwater was completed in the summer of 2008 and a dock is being finished in late 2008. There are no floats in the harbor, but they will be added in two to three years. The new harbor is aimed at providing moorage for larger vessels. It can hold approximately 60 vessels (Day, 2008).

Kodiak

The City of Kodiak has two public harbors with more than 600 stalls for vessels of different sizes, up to 150 feet. There are two general purpose docks located in the harbor, which accommodate loading and off-loading vessels of up to 120 feet and also allow for short-term maintenance work. In April 2008, the City purchased a large vessel travel lift (APRN, 2008). The City also has three piers, ranging in length from 204 feet to 925 feet, which serve Alaska Marine Highway System ferries, commercial fishing, and general cargo needs (KICVB & KCOC, undated). Horizon Lines calls in Kodiak.

Around the year 2000, the St. Paul Harbor floats were replaced and the slips re-configured so that the harbor would serve primarily small to mid-sized vessels of 24 to 60 feet in length (Owen, 2004). The harbor has slips for 193 vessels. Additional large vessel slips were constructed at the St. Herman Harbor in order to compensate for the removal of large vessel slips at the St. Paul Harbor. Prior to 2000, the St. Herman Harbor had 325 slips. It now has 408 slips for vessels ranging from 17 to 150 feet in length. There are approximately 20,200 linear feet of moorage at the St. Herman Harbor, and 9,000 linear feet of moorage at the St. Paul Harbor. St. Herman Harbor can accommodate 154 vessels between 60 and 150 feet in length.

Other Planned Harbor Developments:

Akutan: Currently, the community of Akutan has a public 200-foot dock and a small boat mooring basin. Over the past several years, there has been discussion and study of a proposed 12-acre mooring basin. The Fiscal Year 2008 Omnibus Appropriations Bill includes $468,000 in U.S. Army Corps of Engineers general construction funds for construction of the harbor, representing the first increment of funding for the project (Aleutians East Borough, 2007). The state's inner harbor design currently allows for 57 vessels and 5,360 linear feet of moorage. The design includes 9 vessels at 20 feet, 10 vessels at 32 feet, 4 vessels at 90 feet, 10 vessels at 110 feet, 12 vessels at 130 feet, 8 vessels and 150 feet, and 4 vessels at 160 feet (Smith, 2009).

False Pass: False Pass currently has a city-owned docking facility approximately 175 feet in length. Water is available at the city dock, but shore-power and other amenities are not. Development of a new harbor is nearing completion in 2008 (AEB, 2008). The harbor will provide moorage for 88 vessels, ranging in length from 30 to 100 feet (Cournia, 2006). Breakwater construction and dredging of the entrance channel were completed in 2008 (AEB, 2008). The harbor floats are in False Pass and will be installed in 2009 (AEB, 2008).

Unalaska: The Carl E. Moses Boat Harbor has been proposed for in Unalaska. It is planned to accommodate approximately 75 vessels ranging from 60 to 150 feet in length. A bid authorization should be available soon for the $10 million Phase 1 breakwater construction, which will include the rubble mound breakwater, dredging, and boat ramp. Phase 2 will cover floating breakwaters. The final phase, Phase 3, will cover the inner harbor facilities. Overall, the projected cost of the harbor construction is between $26 and $30 million (Osterback, 2008).

4.2.2 Rate Comparison

This section compares harbor rates and fees for Unalaska/Dutch Harbor to the three competing ports at King Cove, Sand Point, and Kodiak. While having competitive rates is important for attracting vessels to a port, other factors may be more important, such as port location, scope of services available in the community, and proximity to fishing areas or cargo routes.

Table 13 provides a rate comparison for dockage, permanent moorage, and transient moorage for vessels of different lengths. Overall, Unalaska has the highest moorage costs among the four ports (though recent increases in King Cove result in higher transient rates for vessels under 150 feet), but Kodiak's moorage rates exceed those in Unalaska. The only permanent moorage available in Unalaska is at the Small Boat Harbor. Vessels too large to moor at the Small Boat Harbor must pay transient moorage at the Spit Dock. Unalaska has lower dockage rates than Kodiak, except for vessels 100 feet in length.

Table 13. Rate Comparison for Unalaska, King Cove, Sand Point, and Kodiak

	Cost for Service Under Current Rates ($)			
Service	Unalaska	King Cove	Sand Point	Kodiak
Dockage, Per 12 Hours, 100'	150.00	[a]	[a]	115.00
Dockage, Per 12 Hours, 200'	340.00	[a]	[a]	400.00
Dockage, Per 12 Hours, 300'	510.00	[a]	[a]	600.00
Dockage, Per 12 Hours, 400'	760.00	[a]	[a]	800.00
Dockage, Per 12 Hours, 500'	950.00	[a]	[a]	1,000.00
Dockage, Per 12 Hours, 600'	1,150.00	[a]	[a]	1,500.00
Moorage, Annual Permanent, 50'	1,314.00[b,c]	810.00[e]	600.00	2,000.00
Moorage, Annual Permanent, 100'	[d]	[a]	1,800.00	7,000.00
Moorage, Annual Permanent, 150'	[d]	[a]	4,500.00[e]	13,050.00
Moorage, Daily Transient, 50'	16.50[c]	33.75[g]	20.00	33.33
Moorage, Daily Transient, 100'	57.00[f]	67.50[g]	40.00	116.67
Moorage, Daily Transient, 150'	151.80[f]	94.50[g]	60.00	217.50

Sources: City of Unalaska (2003), City of King Cove (2008), City of Sand Point (2006), City of Kodiak (2006, 2008)

Notes:

[a] Dockage is not charged in Sand Point and King Cove. Annual permanent moorage is not available for vessels over 60 feet in King Cove.

[b] Takes into account the 20 percent discount for prepayment of one year moorage.

[c] Small Boat Harbor

[d] Permanent moorage is not available for vessels over 80 feet, which is the limit for using the Small Boat Harbor

[e] Charged by the square foot. Estimated assuming a 50-foot vessel has a width of 15 feet and a 150-foot vessel has a width of 30 feet

[f] Spit Dock

[g] Rates are approximate, based on 35 percent increase in rates.

4.3 Demand Summary

This section summarizes and describes some of the implications of the current and future demand for moorage and dockage facilities in Unalaska, based on the information presented in this plan. The summary covers small vessels (<60'), larger vessels (61' to 200'), and cargo and other large vessels (>200').

Small Vessels (<60'):

The waiting list at the small boat harbor represents current demand for more than 1,600 linear feet of moorage space, assuming vessels are single berthed with no rafting. This is a conservative estimate

since the long wait time to obtain a slip in the Small Boat Harbor discourages many vessel owners from registering on the waiting list. About 70 percent of the vessels on the waiting list have local owners (Unalaska or Dutch Harbor post office boxes), so an expansion of the small boat harbor would significantly benefit local residents. An expanded small boat facility could also attract larger numbers of relatively small vessels fishing in state waters. These small-boat, state water fisheries could provide additional opportunities for local residents if more moorage facilities were available.

Larger Vessels (61' to 200'):

Several harbors in southwest Alaska (King Cove, Sand Point, False Pass, and Kodiak) have recently expanded or are planning to expand to handle larger boats. King Cove, Sand Point, and Kodiak have slips for approximately 300 boats between 60 and 150 feet in length. Akutan and False Pass are working with the Corps of Engineers to build approximately 70 slips for vessels between 60 and 180 feet in length. Together these facilities would provide slips for about 370 vessels. Homer, Seward, and several other harbors in the state are homeports for vessels operating in the BSAI and likely account for 40 to 50 vessels in the BSAI fleet that would be expected to return home between seasons. In total, competing ports can offer about 410 to 420 slips for vessels in the BSAI fleet, although some of these slips will be occupied by vessels operating only in the Gulf of Alaska.

Unalaska is the preferred vessel moorage location for the vast majority of fishing vessels operating in the BSAI, and vessel owners will be willing to pay a premium above the fees at competing ports to moor in Unalaska. The level of the premium will depend on the type of moorage facility. The premium will be less for moorage at the Spit Dock or a similar rafting situation and more for a facility such as the CEM Harbor, where vessels may have individual slips. The CEM Harbor is presently designed to handle boats up to about 150 feet in length and will be competing directly with the other harbors in the region.

Vessels in the BSAI that are between 150 and 200 feet in length will be underserved by the new and planned expansions. Vessels larger than 200 feet will not be served by any of the planned harbor expansions. Over time, the size of vessels operating in the Bering Sea has increased. We anticipate that this trend will continue with the result that a smaller portion of the fleet in 2015 will be able to moor at the current Spit Dock.

Cargo and Other Large Vessels (>200'):

The Port of Dutch Harbor billing database identifies more than 325 vessels greater than 200 feet in length, and another 50 or so freighters, tugs, and barges that are less than 200 feet in length. These two groups of vessels are the primary users of the UMC.

The Light Cargo Dock was designed for handling crab pots and is not readily suitable for moorage or handling of other cargo. Because of this design feature, the dock is not heavily utilized except immediately before and after the crab seasons. American Seafoods Company had considered a proposal to fill in the dock and dredge to make the dock more usable. While this proposal was withdrawn due to the cost, future consideration of this type of investment would enhance utilization of the facility and increase revenues generated by it.

Recent expansion and improvements at the UMC have allowed the facility to defer the need to expand due to increasing utilization. The DH Ports facility further delays the need to expand due to the reduction in use of the UMC that resulted from the opening of the new dock. Utilization of the UMC will likely not reach its practical maximum capacity until the end of this study period (2018) or later. The facility may still reach capacity during periods of peak demand. When the UMC approaches

its maximum capacity, expansion of the Spit Dock to allow it to handle vessels up to 250 feet in length, along with the improvements at the Light Cargo Dock, could enable the Port to defer expansion of the UMC until after 2018.

However, some type of expansion of berths 3, 4, and 5 at the UMC will likely be required within the next few years to accommodate the new ships that are expected on the Puget Sound-Alaska routes. A more substantial expansion will be necessary if the Port wishes to continue to remain an attractive stop for ships engaged in the trans-Pacific trade. The size of these ships has increased dramatically over the past decade, and a substantial expansion would be required to meet the needs of the newest ships coming on line. More modest, but still significant expansion would be required for those ships that are currently in the trade and which may continue in service for the next 20 to 25 years.

4.4 Preliminary Criteria for Port and Harbor Infrastructure Investment

The following criteria are offered as preliminary considerations when allocating funds for public port and harbor infrastructure investments in the City of Unalaska:

- Availability of uplands
- Availability of utilities and facilities (restrooms, parking, etc.)
- Capital cost per berth or linear foot
- City ownership of uplands and tidelands
- Ease of permitting
- Expansion capability on uplands as well as waterside
- Potential for the investment to generate additional employment and income to businesses and households in the community
- Proximity to services and businesses
- Revenue generating capability per berth or linear foot, and ability to amortize the investment
- Sustainability of facility based on market rates for moorage, dockage, and other services

When considering alternate infrastructure investments, the City should evaluate each alternative based on these and possibly other criteria, to assess which facility at which location offers the greatest benefit to the community compared to the investment required.

5 Evaluation of Future Infrastructure Needs and Associated Costs

This section provides a brief summary of maintenance and construction cost estimates for the City's port facilities, a rough schedule for incurring those costs, and a discussion of the financial implications. The content is based on cost estimates for planned port capital and maintenance projects provided by the City of Unalaska.

As discussed in Section 4, utilization of public facilities has been steady or declining over the past five years. This is in contrast to what utilization data indicated only five years ago, when it appeared the UMC would be approaching maximum practical utilization around 2010 and there was a strong indication of the need for additional infrastructure. Since the last version of the port development plan, crab rationalization has reduced the number of vessels in the crab fleet and utilization of all public port facilities has leveled out or decreased.

Industry interviews conducted in June 2008 suggest that the primary public facility that is still a pressing need is the proposed Carl E. Moses Boat Harbor. The CEM harbor is now close to construction, and should be able to meet moorage demand for 60- to 150-foot vessels within a few years. In addition to CEM, many interviewees identified the need for additional dock face. However, interviewees suggested the private sector should add the docks. In fact, some interviewees indicated their facilities were in the process of planning for or constructing additional dock face.

DH Ports' new dock opened in the summer of 2008. The facility competes with the Unalaska Marine Center (UMC) and an immediate effect of the opening of DH Ports' facility was a decline in utilization of the UMC by trampers and catcher processors. The utilization data over the past few years, the drop in utilization with the opening of the DH Ports dock, and industry feedback suggest the City would be best served, for the most part, by focusing on maintenance and replacement projects rather than major new infrastructure projects. The CEM harbor is the primary exception to this suggestion.

The City of Unalaska has produced cost estimates for the port projects it intends to fund in fiscal years 2008 through 2015 as part of the Capital and Major Maintenance Plan (CMMP). The plan is consistent with the findings and recommendations presented in this plan, namely that it focuses on maintenance and replacement rather than on adding new infrastructure. It does include design, construction, and installation of the inner harbor facilities for the new CEM harbor. The CMMP information is shown in Table 14.

Table 14. Port Projects in the City of Unalaska Capital and Major Maintenance Plan, FY 2008-2015

Project Name	Project Description	Project Location	Cost Estimate ($)	CMMP Year
Repair High-tower lights	150 ft. Pole Lights cannot be lowered for re-lamping	UMC Position 7	100,000	2008
Cathodic Protection	Provide sacrificial anodes at various locations	Small Boat Harbor, UMC Dock (all positions), Light Cargo Dock	1,900,000	2009
UMC Concrete Patching	Patch spalled and deteriorated concrete at various locations. Provide training and guidelines for in-house staff. Material and labor costs separate.	UMC Positions 4-7	36,000	2009
Replace Small Boat Harbor Finger Floats	Replace End Finger floats on A, B and C float	Small Boat Harbor	140,000	2009
2 vehicles	Replace 2 port vehicles	Port	57,505	2009
Floating Dock	Install a 20' floating dock at the Boat Launch on Iliuliuk Creek	Iliuliuk Creek Boat Launch	40,000	2009
Design of UMC Grading/Paving	Design of UMC Grading/Paving Project	UMC	150,000	2009
Design of CEM Boat Harbor	Design of Inner Harbor Facilities	New Boat Harbor	350,000	2009
Timber Fenders	Renovate the timber fenders. Contract underway to provide options and costs.	UMC Positions 5-7	450,000	2010
UMC Deck Slab Leveling	Level the slab at UMC Dock to provide better drainage	UMC Positions 5-7	600,000	2010
UMC Backreach Grading and Drainage	Provide drainage and grading for the UMC dock backlands	UMC Positions 4-7	480,000	2010
UMC Backreach Paving	Provide asphalt paving for the UMC dock backreach area.	UMC Positions 4-7	1,300,000	2010
UMC Dock Position #3 Resurfacing	Remove temporary paving, replace selected timber decking, re-pave.	UMC Position 3	350,000	2010
Replace Small Boat Harbor Finger Floats	Replace 4 finger floats.	Small Boat Harbor	150,000	2010
Carl E. Moses Boat Harbor (Inner Harbor Construction)	New Boat Harbor	New Boat Harbor	3,500,000	2010
Replace Small Boat Harbor Finger Floats	Replace 3 finger floats.	Small Boat Harbor	150,000	2011
Harbor Float Replacement	Provide new float for the A - B connection in harbor, include new in-float water and electrical conduits	Small Boat Harbor	470,000	2012
Design of Position 3 Replacement	Design the replacement of Position 3	UMC	800,000	2013
Position 3 Replacement	Replace Position 3	UMC	8,000,000	2015
Harbor Gangways	Replace gangways with new code and ADA compliant gangways for small boat harbors.	Small Boat Harbor	320,000	2015

Source: City of Unalaska (2008)

In addition to the planned improvements, a number of facility improvements were mentioned during interviews with processors and others in the fishing industry. While those improvements are not included in the CMMP at this time, it may be of interest to the City to investigate their feasibility. Those suggestions included:

- Add warehouse space behind the UMC, as suggested by Jack Pound. This improvement may be considered in conjunction with UMC improvements, but it may be more feasible to encourage a private company to construct and operate the warehouse.
- Add a boat lift to handle mid-sized vessels in the cod fishery. Don Graves of UniSea, Inc. provided this suggestion. Locating the lift adjacent to CEM may be appropriate. In evaluating this suggestion, competing ports with haulout facilities should be considered. If fuel prices remain high, however, and the community has the skilled labor to provide vessel maintenance and repair work, vessel owners will be more likely to use facilities located in the community rather than travel to other ports. Demand for a boat lift and its financial feasibility could be considered once the CEM harbor has been developed and the City has a sense of its utilization.

The information shown in Table 14 is summarized by year in Table 15 and by facility and year in Table 16. Spending will be highest in 2009, 2010, and 2015. The UMC will receive a majority of construction money overall (63 percent), with major projects in 2010 and 2015. The CMMP also includes $3.5 million for the new boat harbor (Carl E. Moses Boat Harbor) in 2010 and design work to be completed in 2009.

Table 15. Summary of Port Project Cost Estimates in CMMP by Year, FY 2008-2015

Year	Total Cost Estimate
2008	100,000
2009	2,673,505
2010	6,830,000
2011	150,000
2012	470,000
2013	800,000
2015	8,320,000
Total, FY 2008-2015	**19,343,505**

Source: Adapted from City of Unalaska (2008)

Table 16. Summary of Port Project Cost Estimates in CMMP by Year and Facility, FY 2008-2015

Year	Facility					
	Iliuliuk Creek Boat Launch	New Boat Harbor (CEM)	Port (general)	Small Boat Harbor	Multiple (SBH, UMC, and LCD)	UMC
2008						100,000
2009	40,000	350,000	57,505	140,000	1,900,000	186,000
2010		3,500,000		150,000		3,180,000
2011				150,000		
2012				470,000		
2013						800,000
2015				320,000		8,000,000
Total for Facility	**40,000**	**3,850,000**	**57,505**	**1,230,000**	**1,900,000**	**12,266,000**

Source: Adapted from City of Unalaska (2008)

The City of Unalaska's budget for fiscal year 2009 plans for the Ports and Harbors Enterprise Fund to earn a net income of $231,456. This is higher than projected by the FY 2008 budget, but much lower than the actual net income for fiscal years 2005 through 2007, during which the net income ranged from $860,000 to over $1,000,000 (City of Unalaska, 2008). When the DH Ports dock opened in the summer of 2008, the immediate effect was to reduce utilization of the UMC; as a result, the FY 2009 budget may overestimate the likely revenues generated by the Port. Caution should be taken until the effect of the DH Ports facility and the future implications are better understood.

Another consideration in planning future facilities is the anticipated use of Dutch Harbor as a supply and staging base for outer continental shelf (OCS) development in the area. It was suggested to Northern Economics staff that the oil companies may pursue the exclusive use of the Crowley dock for their activities, which would likely cause the catcher processors currently using the Crowley dock to move to the UMC. This event would help to boost utilization of the UMC.

It is not known what the U.S. Coast Guard (USCG) plans to do in Unalaska/Dutch Harbor. At a recent presentation in Anchorage, U.S. Coast Guard Commandant Admiral Thad Allen talked about a USCG base in Nome, which it will use to increase patrols in the Chukchi and Beaufort Seas (Allen, 2008). With OCS development, fisheries, and other activities taking place near Unalaska, the potential for an increased USCG presence in Unalaska should be considered.

With the current uncertainty in the national and international financial markets, it may be advantageous to use the Ports and Harbors Enterprise Fund's income to cover the cost of minor maintenance projects and other purchases, rather than issuing debt for these projects. Grant money may be available for certain projects as well, such as for the ADA-compliant gangways for the small boat harbor and the float replacements in the small boat harbor (which could be funded using the state's Municipal Harbor Facility Grant program). In the case of the harbor grant program (ADOT&PF, undated), municipalities may apply for the grant to get a 50/50 match for harbor improvements, up to $5 million per municipality per year or as funding allows. The program has two tiers, the first being a one-time grant that covers formerly state-owned harbors. The second tier covers all harbors (municipal or formerly owned by the state) and can be applied for multiple times, though the priority of these projects is lower. Tier 2 applications can be made independent of Tier 1 applications.

Recent events in the national economy and specifically the financial industry suggest issuing debt may be challenging. Northern Economics staff contacted the Alaska Municipal Bond Bank Authority

(AMBBA) in early October 2008 to ask about the current rate for bonds issued by the AMBBA and to get a sense of the market's reception for port and harbor-related infrastructure bonds. Deven Mitchell, the Executive Director of AMBBA, discussed the loss of liquidity and lack of confidence in the financial markets during October and noted that the events have had a huge impact on municipal offerings. Activity in the municipal bond market had been reduced and, despite increasing in late October, was still only half of normal. Overall, there had been little institutional interest. Because of the current financial turmoil, Mitchell suggested that bonds issued at this point would need an interest rate of about 6.5 percent to sell. Noting that rates were only 4.5 percent in September, the markets could correct at any point. For bonds issued a year or more in the future, a rate of 6 percent would be a good estimate for planning purposes (Mitchell, 2008).

6 Tariff Review for Regional Ports

This section summarizes the review process, findings, and recommendations from a tariff review of the existing facilities in Unalaska/Dutch Harbor and in communities from Unalaska to Kodiak. The task also provides some initial, planning-level recommendations for moorage rates and other fees for the new Carl E. Moses Boat Harbor.

The section contains a brief overview of the moorage, dockage, and wharfage rates for ports and harbors from Unalaska to Kodiak. It provides an initial look at how Unalaska's rates compare with other ports in the region, and provides some initial guidance for an acceptable range of rates for the CEM harbor. The next section contains an in-depth analysis of rates based on actual operations and financial results for the facilities in Unalaska/Dutch Harbor.

6.1 Tariff Review Process

Northern Economics staff contacted ports and harbors located from Unalaska/Dutch Harbor to Kodiak to request moorage, dockage, and wharfage rates, as well as information about other fees and services offered. The facilities included in the review are Akutan, Naknek, Cold Bay, King Cove, Ouzinkie, Sand Point, Port Lions, Kodiak, Old Harbor, and Larsen Bay. Of the locations considered, Kodiak is most comparable to Unalaska/Dutch Harbor due to the size of the community and the scale of services offered both at the port facilities and in the community.

A complete set of tariff sheets for the communities reviewed by this study has been provided as an appendix (see Section 0).

6.2 Moorage Rate Findings

Table 17 shows daily moorage rates for harbors in Unalaska/Dutch Harbor through Kodiak. Figure 38 shows the information in Table 17 graphically. In general, moorage for transient vessels in the Small Boat Harbor is less expensive than other harbors in the region, especially when compared with Kodiak Island harbors. The Spit Dock's transient rate is generally higher than the rate charged at other ports in the region, except for the Kodiak Island harbors, which charge more than the Spit Dock for vessels between 60 and 150 feet. In Kodiak, the St. Paul Harbor accommodates vessels up to 60 to 65 feet in length, while the St. Herman harbor accommodates larger vessels of up to 150 feet. Transient moorage at other Kodiak Island harbors is typically a dock tie-up.

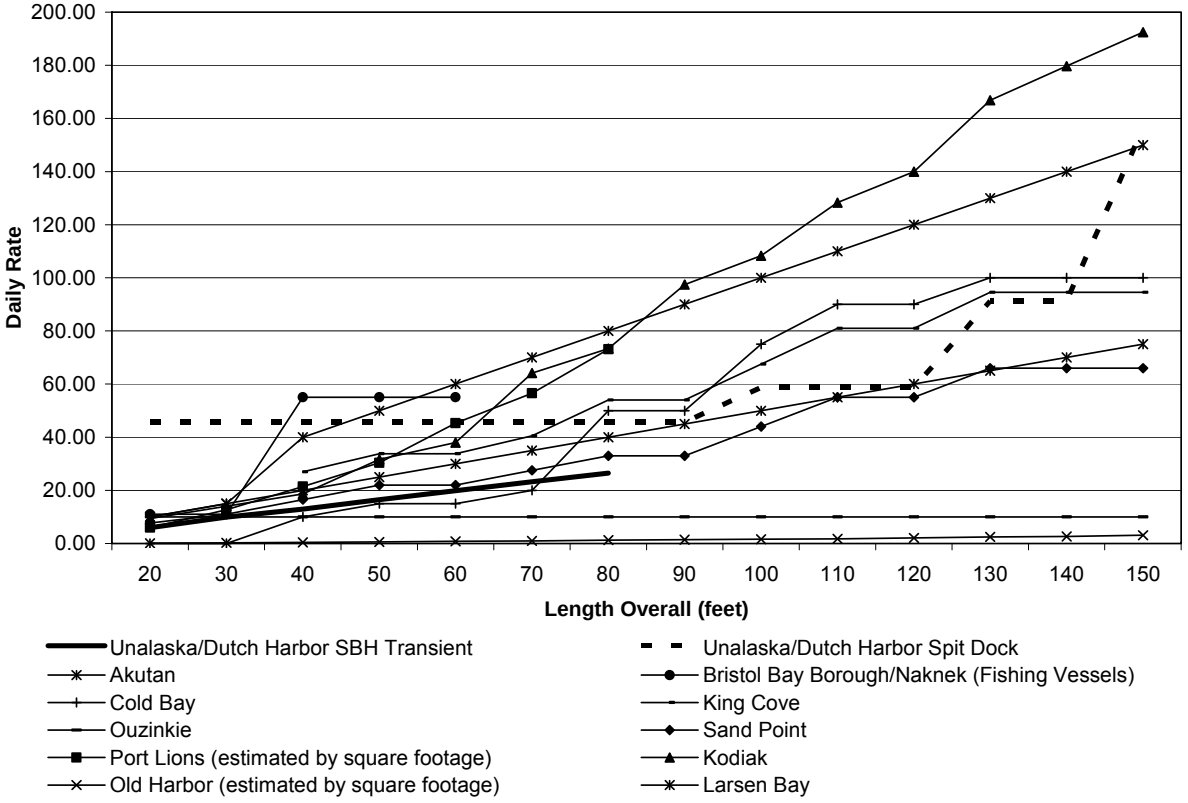
Table 17. Daily Moorage Rates by Harbor, Amount Charged for Length Overall (Dollars)

	Length Overall (Feet)													
Harbor	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Unalaska/Dutch Harbor SBH Transient	5.95	9.95	12.90	16.50	19.85	23.20	26.50	-	-	-	-	-	-	-
Unalaska/Dutch Harbor Spit Dock	45.65	45.65	45.65	45.65	45.65	45.65	45.65	45.65	58.75	58.75	58.74	91.30	91.30	156.35
Akutan	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00
Bristol Bay Borough/Naknek (Fishing Vessels)	11.00	11.00	55.00	55.00	55.00	-	-	-	-	-	-	-	-	-
Cold Bay	0.00	0.00	10.00	15.00	15.00	20.00	50.00	50.00	75.00	90.00	90.00	100.00	100.00	100.00
King Cove			27.00	33.75	33.75	40.50	54.00	54.00	67.50	81.00	81.00	94.50	94.50	94.50
Ouzinkie	10.00	10.00	10.00	10.00	10.00	-	-	-	-	-	-	-	-	-
Sand Point	7.70	11.00	16.50	22.00	22.00	27.50	33.00	33.00	44.00	55.00	55.00	66.00	66.00	66.00
Port Lions	5.96	12.72	21.37	30.39	45.29	56.54	73.10	-	-	-	-	-	-	-
Kodiak	9.33	14.00	18.67	31.67	38.00	64.17	73.33	97.50	108.33	128.33	140.00	166.83	179.67	192.50
Old Harbor	0.06	0.22	0.37	0.52	0.78	-	-	-	-	-	-	-	-	-
Larsen Bay	10.00	15.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	110.00	120.00	130.00	140.00	150.00

Source: City and harbor staff in each community, City and harbor websites, and Northern Economics analysis

Notes: Port Lions and Old Harbor rates are estimates based on a rate per square foot times an estimated square footage for vessels of each length. The actual charge would depend on the specific vessel seeking moorage. The rates shown for King Cove reflect the recent 35 percent increase in moorage rates. The rates shown for Sand Point reflect a 10 percent rate increase recently recommended by Northern Economics. The harbor in Ouzinkie can accommodate vessels up to 65 feet in length. The harbor in Old Harbor can handle vessels up to about 65 feet. The Old Harbor dock can be used for vessels to tie up as well, with the largest users the 110 or 120-foot fuel barges and local transporters. Moorage in Larsen Bay is handled liberally and vessels generally can moor anywhere that is open.

Figure 38. Comparison on Daily Moorage Rates by Harbor, Amount Charged for Length Overall (Dollars)



6.3 Dockage and Wharfage Findings

The Unalaska Marine Center Tariff charges for dockage are shown in Table 18. Wharfage charges at the Unalaska Marine Center are shown in Table 19. For smaller vessels and fishing gear, the charges are found in Table 20.

Table 18. Unalaska Marine Center Dockage Charges

Length Over All in Feet		Charge ($ per 12-hour period)	Length Over All in Feet		Charge ($ per 12-hour period)
Over	But Not Over		Over	But Not Over	
0	100	150	476	500	950
101	125	188	501	525	1,000
126	150	225	526	550	1,050
151	175	298	551	575	1,100
176	200	340	576	600	1,150
201	225	383	601	625	1,250
226	250	425	626	650	1,500
251	275	468	651	675	1,750
276	300	510	676	700	2,000
301	325	553	701	725	2,250
326	350	600	726	750	2,500
351	375	713	751	775	2,750
376	400	760	776	800	3,000
401	425	808			3,000 plus 3.75 per foot LOA over 800 ft.
426	450	855			
451	475	900	801		

Table 19. Unalaska Marine Center Wharfage Charges

Commodity	Charge ($/short ton)
Bulk Commodities, dry, N.O.S. (unloaded by owner's equipment)	4.00
Seafood	4.00
Vessel Gear & Equipment	4.00
Petroleum or Petroleum Products – flowage fee (charged to distributor)	4.00, or 0.02 per U.S. gallon, or negotiated contract rate
Bulk Petroleum Products – inbound	Subject to contract and negotiations

Note: As stated in the Unalaska Marine Center Tariff, "The Port of Dutch Harbor, when equipped to perform the services of handling freight and to care for same on their terminals, reserves the right, in all instances, to perform such services." The charge for handling is 18 percent on top of the underlying wharfage charge.

Table 20. Unalaska Light Cargo Dock Dockage and Wharfage Fees

Category	Fee
Dockage (vessels under 225 feet)	$0.77 per foot, per 12 hours
Wharfage, Fishing Gear	
Crab Pots/Cod Pots	$1.75/pot, including dockage
Other Pots	$1.00 per 10 (minimum of 10)
Trawl Nets	$80.00 each
Trawl Doors	$15.00 each
Longline Modules	$50.00 each

Ports elsewhere in the region assess a combination of wharfage and dockage fees. Most of the ports do not charge for dockage.

The City of Akutan owns a 200-foot City Dock. However, the City does not charge dockage or wharfage fees due to the age and condition of the facility.

The City of Cold Bay operates a 450-foot-long dock. Wharfage charges are $10 for the first 1,000 pounds and a $0.02 charge per additional pound over 1,000 pounds. Cold Bay's dockage fees are assessed daily, based on the vessel size. These rates are shown in Table 21.

Table 21. Cold Bay Daily Dockage Rates

Vessel Size (feet)	Daily Rate ($)
≤31	0.00
32-46	10.00
47-60	15.00
61-75	20.00
76-90	50.00
91-105	75.00
106-125	90.00
126-150	100.00
≥151	100.00 plus $1.00 per foot LOA over 150'

The dock fees charged in False Pass for use of the City dock are $0.01 per pound of cargo from freighters that crosses over the dock (with a minimum charge of $10) and $2 per crab pot or other lift. The City does not charge a dockage fee.

King Cove's current over-the-dock charge is $5.40 per ton for wharfage and $2.02 per pot for crab pots. The City does not charge a dockage fee.

The City of Sand Point currently charges two different rates for wharfage at the City Dock. When cargo is unloaded using City employees, the wharfage charge is $10 for the first 1,000 pounds, plus $0.01 per pound for each additional pound. When cargo is handled by a private party, the Harbormaster is required to approve the performance and assesses a charge of $5 for the first 1,000 pounds and $0.005 for each pound over 1,000 pounds.

The City of Kodiak charges wharfage according to the type of material being transported across the dock. On a per-ton basis, the inbound and outbound charges are $4.50 for general cargo, $1 for rock, and $10 for hazardous or contaminated cargo. Seafood is assessed a wharfage fee of $6 per ton for outbound cargo only. The City does not assess a dockage fee.

Overall, dockage at Unalaska facilities is assessed at a substantially higher rate than at other docks in the region. Wharfage fees, on the other hand, are substantially lower than competing ports for the movement of some commodities. The differences are hard to compare except on a per-commodity basis. For instance, the inbound movement of seafood across the UMC dock is charged $4 per ton, whereas there is no charge for inbound seafood in Kodiak. Outbound movements of seafood, however, are assessed $4 per ton at the UMC and $6 per ton in Kodiak.

6.4 Initial Recommendations for Unalaska/Dutch Harbor Facilities

As shown in the previous sections, moorage rates charged at Unalaska/Dutch Harbor facilities should be increased. The SBH moorage rate can be increased at a faster rate with vessel size than it is now and still remain competitive with other small boat harbors in the region. An overall increase of about 50 percent appears to be feasible, based on this preliminary analysis. Additional analysis of the actual usage and financial needs of the SBH is considered in recommending rate changes, as presented in Section 7.

Moorage at the Spit Dock is lower than most other facilities in the region. For vessels over 60 feet, an increase of 25 to 50 percent would bring the rates in line with those charged in Kodiak. However, moorage is offered in Kodiak's St. Herman harbor for vessels up to 150 feet, which provides a slip rather than tying up to the Spit Dock or berthing. Due to the premium associated with having a stall, moorage at the Spit Dock might be increased by up to 25 percent. Additional analysis of the actual usage and financial needs of the Spit Dock is considered in Section 7.

Dockage and wharfage assessments at Unalaska/Dutch Harbor facilities are generally in line with other ports in the region when both dockage and wharfage are considered. Additional analysis of the actual usage and financial needs of the various docks in Unalaska/Dutch Harbor is considered in Section 7.

6.5 Preliminary Tariff Recommendations for the Carl E. Moses Boat Harbor

Based on the analysis of moorage rates at harbors in the region, it appears that the rates charged at the Spit Dock could serve as a starting point for vessels moored in CEM. Spit Dock rates for vessels between 60 and 150 feet are lower than for vessels moored in Kodiak Island harbors, however, suggesting that rates could be increased for vessels in this size range.

Table 22 suggests a preliminary range of moorage rates by vessel size for the CEM harbor, based on moorage being assessed on the vessel length. Recommendations shown in the table are based on the current charges for the Spit Dock and charges for Cold Bay at the low end and the amounts charged at Kodiak Island ports at the high end.

Table 22. Preliminary Recommended Range of Moorage Rates for CEM Harbor, Based on Vessel Length

	Length (in feet)									
Harbor	60	70	80	90	100	110	120	130	140	150
Unalaska/Dutch Harbor Spit Dock	45.65	45.65	45.65	45.65	58.75	58.75	58.74	91.30	91.30	156.35
Cold Bay	15.00	20.00	50.00	50.00	75.00	90.00	90.00	100.00	100.00	100.00
Port Lions (square footage)	45.29	56.54	73.10	-	-	-	-	-	-	-
Kodiak	38.00	64.17	73.33	97.50	108.33	128.33	140.00	166.83	179.67	192.50
Larsen Bay	60.00	70.00	80.00	90.00	100.00	110.00	120.00	130.00	140.00	150.00
Preliminary CEM Recommendation, Length-Based (Low)	45.00	45.00	50.00	50.00	60.00	60.00	60.00	90.00	90.00	155.00
Preliminary CEM Recommendation, Length-Based (High)	60.00	70.00	80.00	95.00	110.00	130.00	140.00	165.00	180.00	190.00

Moorage rates for CEM are considered fully in the next section, Section 7.

7 Tariff Analysis for Port of Dutch Harbor Facilities

This section presents a tariff and revenue analysis for facilities in the Port and Harbor Enterprise Fund. The analysis focuses on a ten-year period and results in a set of tariffs designed to ensure the facilities can be operated sustainably, given the understanding and projections of future needs. The financial statements presented in this section include both accounting (income statement) and cash flow perspectives, since depreciation is a major accounting expense for ports and harbors around Alaska but is not a cash expense. The dual perspectives will prove useful in interpreting the results of the analysis and deciding how to proceed with planned maintenance and construction projects.

The section is organized into subsections describing the improvements to be included in the Port of Dutch Harbor Ten-Year Development Plan, the process used to determine tariffs, the findings of the tariff analysis, and recommendations.

The analysis considers one scenario. Given the recent declines in usage of public facilities, this plan takes a conservative approach and looks at a generally flat level of usage at each facility. While some growth may occur at individual facilities, the analysis focuses instead on what the Port of Dutch Harbor can do to operate and maintain facilities in light of challenges in its operating environment.

7.1 Process for Calculating Tariffs

This analysis uses the following approach for the calculation of tariffs:

1. Existing tariffs and financial information are analyzed to determine the sustainability of the existing rates.
2. A statistical analysis of facility revenues is done to determine the process used to develop revenue projections. Berth day projections are then done and the corresponding revenue projections developed.
3. Projects identified in Section 5 are analyzed to determine the timing and amounts of expenditures to support capital and maintenance activities at each facility. This information is then used to determine debt issues and their cost over time. The annualized cost of debt issues is allocated to each facility.
4. Revenues and expenses for each facility are compared and changes to the tariffs are recommended to ensure projected revenues exceed projected expenses.

For the purposes of this analysis, it is assumed that all of the Capital and Major Maintenance Plan projects planned for 2010 and later are financed with debt issued through the Alaska Municipal Bond Bank Authority and that debt issues are made annually as needed. The City intends to fund the projects identified for 2008 and 2009 with Port funds. The result of this assumption is to spread the cost of improvements over time and to include the effect of interest in setting rates.

7.2 Improvements Considered in the Tariff Analysis

The tariff analysis considers the improvements discussed in Section 5. Those improvements are currently in the City of Unalaska's CMMP and are listed in Table 23. The total capital budget for improvements considered in the tariff analysis is $19.3 million, to be spent during fiscal years 2008 through 2015. Projects planned for 2010 through 2015 make up $16.6 million of this total.

Table 23. Port Projects in the City of Unalaska Capital and Major Maintenance Plan, FY 2008-2015

Project Name	Project Location	Cost Estimate ($)	CMMP Year
Repair High-tower lights	UMC	100,000	2008
Cathodic Protection	SBH, UMC, LCD	1,900,000	2009
UMC Concrete Patching	UMC	36,000	2009
Replace Small Boat Harbor Finger Floats	SBH	140,000	2009
2 vehicles	General	57,505	2009
Floating Dock	General	40,000	2009
Design of UMC Grading/Paving	UMC	150,000	2009
Design of Carl E. Moses Boat Harbor	CEM	350,000	2009
Timber Fenders	UMC	450,000	2010
UMC Deck Slab Leveling	UMC	600,000	2010
UMC Backreach Grading and Drainage	UMC	480,000	2010
UMC Backreach Paving	UMC	1,300,000	2010
UMC Dock Position #3 Resurfacing	UMC	350,000	2010
Replace Small Boat Harbor Finger Floats	SBH	150,000	2010
Carl E. Moses Boat Harbor (Inner Harbor Construction)	CEM	3,500,000	2010
Replace Small Boat Harbor Finger Floats	SBH	150,000	2011
Harbor Float Replacement	SBH	470,000	2012
Design of Position 3 Replacement	UMC	800,000	2013
Position 3 Replacement	UMC	8,000,000	2015
Harbor Gangways	SBH	320,000	2015

Source: City of Unalaska (2008)

Note: The costs for CEM construction are unknown at this time. Information will need to be updated in 2010. The $3.5 million allocated in 2010 is a portion of the inner harbor costs to be borne by the Port fund, with additional funding coming from a $5 million state bond and $2.5 million in state grants. Additional funding from either the Port or general fund will probably be required.

Table 24 shows a summary of port project cost estimates by year and the affected facility. The information shown in the table is based on the projects identified in Table 23, except that the cathodic protection project has been allocated to the Unalaska Marine Center, Small Boat Harbor, and Light Cargo Dock based on the following assumed amounts: 10 percent each to the SBH and LCD and 80 percent to the UMC.

Table 24. Summary of Port Project Cost Estimates in CMMP by Year and Facility, FY 2008-2015

	Facility				
Fiscal Year	UMC	SBH	LCD	CEM	General Port
2008	100,000	0	0	0	0
2009	1,706,000	330,000	190,000	350,000	97,505
2010	3,180,000	150,000	0	3,500,000	0
2011	0	150,000	0	0	0
2012	0	470,000	0	0	0
2013	800,000	0	0	0	0
2014	0	0	0	0	0
2015	8,000,000	320,000	0	0	0

Source: City of Unalaska (2008), Northern Economics, Inc. analysis

Note: The costs for CEM construction are unknown at this time. Information will need to be updated in 2010. The $3.5 million allocated in 2010 is a portion of the inner harbor costs to be borne by the Port fund, with additional funding coming from a $5 million state bond and $2.5 million in state grants. Additional funding from either the Port or general fund will probably be required.

7.3 Tariff Analysis Findings and Recommendations

The Ports and Harbors Enterprise Fund has operated with a positive net income for several years. Table 25 provides a summary of revenues and expenses for the fund for FY 2000 to 2008. As shown in the table, operating revenues have grown an average of 6.7 percent annually during the period, while expenses have grown at 6.3 percent per year. The growth in expenses in 2008 reflects additional electricity needs at the UMC, which were paid by the U.S. Coast Guard. The long-term growth rate for expenses has been closer to 5 percent. As a result of the trend of revenue growth exceeding expense growth, the Port has been operating sustainably.

Table 25. Summary of Earnings, Ports and Harbors Enterprise Fund, in Thousands of Dollars, FY 2000-2008

	Fiscal Year									Annualized Change (%)
	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Operating Revenues	2,936	3,361	3,638	3,859	4,114	4,246	4,460	4,464	4,938	6.7
Operating Expenses	2,406	2,482	2,738	2,794	3,230	3,343	3,405	3,350	3,915	6.3
Income from Operations	530	878	901	1,065	884	904	1,055	1,114	1,023	8.6
Net Nonoperating Revenues (Expenses)	-200	-94	-113	-75	-55	-44	42	-4	2.3	
Net Income Before Capital Contributions, Special Items, and Transfers	330	785	788	990	829	860	1,098	1,110	1,025	15.2

Source: City of Unalaska (2001-2008)

After FY 2008, operating revenues dropped significantly due to the opening of the new DH Ports dock. As of December 31, 2008, midway through FY 2009, the Port's operating revenues were $1.7 million, versus $2.7 million for the first six months of FY 2008, representing a 38.5 percent decrease in revenues. Over the past nine years, the first half of each year has typically accounted for slightly more than half of each year's revenues. The UMC has experienced the largest drop of the public facilities, with revenues down more than 29 percent year-over-year. Revenues generated at the Small

Boat Harbor are down 10 percent. The Light Cargo Dock's revenues are higher, however—about 9 percent higher than they were in FY 2008.

Over the next decade, the Port of Dutch Harbor will need to adapt to be sustainable in a changing environment. In the last several years, rationalization of fisheries has caused shifts in the number of active fishing vessels and the seasonality of the fisheries. Changing ocean conditions have caused some commercial species to flourish while others have dwindled, affecting the types of fishing activity in the region. Fuel prices reached previously unseen levels and dropped rapidly toward earlier levels, all in the course of just over one year. Existing and new port facilities in Unalaska and elsewhere in the region will compete with each other to serve the limited number of vessels that operate in the region. Because of these changes and the potential for other changes over the next decade, it is important that the Port's tariff structure meet its financial needs. The goal of this tariff analysis is to make recommendations for the tariff structure to enable the Ports and Harbors Enterprise Fund to operate in a sustainable manner.

The analysis presented in the following sections suggests the Port should maintain its current tariff structure and adopt annual increases across-the-board to its rates. The analysis uses a conservative approach and suggests flat to slightly positive growth in facility usage over the next ten years. The amount of increase each year should be based on a number of factors. Based on the assumptions used in the analysis, annual increases of 4.8 percent represent a good balance between the need to cover increasing costs, cover additional debt for facility maintenance projects, and charge rates that users will accept. Due to the decrease in utilization of the UMC resulting from the new DH Ports dock, an increase of 6 percent is recommended for the UMC in the first year, with annual evaluations in the future to determine whether usage has declined or stayed low, or if it has started to increase.

While annual increases of 4.8 percent are significant, for some users the additional cost will be a small burden relative to the full cost of doing business. For example, there is some concern about increasing rates at the UMC leading to a shift of more product from containers to trampers. However, based on current market rates, dockage and wharfage charges account for only 2 to 3 percent of the cost of shipping a container.[22]

The tariff increases needed in the future depend on factors that are hard to determine ahead of time. Market factors may at any time cause an increase or decrease in demand for public facilities. By planning for the base case of limited growth, monitoring usage over time, and making adjustments to the plan as necessary, the Port will be well prepared to improve its financial situation.

Regardless of what growth it experiences in the future, it is recommended that the Port seek the City Council's approval for annual tariff increases based on the Anchorage CPI-U or on a local cost of living index. Even if tariff increases must be approved each year, establishing an expectation of annual increases will be beneficial.

[22] To develop this estimate, Northern Economics developed shipping, dockage, and wharfage cost estimates under current rates for shipment of a container of surimi from Dutch Harbor to Tokyo or Yokohama. Maersk Line (2009) provided a cost of $6,185, which includes the fees charged at the UMC but not the pilotage and tug costs. Assuming a ship comparable to the Maersk Pittsburg is used (which has been used for this route in the past), the ship could hold 2,959 TEUs and would be 642 feet in length (Merchant Ships International, 2009). Under the current UMC tariff, the vessel would pay $1,500 per 12-hour period for dockage and $4 per short ton for wharfage. A 60,000-pound container (30 short tons) would be assessed $120 for wharfage. The container's share of dockage would depend on the number of containers being loaded. If 23 containers were loaded, the dockage cost per container would be approximately $65. The combined dockage and wharfage would then be $185 of the total $6,185 shipping cost. This amount represents UMC charges of just over 3 percent of the base $6,000 shipping cost. If the number of containers loaded in Dutch Harbor were to increase, the dockage cost would drop substantially. This example calculation is very simple, yet it demonstrates that the UMC cost is a very small portion of shipping costs to Asia. Over time, other factors will likely have a larger effect on the base shipping cost than will rate increases to the UMC tariff.

The Carl E. Moses Boat Harbor is the one new facility expected to become operational within the next ten years. In addition to charging for any services covered in the existing tariffs, it is recommended that the Port adopt moorage rates according to the following table. These rates are based on the existing Spit Dock rates and those for large vessels moored in Kodiak.

Table 26. Recommended Annual Moorage Rates per Linear Foot for CEM Harbor, by Vessel Length, FY 2011

Length (in feet)									
60	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**
52.50	57.50	65.00	72.50	85.00	95.00	100.00	127.50	135.00	172.50

Table 26 presents the recommended annual moorage rates per linear foot for CEM. It is recommended that the daily transient rates be set at 1/30th to 1/60th of these rates, potentially with the provision that transient vessels that have paid an amount equal to the annual rate be granted that rate. This provision would help to encourage use of the harbor and prevent vessels from using other facilities due to the relatively high cost of large-vessel moorage.

The rates shown in the table are the middle level rates presented in the analysis. These rates are recommended because they are expected to result in revenues that would cover the cash needs of the facility, while depending on revenues from the other port facilities to cover the non-cash depreciation expense. The City should identify ways to increase usage of the CEM harbor, possibly by adding more slips beyond the 75-vessel design fleet or by having a section in which vessels may raft.

Table 27 and Table 28 present pro forma income and cash flow statements for the Port's operation for fiscal year 2009 through 2018, based on the assumptions made in the tariff analysis. As shown in the tables and described in the following sections, the tariff recommendations are projected to keep the facility operating at a positive cash flow, though it will lose money on an accounting basis due to the high debt loads expected for facility maintenance projects and the opening of CEM which will increase depreciation expenses.

Table 27. Pro Forma Income Statement, Ports and Harbors Enterprise Fund, in Thousands of Dollars, FY 2009-2018

	Fiscal Year									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Operating Revenues										
SBH	107	112	117	123	129	135	142	148	156	163
LCD	233	239	251	263	277	291	307	323	340	358
SD	566	568	595	623	656	691	727	765	805	847
UMC	2,873	3,010	3,180	3,360	3,536	3,721	3,916	4,122	4,338	4,565
Other	56	58	61	64	67	71	74	78	82	86
CEM	0	0	927	971	1,018	1,067	1,118	1,172	1,228	1,287
Total	3,834	3,987	5,131	5,405	5,683	5,976	6,284	6,608	6,948	7,307
Operating Expenses										
Existing Facilities	3,572	3,714	4,153	4,321	4,523	4,760	4,933	5,839	6,027	6,223
CEM	0	0	1,437	1,451	1,466	1,482	1,499	1,518	1,538	1,559
Total	3,572	3,714	5,590	5,771	5,988	6,241	6,432	7,357	7,565	7,782
Net Operating Income	263	273	-459	-367	-305	-265	-149	-750	-617	-476

Note: Assumes growth in the demand for public facilities as outlined in the tariff analysis, debt financing of the CMMP projects, and implementation of the recommended moorage rates for CEM.

Table 28. Pro Forma Cash Flow Statement, Ports and Harbors Enterprise Fund, in Thousands of Dollars, FY 2009-2018

	Fiscal Year									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Operating Revenues										
SBH	107	112	117	123	129	135	142	148	156	163
LCD	233	239	251	263	277	291	307	323	340	358
SD	566	568	595	623	656	691	727	765	805	847
UMC	2,873	3,010	3,180	3,360	3,536	3,721	3,916	4,122	4,338	4,565
Other	56	58	61	64	67	71	74	78	82	86
CEM	0	0	927	971	1,018	1,067	1,118	1,172	1,228	1,287
Total	3,834	3,987	5,131	5,405	5,683	5,976	6,284	6,608	6,948	7,307
Operating Expenses										
Existing Facilities	2,467	2,609	3,048	3,216	3,418	3,654	3,828	4,734	4,922	5,118
CEM	0	0	1,437	1,451	1,466	1,482	1,499	1,518	1,538	1,559
Total	2,467	2,609	4,485	4,666	4,883	5,136	5,327	6,252	6,460	6,677
Net Operating Income Before Depreciation	1,368	1,378	646	738	800	840	956	355	488	630

Note: Assumes growth in the demand for public facilities as outlined in the tariff analysis, debt financing of the CMMP projects, and implementation of the recommended moorage rates for CEM.

7.4 Details of the Tariff Analysis

This section presents the details of how the tariff analysis was conducted and considers the tariff analysis with the expectation of flat to slightly positive growth over the next ten years. Subsections include an analysis of the revenues generated by component, the costs associated with debt financing of projects for each facility, and an analysis of the tariffs adjustments required to cover the additional debt costs. A separate subsection discusses the CEM harbor.

7.4.1 Revenues by Component

This section considers the sources of revenue for each component of the Ports and Harbors Enterprise Fund. The components considered in the analysis are the Unalaska Marine Center, Spit Dock, Small Boat Harbor, Light Cargo Dock, and other Port revenues. In addition to presenting the revenues by component, an analysis is shown of the relationship of each component's revenue and usage, where usage is measured by the berth days recorded at the facility.

Based on the analysis of berth days of use and revenues generated by each facility, the tariff analysis makes the following assumptions for determining future revenues:

- **Unalaska Marine Center:** Revenues are estimated at $1,633,354 plus $1,017.15 per berth day annually.
- **Spit Dock:** Annually, the Spit Dock will contribute $84,055 plus $59.55 per berth day.

- **Small Boat Harbor:** The harbor contributes $102,000 annually.
- **Light Cargo Dock:** The dock contributes $354.28 per berth day of use at the facility.
- **Other Port Revenues:** Other revenues are calculated as $2.22 per berth day.

The Unalaska Marine Center is the primary driver of revenues in the Fund, accounting for $3.9 million of the Fund's $4.9 million in revenues for FY 2008. Wharfage fees contributed $1.9 million of these revenues, dockage/moorage contributed $0.9 million, and rental and utility fees contributed $1.0 million. The trend of revenues from each source at the UMC is shown in Table 29.

Table 29. Revenues by Source, Unalaska Marine Center, FY 2000-2008

Year	Docking / Moorage	Wharfage Fees	Rental Fees	Utility Fees	Total
2000	598,979	1,191,339	441,296	94,382	2,325,996
2001	654,397	1,394,744	455,179	112,574	2,616,894
2002	667,857	1,572,988	478,781	164,643	2,884,269
2003	800,763	1,598,483	438,588	252,684	3,090,519
2004	950,943	1,655,477	493,839	261,126	3,361,385
2005	884,181	1,668,465	547,989	235,273	3,335,908
2006	875,896	1,777,352	533,847	212,405	3,399,500
2007	1,061,173	1,887,965	532,361	250,157	3,731,656
2008	909.547	1,946,248	653,109	362,837	3,871,742

Source: City of Unalaska (2000-2008)

Using the revenues received from UMC operations, Table 30 considers the extent to which the number of berth days at the UMC affects revenues. Dockage/moorage fees and wharfage fees are somewhat correlated with the number of berth days, accounting for 58 and 32 percent of the annual variations, respectively.

The results of this statistical analysis, presented in Table 30, suggest the tariff analysis can use a linear equation for tying revenues to the number of berth days for the UMC. The analysis assumes the UMC's revenues are $1,633,354 plus $1,017.15 per berth day.

Table 30. Analysis of Revenues and Berth Days, Unalaska Marine Center, FY 2000-2008

		Per Berth Day				
Year	Berth Days	Docking / Moorage	Wharfage Fees	Rental Fees	Utility Fees	Total
2000	1,302	460.04	915.01	338.94	72.49	1,786.48
2001	1,115	586.90	1,250.89	408.23	100.96	2,346.99
2002	1,191	560.75	1,320.73	402.00	138.24	2,421.72
2003	1,221	655.83	1,309.16	359.20	206.95	2,531.14
2004	1,826	520.78	906.61	270.45	143.00	1,840.85
2005	1,984	445.66	840.96	276.20	118.59	1,681.41
2006	1,795	487.96	990.17	297.41	118.33	1,893.87
2007	1,710	620.57	1,104.07	311.32	146.29	2,182.25
2008	1,539	591.00	1,264.62	424.37	235.76	2,515.75
	Mean	548	1,100	343	142	2,133
	Slope	366	410	114	127	1,017
	Intercept	266,308	1,009,442	334,333	23,271	1,633,354
	R^2	0.58	0.32	0.29	0.24	0.42

Source: City of Unalaska (2000-2008), Northern Economics, Inc. analysis

For most of the past several years, the Spit Dock has contributed an average of over $500,000 to the Ports and Harbors Enterprise Fund revenues. This decreased in FY 2007 to $330,000 but rebounded in FY 2008. The Spit Dock's revenues are primary driven by dockage or moorage, though the facility does generate a substantial amount of rental and utility fees. Revenues for the Spit Dock are shown in Table 31.

Table 31. Revenues by Source, Spit Dock, FY 2000-2008

Year	Docking / Moorage	Rental and Utility Fees	Total
2000	408,902	80,229	489,130
2001	430,194	109,235	539,429
2002	406,990	89,518	496,508
2003	421,985	131,401	553,386
2004	442,515	110,376	552,891
2005	460,780	128,154	588,934
2006	371,310	88,831	460,141
2007	269,094	63,139	332,233
2008	379,129	203,314	582,444

Source: City of Unalaska (2000-2008)

When the total number of berth days of use at the Spit Dock is considered in the analysis, there is a strong correlation with the berth days and revenues by source. The number of berth days explains about 72 percent of the variation in dockage/moorage and 68 percent of the overall revenues. The results of this statistical analysis, presented in Table 32, suggest the tariff analysis can use a linear equation for tying revenues to the number of berth days for the Spit Dock. The analysis assumes the Spit Dock's revenues are $84,055 plus $59.55 per berth day.

Table 32. Analysis of Revenues and Berth Days, Spit Dock, FY 2000-2008

Year	Berth Days	Per Berth Day		
		Docking / Moorage	Rental and Utility Fees	Total
2000	7,829	52.23	10.25	62.48
2001	7,826	54.97	13.96	68.93
2002	6,705	60.70	13.35	74.05
2003	6,641	63.54	19.79	83.33
2004	7,531	58.76	14.66	73.42
2005	8,391	54.91	15.27	70.19
2006	7,307	50.82	12.16	62.97
2007	4,605	58.44	13.71	72.15
2008	7,621	49.75	26.68	76.43
Mean		56.01	15.54	71.55
Slope		43.21	16.34	59.55
Intercept		89,527	-5,472	84,055
R^2		0.72	0.19	0.68

Source: City of Unalaska (2000-2008), Northern Economics, Inc. analysis

The Small Boat Harbor generates annual revenues of about $100,000. The Small Boat Harbor's revenues by source are shown in Table 33.

Table 33. Revenues by Source, Small Boat Harbor, FY 2000-2008

Year	Docking / Moorage	Utility Fees	Total
2000	65,192	26,156	91,349
2001	65,368	23,346	88,714
2002	68,386	19,502	87,889
2003	69,027	21,636	90,663
2004	73,459	29,442	102,901
2005	78,567	33,436	112,003
2006	84,590	33,671	118,261
2007	67,226	34,788	102,014
2008	61,184	41,791	102,974

Source: City of Unalaska (2000-2008)

When the total number of berth days of use at the Small Boat Harbor is used to predict the revenues generated by the facility, the results show almost zero correlation. Therefore, this analysis assumes a fixed contribution of $102,000 from the facility.

Table 34. Analysis of Revenues and Berth Days, Small Boat Harbor, FY 2000-2008

Year	Berth Days	Per Berth Day		
		Docking / Moorage	Utility Fees	Total
2000	17,575	3.71	1.49	5.20
2001	21,065	3.10	1.11	4.21
2002	15,347	4.46	1.27	5.73
2003	16,169	4.27	1.34	5.61
2004	16,991	4.32	1.73	6.06
2005	17,812	4.41	1.88	6.29
2006	18,634	4.54	1.81	6.35
2007	15,403	4.36	2.26	6.62
2008	16,605	3.68	2.52	6.20
Mean		4.10	1.71	5.81
Slope		0.77	-0.26	0.51
Intercept		57,014	33,814	90,828
R^2		0.04	0.00	0.01

Source: City of Unalaska (2000-2008), Northern Economics, Inc. analysis

The Light Cargo Dock's opened in 2001. Its annual revenues have fluctuated significantly since then, as shown in Table 35. Revenues were $226,000 in FY 2007, down from $473,000 in 2006, but up from $173,000 in 2005.

Table 35. Revenues by Source, Light Cargo Dock, FY 2001-2008

Year	Docking / Moorage	Wharfage, Rentals, and Utilities	Total
2001	53,466	23,746	77,212
2002	36,487	20,783	57,270
2003	60,389	44,442	104,832
2004	38,456	30,235	68,692
2005	100,081	73,244	173,325
2006	323,476	149,826	473,302
2007	144,007	82,028	226,035
2008	236,548	47,768	284,315

Source: City of Unalaska (2001-2008)

Table 36 shows the analysis of the relationship between berth days at the Light Cargo Dock and its revenues. The berth days are not a good indicator, explaining an insignificant 6 percent of the overall revenues. For this reason, the tariff analysis assumes that the Light Cargo Dock's revenues are equal to an average of $354.28 per berth day.

Table 36. Analysis of Revenues and Berth Days, Light Cargo Dock, FY 2001-2008

Year	Berth Days	Per Berth Day		
		Docking / Moorage	Wharfage, Rentals, and Utilities	Total
2001	509	105.04	46.65	151.69
2002	371	98.35	56.02	154.37
2003	649	93.05	68.48	161.53
2004	476	80.79	63.52	144.31
2005	684	146.32	107.08	253.40
2006	581	556.76	257.88	814.63
2007	343	419.85	239.15	658.99
2008	574	412.10	83.22	495.32
Mean		239.03	115.25	354.28
Slope		190.71	81.99	272.69
Intercept		24,303	16,099	40,402
R^2		0.05	0.06	0.06

Source: City of Unalaska (2001-2008), Northern Economics, Inc. analysis

In addition to the revenues generated by each of the port and harbor facilities discussed above, the port generated some additional revenues and miscellaneous fees. Those additional revenues are shown in Table 37, along with the total revenues for the Ports and Harbors Enterprise Fund.

Table 37. Revenues by Source, Other Activity and Port Total, FY 2000-2008

Year	Other Revenues and Fees	Monthly Revenue	Total
2000	120,827	3,027,302	3,148,129
2001	92,915	3,415,163	3,508,078
2002	116,273	3,642,208	3,758,481
2003	23,253	3,862,653	3,885,906
2004	30,284	4,116,152	4,146,437
2005	39,011	4,249,181	4,288,192
2006	59,607	4,510,812	4,570,418
2007	33,366	4,425,304	4,458,671
2008	10,748	4,852,223	4,862,971

Source: City of Unalaska (2000-2008)

An analysis of the other revenues and fees generated by the enterprise fund suggests a very weak relationship between berth days and other port revenues. Table 38 shows the results of the analysis. This analysis assumes that revenues from other port activities will be $2.22 per berth day at all of the public facilities.

Table 38. Analysis of Revenues and Berth Days, Other Activity and Port Total, FY 2000-2008

		Per Berth Day	
FY	Total Berth Days	Other Revenues and Fees	Total
2000	26,706	4.52	117.88
2001	30,515	3.04	114.96
2002	23,614	4.92	159.16
2003	24,680	0.94	157.45
2004	26,824	1.13	154.58
2005	28,871	1.35	148.53
2006	28,317	2.10	161.40
2007	22,061	1.51	202.11
2008	26,339	0.41	184.63
	Mean	2.22	155.63
	Slope	2.02	-28.55
	Intercept	4,996	4,824,350
	R^2	0.02	0.02

Source: City of Unalaska (2000-2008), Northern Economics, Inc. analysis

7.4.2 Debt Issues for Facility Capital and Major Maintenance Projects

The Capital and Major Maintenance Plan outlines projects planned to be funded over the next several years. The current CMMP (City of Unalaska, 2008) contains the projects and other expenditures discussed in Sections 5 and 7.2. This section considers the debt issues required to cover the CMMP's costs. The following assumptions are used in the debt calculations:

- All expenditures in the CMMP for fiscal years 2010 through 2015 are paid with debt. Expenditures for fiscal years 2008 and 2009 are paid with Port funds.
- Debt service begins the fiscal year following the CMMP year for the associated expenditure.
- Debt issues are assumed to have 20-year maturities.
- The interest rate for debt issued is 6 percent for future issues.
- The cost of debt is amortized over the life of the debt to arrive at equal annual costs for the principal and interest payments.

The next several tables present the annualized debt service costs by facility for the projects and other expenditures discussed in the CMMP. This projected annual debt costs would reach a peak of a little over $1.4 million during 2016 through 2030 and would decline in later years.

Table 39 provides a debt payment schedule for UMC projects. Three debt issues are included in the analysis, in fiscal years 2010, 2013, and 2015. At the peak, debt service costs would be slightly over $1.0 million from 2016 through 2030.

Table 39. Debt Payment Schedule for Unalaska Marine Center Projects

	Debt Payments by Issue Date			
Fiscal Year	2010	2013	2015	Total
2011 to 2013	277,247			277,247
2014 to 2015	277,247	69,748		346,995
2016 to 2030	277,247	69,748	697,476	1,044,471
2031 to 2033		69,748	697,476	767,224
2034 to 2035			697,476	697,476

Source: City of Unalaska (2008), Northern Economics, Inc. analysis

Table 40 shows projected debt service costs for SBH projects. The debt service is based on four individual debt issues and would have a peak annual cost of about $95,000 for 2016 through 2030.

Table 40. Debt Payment Schedule for Small Boat Harbor Projects

	Debt Payments by Issue Date				
Fiscal Year	2010	2011	2102	2015	Total
2011	13,078				13,078
2012	13,078	13,078			26,155
2013 to 2015	13,078	13,078	40,977		67,132
2016 to 2030	13,078	13,078	40,977	27,899	95,031
2031		13,078	40,977	27,899	81,953
2032			40,977	27,899	68,876
2033 to 2035				27,899	27,899

Source: City of Unalaska (2008), Northern Economics, Inc. analysis

The debt service costs projected for the Carl E. Moses Boat Harbor are $305,146 annually from 2010 through 2030. This is based on a single debt issue in 2010.

7.4.3 Berth Day, Revenue, and Expense Projections

At the root of the tariff analysis is a consideration of the level of usage expected at each of the port facilities in the future and the resulting revenues and expenses. This section presents berth day projections and then uses the financial relationships identified earlier to develop revenue projections. Finally, those revenue projections are compared with projected operating expenses to determine the financial sustainability of the existing tariff structure. Table 41 presents the actual berth days for each facility for fiscal years 2000 through 2008, followed by projections for fiscal years 2009 through 2018. The projections are based on an analysis of historical use of each facility. Estimates for 2009 are based on partial-year usage information from the Daily Vessel Check database and other information. The analysis assumes use of the Small Boat Harbor will remain flat, though revenues may increase through tariff increases. Usage of the Light Cargo Dock and Spit Dock are expected to see a small drop in

2010, followed by slow growth over time as the economy recovers and increasing fuel prices encourage vessels to stay in Unalaska. The Unalaska Marine Center is assumed to experience a sharp drop in use in 2009, no change in 2010, two years of growth, and then slow growth for the remainder of the study period.

Table 41. Actual and Projected Berth Days by Facility

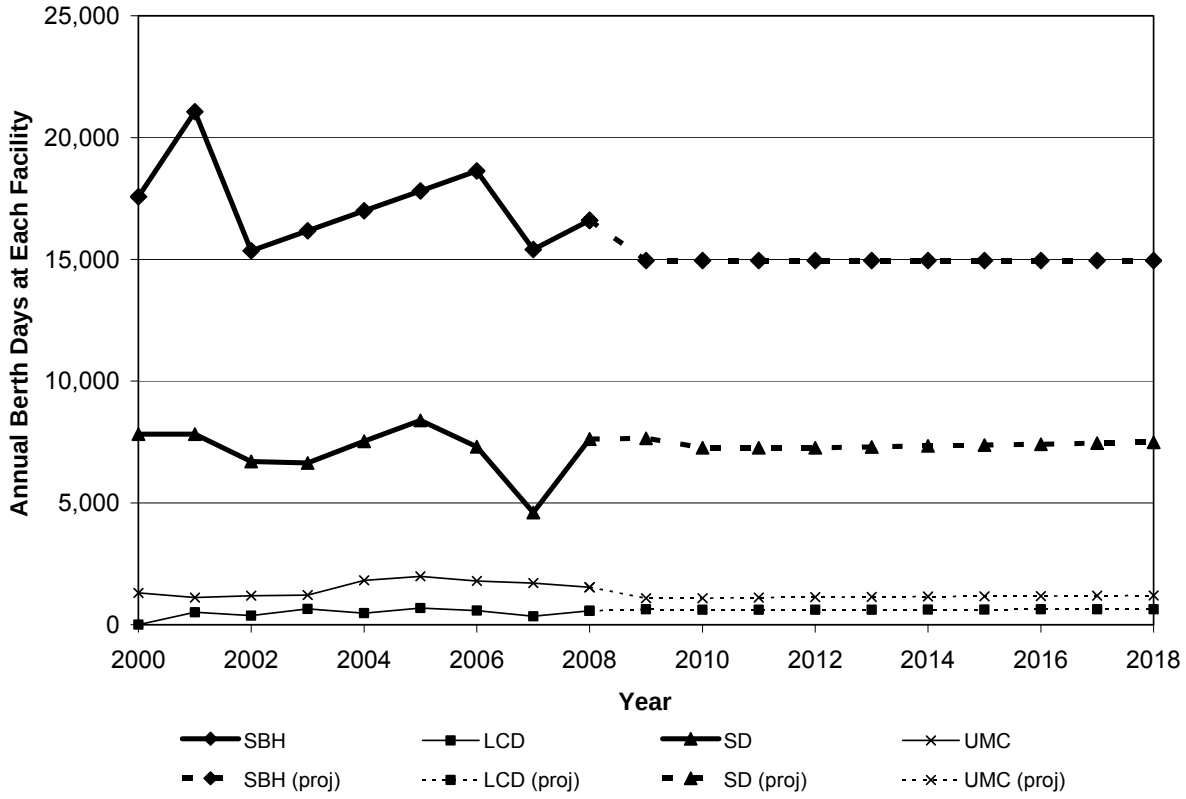
Fiscal Year	Berth Days			
	Small Boat Harbor	Light Cargo Dock	Spit Dock	Unalaska Marine Center
2000	17,575		7,829	1,302
2001	21,065	509	7,826	1,115
2002	15,347	371	6,705	1,191
2003	16,169	649	6,641	1,221
2004	16,991	476	7,531	1,826
2005	17,812	684	8,391	1,984
2006	18,634	581	7,307	1,795
2007	15,403	343	4,605	1,710
2008	16,605	574	7,621	1,539
2009	14,950	627	7,650	1,089
2010	14,950	614	7,268	1,089
2011	14,950	614	7,268	1,111
2012	14,950	614	7,268	1,133
2013	14,950	618	7,304	1,144
2014	14,950	621	7,340	1,156
2015	14,950	624	7,377	1,167
2016	14,950	627	7,414	1,179
2017	14,950	630	7,451	1,191
2018	14,950	633	7,488	1,203

Source: City of Unalaska (2008), Northern Economics, Inc. analysis

Notes: Berth days for the Small Boat Harbor in 2003 through 2005 dropped significantly due to a change in the way usage was recorded. To simplify the analysis, harbor usage for those years is interpolated based on 2002 and 2006 berth days.

Figure 39 presents the information in the previous table graphically.

Figure 39. Berth Day Projections by Public Facility



Source: City of Unalaska (2008), Northern Economics, Inc. analysis

As suggested earlier, this tariff analysis assumes the following calculations are used for revenue projections for each facility:

- **Unalaska Marine Center:** Revenues are estimated at $1,633,354 plus $1,017.15 per berth day annually.
- **Spit Dock:** Annually, the Spit Dock will contribute $84,055 plus $59.55 per berth day.
- **Small Boat Harbor:** The harbor contributes $102,000 annually.
- **Light Cargo Dock:** The dock contributes $354.28 per berth day of use at the facility.
- **Other Port Revenues:** Other revenues are calculated as $2.22 per berth day.

Based on these berth day and revenue assumptions, Table 42 presents projected revenues generated by each facility under the current tariffs. It should be noted that the revenue information by facility is slightly different from the revenues for the entire enterprise fund from the City of Unalaska's financial statements. Since the difference is small (on the order of $10,000s), it is ignored in this analysis.

Table 42. Actual and Projected Revenues by Facility Under Current Tariffs

	Annual Revenue					
Fiscal Year	Small Boat Harbor	Light Cargo Dock	Spit Dock	Unalaska Marine Center	Other	Total
2000	91,349	0	489,130	2,325,996	120,827	3,027,302
2001	88,714	77,212	539,429	2,616,894	92,915	3,415,163
2002	87,889	57,270	496,508	2,884,269	116,273	3,642,208
2003	90,663	104,832	553,386	3,090,519	23,253	3,862,653
2004	102,901	68,692	552,891	3,361,385	30,284	4,116,152
2005	112,003	173,325	588,934	3,335,908	39,011	4,249,181
2006	118,261	473,302	460,141	3,399,500	59,607	4,510,812
2007	102,014	226,035	332,233	3,731,656	33,366	4,425,304
2008	102,974	284,315	582,444	3,871,742	10,748	4,852,223
2009	102,000	222,134	539,642	2,741,032	53,876	3,658,683
2010	102,000	217,691	516,862	2,741,032	53,001	3,630,586
2011	102,000	217,691	516,862	2,763,185	53,049	3,652,788
2012	102,000	217,691	516,862	2,785,782	53,099	3,675,434
2013	102,000	218,779	519,026	2,797,306	53,211	3,690,323
2014	102,000	219,873	521,201	2,808,946	53,324	3,705,344
2015	102,000	220,973	523,387	2,820,702	53,438	3,720,499
2016	102,000	222,077	525,583	2,832,575	53,552	3,735,789
2017	102,000	223,188	527,791	2,844,567	53,668	3,751,214
2018	102,000	224,304	530,010	2,856,680	53,784	3,766,777

Source: City of Unalaska (2000-2008), Northern Economics, Inc. analysis

As discussed earlier in the plan, expenses have grown at an annualized rate of 4.8 percent from FY 2000 through 2007. When compared to the total berth days at public facilities during this same period, the analysis finds a strong negative correlation between expenses and use. As a result, this analysis assumes that annual expenses will continue to rise at a rate of 4.8 percent per year. Table 43 shows actual and projected expenses as a result of this assumption. The higher expenses in 2008 were due to a large use of shore power by a USCG vessel. The estimated expenses for 2009 reflect 4.8 percent growth over 2008, less $500,000 to account for the large, one-time use of power.

Table 43. Actual and Projected Operating Expenses

Fiscal Year	Operating Expenses
2000	2,406,048
2001	2,482,179
2002	2,737,544
2003	2,793,662
2004	3,230,188
2005	3,342,573
2006	3,405,019
2007	3,349,920
2008	3,915,000
2009	3,571,600
2010	3,714,464
2011	3,863,043
2012	4,017,564
2013	4,178,267
2014	4,345,398
2015	4,519,213
2016	4,699,982
2017	4,887,981
2018	5,083,500

Source: City of Unalaska (2000-2008), Northern Economics, Inc. analysis

Based on the projected operating revenues and expenses, the current rates are sufficient to cover operational needs over the next ten years. This result is shown in Table 44. Additional increases will be needed to cover the cost of capital and major maintenance projects, which are discussed next.

Table 44. Actual and Projected Operating Expenses and Revenues

Fiscal Year	Operating Expenses ($)	Revenue Change Due to Usage (%)	Operating Revenues ($)
2000	2,406,048		2,935,560
2001	2,482,179		3,360,664
2002	2,737,544		3,638,466
2003	2,793,662		3,858,571
2004	3,230,188		4,113,722
2005	3,342,573		4,246,295
2006	3,405,019		4,460,444
2007	3,349,920		4,463,912
2008	3,915,000		4,852,223
2009	3,571,600	-24.60%	3,658,683
2010	3,714,464	-0.77%	3,630,586
2011	3,863,043	0.61%	3,652,788
2012	4,017,564	0.62%	3,675,434
2013	4,178,267	0.41%	3,690,323
2014	4,345,398	0.41%	3,705,344
2015	4,519,213	0.41%	3,720,499
2016	4,699,982	0.41%	3,735,789
2017	4,887,981	0.41%	3,751,214
2018	5,083,500	0.41%	3,766,777

Source: City of Unalaska (2000-2008), Northern Economics, Inc. analysis

7.4.4 Tariff Adjustments to Support Future Needs

The analysis in the preceding section found that if tariffs remained at their present levels for the next ten years, this would result in operating revenues exceeding operating expenses. This conclusion is reached through the preceding analysis, but is also supported by projections done by the City's Finance Director.

Once new capital and major maintenance projects are included, the Port would face additional losses, requiring adjustments to the tariffs to maintain an operating margin. Table 45 shows the projected revenues and expenses with CMMP debt. Based on the projection, revenues would fall behind expenses in 2010, before any additional debt payments take effect.

Table 45. Actual and Projected Operating Expenses and Revenues with Debt Expenses for Capital and Major Maintenance Projects, Ports and Harbors Enterprise Fund

Fiscal Year	Operating Expenses ($)	Operating Expenses with CMMP Debt ($)	Revenue Change Due to Usage (%)	Operating Revenues with Existing Tariffs ($)
2000	2,406,048			3,027,302
2001	2,482,179			3,415,163
2002	2,737,544			3,642,208
2003	2,793,662			3,862,653
2004	3,230,188			4,116,152
2005	3,342,573			4,249,181
2006	3,405,019			4,510,812
2007	3,349,920			4,425,304
2008	3,915,000			4,852,223
2009	3,571,600	3,571,600	-24.60	3,658,683
2010	3,714,464	3,714,464	-0.77	3,630,586
2011	3,863,043	4,153,367	0.61	3,652,788
2012	4,017,564	4,320,967	0.62	3,675,434
2013	4,178,267	4,522,646	0.41	3,690,323
2014	4,345,398	4,759,524	0.41	3,705,344
2015	4,519,213	4,933,340	0.41	3,720,499
2016	4,699,982	5,839,484	0.41	3,735,789
2017	4,887,981	6,027,483	0.41	3,751,214
2018	5,083,500	6,223,003	0.41	3,766,777

Source: City of Unalaska (2000-2008), Northern Economics, Inc. analysis

The Finance Director developed a rough projection of the Port's cash flow and resulting cash balance with the existing CMMP, which is shown in Table 46. In the projection, the Port's cash balance would be negative in FY 2012 based on the planned CMMP spending. The analysis presented above would result in a negative cash balance a few years later, but it does include some natural revenue growth from 2011 and later based on slowly increasing use of public facilities.

Table 46. Projected Ports and Harbors Fund Balance with CMMP Expenditures

City of Unalaska
Ports and Harbors
Estimated as of June 30, 2010

Summary Stmt of Cash Flows			
Cash flows from operating activities			
Revenue Control FY09 (Jan)	2,294,981		
Exp Control FY09 (Jan)	(2,487,660)		
Non-cash items: Depreciation	748,603		
Net Cash Provided by oper activities	555,924		
5410 Capital Expenses	(9,326)		
5420 Capital Expenses	(1,031,737)		
5430 Capital Expenses	-		
Net Cash Uses for Capital activities	(1,041,063)		
Net Increase / (Decrease)	(485,139)		
Cash and due from other funds, beginning of year	6,102,091		
Cash and due from other funds, end of year	5,616,952		
Remainer of FY09 Projection (rough estimate)	(800,000)		
		4,816,952	
FY10 Projection (without depreciation)		(22,406)	
Committed:			
Fund 5410			
Docks Anodes Replacement	400,000		
SBH Float Repair/Replacement	100,000		
Corrosion Protection	24,455		
Iliuliuk Creek Boat Ramp Float	28,000		
Bob Storrs SBH Bathrooms	571,920		
		(1,124,375)	
Fund 5420			
State Cap Grants	(987,553)		
State Cap Grants	(432,537)		
Xfers from GF-to be transferred	(1,150,000)		
Xfers from GF	(5,500,000)		
L0601 LSA New Boat Harbor	366,807		
L9501 New Boat Harbor Fund	957		
L9802 State Grants 1998 & 2001 New Boat H	394,420		
		0 - per AO and TM	
Available after commitments and FY10:		3,670,171	
	CMMP		
FY10 CMMP	(1,548,421)	2,121,750	Running balance
FY11 CMMP	(926,800)	1,194,950	
FY12 CMMP	(1,804,604)	(609,654)	
FY13 CMMP	(983,242)	(1,592,896)	
FY14 CMMP	-	(1,592,896)	

Source: Miller (2009)

Based on the projected debt issues and other assumptions, tariff increases will be necessary to break even and regain an operating margin. As a starting point, it appears that annual inflation increases of 4.8 percent, based on the historical growth rate and perhaps linked to a cost of living index, would allow the port to maintain a small operating margin over the next several years. Table 47 presents revenue projections based on 4.8 percent annual increases across-the-board to tariffs. The increases result in operating margins that fluctuate from year to year around 1 to 7 percent, before dropping in 2016.

While annual increases of 4.8 percent will help to maintain the facilities in a time of flat or only slightly positive utilization growth, it will not prove effective with a continually shrinking demand. For this reason, it is recommended that the first year rate increase be 6 percent for the UMC to offset the significant decrease in usage resulting from the new DH Ports dock beginning operations. The City should then monitor usage of the UMC on an annual basis to determine what level of rate increase will be needed to maintain the facility.

Table 47. Actual and Projected Operating Expenses and Revenues with Tariff Increases and Debt Expenses for Capital and Major Maintenance Projects, Ports and Harbors Enterprise Fund

Fiscal Year	Operating Expenses	Operating Expenses with CMMP Debt	Revenue Change Due to Usage (%)	Additional Tariff Increase (%)	Operating Revenues with Tariff Increases ($)
2000	2,406,048				3,027,302
2001	2,482,179				3,415,163
2002	2,737,544				3,642,208
2003	2,793,662				3,862,653
2004	3,230,188				4,116,152
2005	3,342,573				4,249,181
2006	3,405,019				4,510,812
2007	3,349,920				4,425,304
2008	3,915,000				4,852,223
2009	3,571,600	3,571,600	-24.60	4.80	3,834,300
2010	3,714,464	3,714,464	-0.77	4.80	3,987,487
2011	3,863,043	4,153,367	0.61	4.80	4,204,441
2012	4,017,564	4,320,967	0.62	4.80	4,433,572
2013	4,178,267	4,522,646	0.41	4.80	4,665,205
2014	4,345,398	4,759,524	0.41	4.80	4,909,036
2015	4,519,213	4,933,340	0.41	4.80	5,165,712
2016	4,699,982	5,839,484	0.41	4.80	5,435,914
2017	4,887,981	6,027,483	0.41	4.80	5,720,360
2018	5,083,500	6,223,003	0.41	4.80	6,019,809

Source: City of Unalaska (2001-2007), Northern Economics, Inc. analysis

Having completed the analysis for existing facilities, the analysis now looks at the proposed Carl E. Moses Boat Harbor to determine to what extent the new harbor would contribute to or require a subsidy from the enterprise fund.

7.4.5 Tariff Analysis for the Carl E. Moses Boat Harbor

According to the U.S. Army Corps of Engineers' feasibility study for the Carl E. Moses Boat Harbor, the harbor will provide moorage for 75 vessels. The feasibility study assumes 20 vessels that are 25 meters in length (about 82 feet), 11 vessels at 30 meters (about 98 feet), and 44 vessels at 40 meters (about 131 feet). Converting those vessel lengths in English units and rounding them for ease of analysis, this tariff analysis uses the fleet shown in Table 48 for the CEM harbor.

Table 48. Fleet Assumptions for CEM Harbor

Vessel Length (Feet)	Number of Vessels
80	20
100	11
130	44
Total	75

The tariff analysis assumes the CEM harbor will be fully occupied. There is some risk that vessels currently using the Spit Dock could switch to CEM, increasing revenues for CEM but causing a similar decrease in the Spit Dock's revenues. However, this analysis assumes that CEM will have little to no effect on the Spit Dock's usage since moving vessels under 150 feet to CEM will open the Spit Dock for larger vessels.

There is also some risk that CEM's higher moorage rates will discourage Spit Dock users from switching to the new harbor. However, this analysis anticipates vessel owners will be interested in moving to the CEM harbor because past studies have shown that the top three things vessel owners are looking for are shore power, a slip, and location (access to town). The CEM harbor would provide these characteristics and would therefore be a more attractive moorage location for some vessel owners.

Demand for shore power was at the top of the list of recommended utility improvements at the Spit Dock in 1996, with 60 percent of respondents indicating an interest in shore power, 48 percent in water, and 44 percent in telephone services (Northern Economics, Inc., 1996). Studies by Northern Economics, Inc., the U.S. Army Corps of Engineers Alaska District, and other consultants have indicated the need for protected moorage and slips. A harbor moorage demand study in Unalaska conducted by R&M Consultants, Inc. for the Corps of Engineers Alaska District estimated a discounted avoided cost of over $66 million from protected moorage and the resulting decrease in damages (R&M Consultants, 1986). That amount was calculated in 1986, and would be much larger in 2009 dollars. A 1995 study that evaluated alternative locations for what is now the Carl E. Moses Boat Harbor identified several requirements for a small boat harbor based on fishery and community needs. Among the list of requirements were a few that addressed location factors, including ready access to the existing road system, ready access to existing utility networks, and adequate uplands for access to parking areas, working areas, support industry, and future private development (DOWL Engineers, 1995).

7.4.5.1 Carl E. Moses Boat Harbor Moorage Rates and Revenues

As part of an earlier analysis, a range of low and high rates was recommended for use in CEM. This analysis continues with these low and high rates but adds a third set of rate (medium) that is an average of the two. Table 49 presents the rates considered in the tariff analysis for FY 2011.

Table 49. Potential Annual Moorage Rates per Linear Foot, CEM Harbor, by Vessel Length

	Length (in feet)									
Range	60	70	80	90	100	110	120	130	140	150
Low	45.00	45.00	50.00	50.00	60.00	60.00	60.00	90.00	90.00	155.00
Medium	52.50	57.50	65.00	72.50	85.00	95.00	100.00	127.50	135.00	172.50
High	60.00	70.00	80.00	95.00	110.00	130.00	140.00	165.00	180.00	190.00

The rates shown in the table and used in the analysis are annual rates for vessels that pay for reserved moorage. Annual rates are used for two reasons:

- Annual rates are usually substantially lower than transient rates. It is not uncommon for three to six months of transient moorage to exceed the annual rate. Therefore, using annual rates represents a much more conservative approach to estimating a facility's revenue generation capacity.
- Some ports will automatically switch transient users to the annual rate once the amount paid for transient moorage reaches what would have been charged for annual moorage. The City of Kodiak follows this practice and it is recommended that the City of Unalaska adopt the same practice. Therefore, using annual rates in this analysis is appropriate because a number of vessels may be transient users but end up paying annual rates as a result of a lot of use.

Based on the design fleet and these moorage rate ranges, Table 50 shows the projected revenues that could be generated under each range.

Table 50. Recommended Annual Moorage Rates per Linear Foot, CEM Harbor, by Vessel Length

Length (Feet)	Annual Rate per Linear Foot ($)	Number of Vessels	Total Revenues ($)
Low Moorage Rates			
80	50	20	80,000
100	60	11	66,000
130	90	44	514,800
Total			660,800
Medium Moorage Rates			
80	65	20	104,000
100	85	11	93,500
130	128	44	729,300
Total			926,800
High Moorage Rates			
80	80	20	128,000
100	110	11	121,000
130	165	44	943,800
Total			1,192,800

7.4.5.2 Carl E. Moses Boat Harbor Operating Expenses

On the expense side, there are five types of expenses that need to be covered by revenues generated at CEM:

- Operations costs
- Repair and maintenance costs
- Debt service costs, as presented in Section 7.4.2
- Payments in lieu of taxes
- Depreciation, which is a non-cash expense but is required under government accounting standards

Each of these expense categories is discussed next, followed by expense projections.

Operating Costs

This analysis assumes that operation of CEM will have a negligible effect on the Port and Harbor Enterprise Fund's overall operations costs, except for the additional of one full-time equivalent employee. This employee position is assumed to have a fully loaded cost of approximately $110,000 in fiscal year 2011 when CEM opens and to increase annually by 4.8 percent.

Repair and Maintenance Costs

Over the past several years, repair and maintenance (R&M) costs have been low, on the order of tens of thousands of dollars per year. This analysis assumes that the CEM facility will initially have minimal R&M costs but will have increasing annual costs over the first several years of operations, eventually reaching the same amount as is currently budgeted for all of the other port facilities based on CEM's asset value being close to the asset value of the other port facilities.

In the fiscal year 2009 budget, $72,000 has been budgeted for R&M. This analysis assumes CEM will reach that same level, after inflation adjustments of 4.8 percent per year, over the course of ten years. Assuming CEM opens in fiscal year 2011, Table 51 presents the projected R&M costs for the facility during the first several years of operations.

Table 51. Projected Repair and Maintenance Costs for CEM

Fiscal Year	Repair and Maintenance Costs
2009	0
2010	0
2011	7,908
2012	16,575
2013	26,055
2014	36,408
2015	47,695
2016	59,981
2017	73,337
2018	87,836

7.4.5.3 Debt Service

Debt service was discussed in Section 7.4.2. Table 52 summarizes the annual debt service cost for CEM debt identified in the CMMP.

Table 52. Debt Payment Schedule for Carl E. Moses Boat Harbor Projects

Fiscal Year	Total	Fiscal Year	Total
2011	305,146	2021	305,146
2012	305,146	2022	305,146
2013	305,146	2023	305,146
2014	305,146	2024	305,146
2015	305,146	2025	305,146
2016	305,146	2026	305,146
2017	305,146	2027	305,146
2018	305,146	2028	305,146
2019	305,146	2029	305,146
2020	305,146	2030	305,146

Source: City of Unalaska (2008), Northern Economics, Inc. analysis

Payments in Lieu of Taxes

Early estimates place the completed cost of CEM at $26 to $30 million. Since that amount is roughly the same as the enterprise fund's current net assets, the analysis assumes that the incremental payment in lieu of taxes (PILT) associated with CEM will be equal to the existing PILT. Based on that assumption, the analysis assumes annual PILT payments will increase by about $264,000.

Depreciation

The analysis assumes the CEM facility will have an overall average useful life for tax purposes of 40 years. Assuming straight-line depreciation is used, this suggests annual depreciation of 2.5 percent of the asset value. This is consistent with the fund's current depreciation amounts. In fiscal years 2006 and 2007, the Port and Harbor Enterprise fund had depreciation expenses of 2.8 percent and 2.7 percent of those years' net assets, respectively.

Using depreciation of 2.5 percent of CEM's value and assuming the completed cost is $30 million, the analysis assumes the annual depreciation expense for the facility will be $750,000.

7.4.5.4 Carl E. Moses Boat Harbor Moorage Rate Recommendations

Previous sections have established projected revenues and expenses for the Carl E. Moses Boat Harbor. This section combines this information to provide recommendations for the facility's annual moorage rate.

Table 53 presents the projected expenses for the CEM harbor. The costs of operating are assumed to begin when the facility begins operating in fiscal year 2011, which is also the first year of debt payments under the assumptions used in this analysis.

Table 53. Projected Expenses for the CEM Harbor

Fiscal Year	Operations	Repair and Maintenance	Payment in Lieu of Taxes	Depreciation	Debt Service	Total Expenses	Total Expenses (Cash Basis)
2010	0	0	0	0	0	0	0
2011	109,830	7,908	263,692	750,000	305,146	1,436,576	686,576
2012	115,102	16,575	263,692	750,000	305,146	1,450,515	700,515
2013	120,627	26,055	263,692	750,000	305,146	1,465,521	715,521
2014	126,417	36,408	263,692	750,000	305,146	1,481,663	731,663
2015	132,485	47,695	263,692	750,000	305,146	1,499,018	749,018
2016	138,845	59,981	263,692	750,000	305,146	1,517,663	767,663
2017	145,509	73,337	263,692	750,000	305,146	1,537,684	787,684
2018	152,494	87,836	263,692	750,000	305,146	1,559,168	809,168

Looking at the total expenses, none of the moorage rate ranges would cover the total expenses (including the non-cash expense for depreciation), though the medium and high rates would cover the cash expenses and provide a additional funds to cover part of the depreciation. Assuming moorage rates increase 4.8 percent annually (in line with increases proposed at the other facilities), Table 54 and Table 55 show the resulting balance of revenues and expenses under the medium and high ranges of moorage rates, respectively.

Table 54. Projected Operating Expenses and Revenues, CEM Harbor, Medium Moorage Rates

Fiscal Year	Total Operating Expenses ($)	Cash-Only Operating Expenses ($)	Additional Tariff Increase (%)	Operating Revenues with Tariff Increases ($)
2010	0	0	0.00	0
2011	1,436,576	686,576	0.00	926,800
2012	1,450,515	700,515	4.80	971,286
2013	1,465,521	715,521	4.80	1,017,908
2014	1,481,663	731,663	4.80	1,066,768
2015	1,499,018	749,018	4.80	1,117,973
2016	1,517,663	767,663	4.80	1,171,635
2017	1,537,684	787,684	4.80	1,227,874
2018	1,559,168	809,168	4.80	1,286,812

Table 55. Projected Operating Expenses and Revenues, CEM Harbor, High Moorage Rates

Fiscal Year	Total Operating Expenses ($)	Cash-Only Operating Expenses ($)	Additional Tariff Increase (%)	Operating Revenues with Tariff Increases ($)
2010	0	0	0.00	0
2011	1,436,576	686,576	0.00	1,192,800
2012	1,450,515	700,515	4.80	1,250,054
2013	1,465,521	715,521	4.80	1,310,057
2014	1,481,663	731,663	4.80	1,372,940
2015	1,499,018	749,018	4.80	1,438,841
2016	1,517,663	767,663	4.80	1,507,905
2017	1,537,684	787,684	4.80	1,580,285
2018	1,559,168	809,168	4.80	1,656,138

As shown in the tables, either the medium or high moorage rates would cover the cash expenses of operating the facility. Further, in the high case a 4.8 percent annual increase in moorage rates would allow revenues to grow faster than expenses, resulting in a shrinking loss due to depreciation. In 2018, under these projections, the loss would be $272,000 annually under the medium case. In the high case, the facility would generate an operating margin of $97,000 by 2018. However, on a cash-basis in 2018, annual revenues would exceed income by approximately $478,000 and $847,000 in the medium and high cases, respectively.

Increased Revenues from Rafting or Additional Stalls

The tariff analysis has assumed that the 75-vessel design fleet from the USACE feasibility study would occupy the CEM harbor. However, it is possible that additional vessels could be moored in the basin, either with dedicated slips or with vessels rafting to docks. The result of increasing the number of vessels in the harbor could be a small boost in CEM's revenues. A boost of about 10 percent would be achievable and would help to balance the revenues and expenses. Table 56 and Table 57 present the medium and high cases presented above, but with an initial 10 percent increase in revenues.

Table 56. Projected Operating Expenses and Revenues, CEM Harbor, Medium Moorage Rates with 10 Percent Increase in Revenues

Fiscal Year	Total Operating Expenses ($)	Cash-Only Operating Expenses ($)	Additional Tariff Increase (%)	Operating Revenues with Tariff Increases ($)
2010	0	0	0.00	0
2011	1,436,576	686,576	0.00	1,019,480
2012	1,450,515	700,515	4.80	1,068,415
2013	1,465,521	715,521	4.80	1,119,699
2014	1,481,663	731,663	4.80	1,173,445
2015	1,499,018	749,018	4.80	1,229,770
2016	1,517,663	767,663	4.80	1,288,799
2017	1,537,684	787,684	4.80	1,350,661
2018	1,559,168	809,168	4.80	1,415,493

Table 57. Projected Operating Expenses and Revenues, CEM Harbor, High Moorage Rates with 10 Percent Increase in Revenues

Fiscal Year	Total Operating Expenses ($)	Cash-Only Operating Expenses ($)	Additional Tariff Increase (%)	Operating Revenues with Tariff Increases ($)
2010	0	0	0.00	0
2011	1,436,576	686,576	0.00	1,312,080
2012	1,450,515	700,515	4.80	1,375,060
2013	1,465,521	715,521	4.80	1,441,063
2014	1,481,663	731,663	4.80	1,510,234
2015	1,499,018	749,018	4.80	1,582,725
2016	1,517,663	767,663	4.80	1,658,696
2017	1,537,684	787,684	4.80	1,738,313
2018	1,559,168	809,168	4.80	1,821,752

As shown in this new set of tables, a 10 percent increase in revenues due to rafting or additional stalls would substantially reduce the financial gap in the medium case, achieving a loss of $144,000 by 2018. In the high moorage rate case, it would allow the facility to start generating a positive net income in 2014. It would be advisable for the City of Unalaska to consider its design for the inner harbor facilities to maximize its revenue.

Annual and Transient Rates in Carl E. Moses Boat Harbor

The rates presented above for CEM are for vessels seeking annual moorage. It is recommended that daily transient rates be set at 1/30th to 1/60th of the annual rate. When transient rate payers have paid the equivalent amount of annual moorage, it is recommended that the port consider those users to be the same as annual users. This practice is used in Kodiak and is advisable to prevent high rates for large vessels from decreasing the level of use in CEM.

8 Alternative Financing Mechanisms

Based on the tariff analysis presented in Section 7, it is clear that the Port will not be able to address the projected revenue shortfall with tariff increases alone. Instead, some additional mechanisms may be necessary for the Port to cover expenses.

This section presents alternative methods for raising additional revenues from port-related activity and provides an estimate of how each approach could address the revenue shortfall.

8.1 Property Tax Base

The starting point for evaluating alternative strategies to address the projected revenue shortfall is to look at the total value of property in the city limits that may be subject to taxation. The following two sections look at the total assessed value of taxable real property and business personal property.

8.1.1 Real Property

The Fiscal Year 2009 property tax assessments were established as of January 1, 2008. The assessed value of all taxable properties within the City of Unalaska is $275 million. Northern Economics requested the City separate out specific areas as well, including the port area and the waterfront area. The City Clerk assisted with this process by identifying the parcels that would fit within these groupings. The port area, including all properties located past the airport, contains property assessed at $18 million. The waterfront area, which includes both waterfront properties and properties that are not directly on the water but which are used for marine purposes (such as container storage), contains property assessed at $154 million (Mack, 2009).

Since these assessed values were developed in January 2008, they do not include the new DH Ports dock and cold storage facility. The City currently uses an estimated assessed value of $100 million for the facility. To maintain consistency, this analysis uses an assessed value of $100 million for the DH Ports facility, which is added to each of the assessment areas mentioned above. The resulting assessed values are shown in Table 58.

Table 58. Assessed Values of Taxable Real Property in Unalaska

	Assessed Value of Real Property	
Area	Base (1/1/2008)	With DH Ports Facility
Port Area	18,067,246	118,067,246
Waterfront	153,931,221	253,931,221
Entire City	275,423,451	375,423,451

Source: Mack (2009) and Northern Economics, Inc. analysis

These property assessments are for taxable properties only. For example, the Ounalashka Corporation owns waterfront property within the city limits that is not taxed because it has not been developed. If additional development takes place, this would increase the tax base that may be used to support the City and possibly the Port of Dutch Harbor. One way in which to use potential developments to the Port's advantage is through Tax Increment Financing, discussed in Section 8.6.

8.1.2 Personal Property

In addition to property taxes, the City of Unalaska collects a business personal property tax. The total assessed value for 2008 was approximately $130 million, of which marine-related industries contributed $100 million. No estimate is available at this time for the business personal property tax assessed value at DH Ports.

8.2 Potential Revenue Generation through Taxation

The analysis presented in earlier sections found that a 4 percent annual across-the-board increase in the tariffs appears sufficient for the Port to operate profitably, assuming no capital projects are undertaken. However, if the projects described in the CMMP are undertaken, the necessary debt load to fund the projects would result in the Port operating at a loss.

The financial model developed for the analysis suggests that an annual increase of slightly more than 5.75 percent would be sufficient for the Port to operate profitably while undertaking the CMMP projects. However, achieving this rate of increase year after year could be problematic and may actually cause vessel owners to consider the use of alternative ports. The analysis assumes annual increases of 4.8 percent, consistent with the long-term average growth rate for the Port's expenses, represent an upper limit for rate increases.

Based on a 4.8 percent annual rate increase, Table 59 presents the projected shortfall the Port would experience. The table also presents the projected shortfall as a mill rate applied to taxable real properties in the port area, the entire waterfront, and the City as a whole.

Table 59. Property Tax Rate Necessary to Cover Projected Shortfalls

Year	Projected Net Income ($)	Projected Shortfall ($)	Projected Shortfall Expressed as a Mill Rate of Total Assessed Value in		
			Port Area	Waterfront	Entire City
2009	262,700	0	0.000	0.000	0.000
2010	273,023	0	0.000	0.000	0.000
2011	-458,702	-458,702	3.885	1.806	1.222
2012	-366,624	-366,624	3.105	1.444	0.977
2013	-305,053	-305,053	2.584	1.201	0.813
2014	-265,383	-265,383	2.248	1.045	0.707
2015	-148,674	-148,674	1.259	0.585	0.396
2016	-749,599	-749,599	6.349	2.952	1.997
2017	-616,933	-616,933	5.225	2.430	1.643
2018	-475,550	-475,550	4.028	1.873	1.267
Annual Mill Rate to Cover Shortfall, Based on Average of 2011-2018			**3.585**	**1.667**	**1.128**

Source: Northern Economics, Inc. analysis

Table 60 shows a basic sensitivity analysis for the projected shortfall. The effect of different annual increases in tariffs is shown for the projected net income and shortfall. Annual rate increases of 3.5 percent, 4 percent, and 4.8 percent were chosen. Decreasing the annual rate increase to 4 percent causes the shortfall to increase by an average of about 60 percent when compared with a 4.8 percent

rate increase. Decreasing the annual rate increase to 3 percent almost doubles the projected shortfall, on average.

Table 60. Sensitivity Analysis of Projected Shortfalls with Different Rates of Annual Increase

	Projected Net Income with Annual Rate Increases			Projected Shortfall with Annual Rate Increases		
Year	4.80%	4.00%	3.50%	4.80%	4.00%	3.50%
2009	262,700	233,431	215,137	0	0	0
2010	273,023	212,378	174,710	0	0	0
2011	-458,702	-554,254	-613,232	-458,702	-554,254	-613,232
2012	-366,624	-500,458	-582,550	-366,624	-500,458	-582,550
2013	-305,053	-480,416	-587,312	-305,053	-480,416	-587,312
2014	-265,383	-485,977	-619,606	-265,383	-485,977	-619,606
2015	-148,674	-418,462	-580,872	-148,674	-418,462	-580,872
2016	-749,599	-1,072,828	-1,266,192	-749,599	-1,072,828	-1,266,192
2017	-616,933	-998,146	-1,224,774	-616,933	-998,146	-1,224,774
2018	-475,550	-919,609	-1,181,948	-475,550	-919,609	-1,181,948

Source: Northern Economics, Inc. analysis

8.3 Payments in Lieu of Taxes

The Port of Dutch Harbor Enterprise Fund currently pays a payment in lieu of taxes (PILT or PILOT) to the City of Unalaska. In 2008, the Port paid a PILT of $263,692 (City of Unalaska, 2008).

Given the downturn in the Port's financial condition, one way in which the City could help to improve the viability of the Port would be to link the PILT amount to the Port's profitability or some other financial measure by which the PILT would be lower in years in which the Port is less profitable or has a loss. Reducing PILT could have a substantial effect on the projected shortfall for each year, though this would need to be weighed against the effect this would have on the City's overall financial condition while recognizing that the new DH Ports development could result in a substantial increase in property taxes.

Multiple methods exist for calculating an appropriate PILT amount. Three methods the City and Port might considering using are:

- Percent of income
- Mill rate charged against assets
- Mill rate charged against replacement costs

Each of these methods is explained in more detail in the following sections.

8.3.1 Percent of Income

The simplest PILT method is to calculate it as a percentage of income derived from on-going operations, since Port and Harbor operations are tracked with an Enterprise Fund. Enterprise Funds are considered "business like" by the Governmental Accounting Standards Board (GASB); the GASB publishes accounting and financial information for state and local governments, including the City of Unalaska.

Virtually all of the Port's income comes from charges for services, while the two principal expenditures are the harbor office and dock operations. For FY 2005 through 2008, the average excess of revenues over expenditures, or net income, was approximately $1 million or 29 percent of total revenues. Depending on other uses for these funds, a fixed percentage of this amount could be considered as a payment in lieu of taxes. In lean years, the resulting PILT would be lower, while in strong years it would be higher.

This PILT method is based on revenues alone and could be considered as an income-based approach.

8.3.2 Net or Total Assets

The other two methods for generating PILT amounts derive from the assets owned by the Port and Harbor Fund. Table 61, which was presented earlier as Table 2, illustrates the City's Port and Harbor assets for eight years between FY2000 and FY2008.

Table 61. Comparative Balance Sheet, Ports and Harbors Enterprise Fund, in Thousands of Dollars, FY 2000-2008

	Fiscal Year									Annualized Change (%)
	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Current Assets	3,770	5,134	5,184	5,380	6,268	6,687	6,540	4,826	6,874	7.8
Noncurrent Assets	18,133	19,468	25,859	27,186	26,925	26,800	28,125	30,487	32,583	7.6
Total Assets	21,903	24,603	31,043	32,566	33,192	33,487	34,666	35,314	39,457	7.6
Current Liabilities	751	2,576	2,123	1,077	1,099	747	783	317	215	-14.5
Noncurrent Liabilities	2,014	1,649	1,268	865	440	0	36	33	253	-22.8
Net Assets	19,138	20,378	27,652	30,624	31,653	32,740	33,847	34,963	38,989	9.3
Total Liabilities and Net Assets	21,903	24,603	31,043	32,566	33,192	33,487	34,666	35,314	39,457	7.6

Source: City of Unalaska (2001-2008)

Net assets (in nominal dollars) have doubled, from 2000 ($19.1 million) to 2007 ($39.0 million), reflecting a major increase in property and equipment.

The City of Unalaska could generate a PILT from a mill rate assessed against either total or net assets, using the same rate charged on private commercial lands within the City. The current mill rate is 10.5 mills that generates approximately $4.5 million in property tax from $275.4 million of assessed property value and $130 million of business personal property. If the same mill rate were charged against the port and harbor's total assets, it would generate approximately $414,000 of PILT.

8.3.3 Replacement Value

The third method is also based on asset value. However, assets are valued at replacement cost, not net book value. This method is approved for use by the State of Alaska and replacement cost estimates are either generated from known costs or an independent appraiser or engineer.

8.4 Establishing a Port Authority

One option the Port might consider is the creation of a Port Authority. A Port Authority is authorized under Title 29 of the Alaska Statues (AS) (provided online by the Alaska Legal Resource Center), which covers the powers of municipalities. AS 29.35.600 states, "the purpose of a port authority is to provide for the development of a port or ports for transportation related commerce within the territory of the authority." Creation of a port authority may be done by ordinance.

Once established, a Port Authority must have a board of directors and a Chief Executive Officer appointed by the board. Details about the number of seats, qualifications, and term lengths are determined through the ordinance used to create the Port Authority.

Creation of a Port Authority would allow the City to specify a set of powers, boundaries, and limitations of the authority. However, it appears that an authority would not provide any benefit in terms of covering the projected shortfalls. Creation of the board under AS 29.35.680 would create an additional layer of administration which may create an operational burden on the City and Port. While the Port Authority would have the ability to regulate land use within its boundaries under AS 29.35.620(15), it appears the authority would be prohibited from levying a property tax under the limitation imposed by AS 29.35.665.

Based on an assessment of the Port's needs and the Alaska Statutes, it appears that creating a Port Authority would not provide revenues beyond those already generated by the existing enterprise fund. Therefore, a Port Authority is not recommended for purposes of overcoming the projected financial shortfall, though the City might wish to consider formation of an Authority for other purposes.

8.5 Establishing a Special Tax District

The City might consider the creation of a special tax district in which additional property taxes could be levied to support the Port of Dutch Harbor's operation. Table 58 showed the total assessed value of taxable real property in the port area, along the waterfront, and within the City limits. Depending on the area chosen to pay a special ports tax, the tax base could range from $118 million to $275 million.

While it may be preferable to tax only those areas that use the public port facilities or have marine-related businesses, caution must be exercised in choosing the appropriate tax base. Taxing only the port area, which this analysis has defined as the property past the airport, results in the smallest tax base and therefore the largest mill rate required to cover the projected shortfall. At the opposite end of the spectrum is the possibility of imposing a port tax on all taxable real property in the community. This would result in the largest tax base and therefore the smallest mill rate. The City might also chose to balance between the number of properties affected and the mill rate levied by taxing waterfront or marine-related properties. The downside to this waterfront approach is that there could be a lot of debate and disagreement about which properties should be selected for the tax.

The mill rate for the special port tax must fall within any limitations the City has on taxation. Based on this analysis, it appears the tax could be set at 1.0 to 1.2 mills if the entire City is chosen to pay the tax. If only property in the port area is taxed, the required mill rate could be upwards of 3.6 mills.

8.6 Tax Increment Financing

Tax Increment Financing (TIF) is a public financing method that uses future tax gains to finance the infrastructure improvements needed to achieve those gains. The method is often used in redevelopment projects in which infrastructure improvements will increase the property values in the area, which in turn increase the property and other tax revenues. Tax Increment Financing is discussed in AS 29.47.460 (Debt for Improvement Area Projects).

The Port of Dutch Harbor could use tax increment financing for some of its capital projects. If capital improvements boost the real property values, the incremental amounts could be used to cover the debt costs. Where tax increment financing appears most promising is with the proposed CEM development. The adjacent uplands are currently undeveloped and may be an attractive location for marine-related support businesses. Should development occur in the area, it would increase the tax base with which to support the Port.

AS 29.47.460(b) states, "a municipality may provide by ordinance that the tax increment from the taxes levied each year by or on behalf of the municipality on the property in an improvement area shall be used to pay the principal and interest on bonds issued under (a) of this section for improvements in that improvement area, and may irrevocably pledge the tax increment from the area for that purpose." AS 29.47.460(d)(3) defines the tax increment to mean "the portion of a tax that is attributable to the difference between the value of property within an improvement area shown on the taxing agency's assessment roll for the year when the taxes are levied and the value of the property shown on the taxing agency's last assessment roll that was equalized before the improvements in the improvement area were authorized." In order to qualify for TIF, AS 29.47.460(d)(2)(B) defines an improvement area to be "an area that is capable of being substantially improved based on the property value within the area."

It appears that TIF may be suitable for use in the CEM area, where the CEM harbor improvements could be reasonably expected to promote economic development in the adjacent uplands, resulting in increases to the taxable property values. Property taxes generated until the TIF mechanism would be paid by property owners in the affected area, or, if the property were leased, passed on through the lease cost to the tenants or leaseholders. Based on this preliminary look at TIF, this analysis recommends that TIF be considered as one of the taxation-based revenue sources to cover CEM debt obligations.

9 Recommendations

This section provides recommendations based on the findings presented throughout this development plan. The analysis presented in this plan suggests the following strategies for the next ten years:

1. The Port of Dutch Harbor is facing a significant shortfall in revenues resulting from the DH Ports dock's effect on use of the UMC. To the extent possible, tariffs should be increased to reduce some of the shortfall. This plan presents recommended rate increases of 4.8 percent annually, matching the long-term growth rate of the Port's expenses. This includes an increase in the rates charged for Horizon Lines' use of the UMC, which means that the next preferential use agreement will need to include a rate increase similar to the increase proposed for other rates. However, the Port cannot recover from its revenue shortfall solely by increasing rates. Additional changes are necessary.
2. A number of vessels in the 225 to 300-foot range have used the UMC for longer-term dockage although the cost for such moorage is a deterrent for increased use of the facility. Provided the Light Cargo Dock is capable of handling the load, this plan recommends that the Port allow 225 to 300-foot vessels to use the Light Cargo Dock for longer-term moorage. Based on the current rates, a suitable daily rate would be $430 per day, with a 15 percent discount for prepayment of less than 30 days and a 50 percent discount for prepayment of a full month. For vessels under 225 feet, standard Spit Dock rates would apply. By offering the Light Cargo Dock for longer-term use by larger vessels, the UMC will be free to handle shorter term, cargo-oriented needs, while also allowing for increased use of the Light Cargo Dock and increasing total revenues to the Port.
3. The City of Unalaska should consider the creation of a special ports tax in the amount of 1 to 1.2 mills to be applied uniformly to all taxable real property within the city limits. Alternatively, the City might consider a special ports tax at a higher mill rate that would apply to those properties in proximity to Dutch Harbor and extending to include the container storage areas. Further, the City should consider the creation of an improvement area in the vicinity of the Carl E. Moses Boat Harbor development and use tax increment financing as a source of funding for the harbor project's debt obligations.
4. During the next ten years, the Port should focus resources on maintaining existing facilities and reconfiguring them to accommodate actual and anticipated changes in the local fleet. The one major new facility planned for the next ten years is the Carl E. Moses Boat Harbor (CEM), which will serve a need for large vessel (60 to 150 feet) moorage.
5. Use of public facilities for cargo handling is expected to remain flat or decline in the future. The UMC will remain a priority facility for cargo because of its container ship capability, but it will see a reduction in other types of use due to the recently opened DH Ports dock. The UMC will reach capacity at some point in the future, but that point has been extended beyond the ten-year horizon due to the impact of the DH Ports dock. Once the UMC does begin to near its operational capacity, the Light Cargo Dock (LCD) will be a likely candidate for improvements to handle cargo. Improvements to the LCD would provide an alternative location to the UMC for catcher processors, barges, trampers, and coastal freighters that may seek to load or offload cargo, particularly during peak seasons, and improve utilization.
6. With the development of CEM, utilization of the Spit Dock will likely decrease as vessels in the 60-foot to 150-foot range shift to using the new facility. This reallocation of vessels will allow for the Spit Dock to serve larger vessels, offering moorage to larger vessels that are not currently adequately served, as well as a fleet of vessels that have historically increased in size.

Although the recommended moorage for the CEM harbor is higher than the Spit Dock, this analysis assumes vessel owners will be interested in moving to the CEM harbor. Past studies have shown that the top three things vessel owners are looking for are shore power, a slip, and location (access to town). The CEM harbor would provide these characteristics and would therefore be a more attractive moorage location for some vessel owners. At some point in the late 2010s or early 2020s, it may make sense to evaluate options for expanding or strengthening the Spit Dock to handle larger vessels of up to 250 feet. The mooring of more large vessels in the community would increase the amount spent by the fleet in local businesses and generate more income for local households. Long-term moorage should be located away from areas of high activity, and the Spit Dock is the appropriate location for this use provided it can operate or be expanded in such as way as to avoid disrupting operations at the LCD.

7. While other harbors in the region will compete with the CEM harbor for vessels in the 60 to 150-foot size class, Unalaska is the preferred moorage location for many vessel owners, especially for 150 to 250-foot vessels, and can command a price premium over other ports, although it may be necessary to adjust rates over several years to determine the extent of this premium. After CEM is built, the Small Boat Harbor will provide moorage for vessels shorter than 60 feet, the CEM Harbor will provide moorage for vessels 61 to 150 feet, and, with an expansion, the Spit Dock could be the primary mooring facility for vessels ranging from 151 to 250 feet. The LCD could provide moorage for vessels 225 to 300 feet in length.
8. Improvements to berths 3, 4, and 5 at the UMC will likely be required in the future to accommodate new ships that are expected on the Puget Sound-Alaska and Puget Sound-Asia routes. These ships were anticipated in the mid-2000s but their introduction has been delayed and, with the current global economic downturn, they may not be put into use for five to ten years. It is advisable that the Port maintain communication with Horizon Lines and other shipping companies to learn about planned changes in the container ship fleet using the Port of Dutch Harbor. More substantial improvements could be necessary if the Port wishes to remain an attractive stop for ships engaged in the trans-Pacific trade.
9. With increased security regulations and the TWIC program in effect, it is recommended that the Port add an item to the tariff that specifically addresses the cost of using port personnel for security purposes. It is recommended that the tariff include both regular and overtime rates for a port-provided watchman. It may optionally include a per-ton or per-passenger rate, depending on the nature of the security needs.
10. The Port and local businesses should work to market the Port of Dutch Harbor to potential users. The Port Director has evaluated marketing options, but local businesses need to be involved as well. Existing businesses have experience with attracting vessels and know what services will attract them. To attract additional vessels to the Port, it may be necessary to find ways to attract or recruit new companies to offer services in community.

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Appendix A: Tariff Sheets for Competing Facilities

The following pages provide tariff sheets for competing facilities discussed in this report. The communities included are:

- Akutan
- Cold Bay
- False Pass
- King Cove
- Kodiak
- Larsen Bay
- Naknek
- Old Harbor
- Ouzinkie
- Port Lions
- Sand Point