# 2002 AND 2003
# HAWAII CRUISE INDUSTRY
# IMPACT STUDY

**Research and Economic Analysis Division**

DBEDT

THE DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

STATE OF HAWAII

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# I. PREFACE

This report was prepared by the Research and Economic Analysis Division of the State of Hawai'i Department of Business, Economic Development & Tourism (DBEDT), under the direction of the division administrator, Dr. Pearl Imada Iboshi, and with assistance from OmniTrak Group, Inc.

Act 156, Session Laws of Hawai'i 1998, transferred the tourism research program from HVCB to DBEDT. DBEDT has been responsible for collecting and disseminating data on Hawai'i's visitor industry since July 1, 1998.

This report is also posted on the DBEDT website: http://www2.hawaii.gov/dbedt/latest

# I. EXECUTIVE SUMMARY

The Department of Business, Economic Department and Tourism conducted surveys of Hawaii harbors, shipping agents, crew members and various cruise lines with ships in the islands in 2002 and 2003 to analyze the economic impact of the fast growing cruise industry on the State. During the years covered by this report, only one business model was in existence -- international cruise operations consisting of foreign flagged ships, including those home-based in Hawaii.

The economic impact to the state in 2004 and beyond will be even greater than what will be presented in this analysis. Since July 2004, a U.S. flagged ship has been home-ported in the islands paying Hawaii taxes and hiring U.S. and Hawaii crews. Two more U.S. flagged ships are scheduled to be Hawaii home ported in 2005 and 2006. Nontheless, the findings presented here provide an informative snapshot of international cruise operations' impact to Hawaii's economy in 2002 and 2003. The total economic impact includes the direct and indirect expenditures in Hawaii from the cruise visitors, crew members, cruise lines, and shipping agents. Data were collected from self-administered surveys to each of these groups. The indirect and induced effects of the cruise industry were calculated using input-output analysis, based on the Hawaii input-output model in 1997 (DBEDT, 2002).

- The total direct economic impact of the cruise industry in Hawaii in 2002 and 2003 were $261 million and $268.7 million, respectively.
- Daily cruise passenger spending rose from $99 per person in 2002 to $101 per person in 2003. Converting these amounts into the economic impact per cruise visitor per day, each cruise visitor brought about $155 and $157 into Hawaii's

economy per day in 2002 and 2003, respectively. Not surprisingly, the largest economic impact is from out-of-state visitors, which includes cruise visitors and crew members.

- The total spending from out-of-state cruise visitors was $163.1 million in 2002 and increased to $169.5 million in 2003. The four percent increase in expenditure is attributable to an increase in length of stay and daily expenditure. Total spending from crew members were $38.8 million in 2002 and dropped to $33.5 million in 2003 due to fewer trips to Hawaii.
- The second largest economic impact was from cruise lines. Cruise line spending includes shipping agent spending, port entry, dockage, miscellaneous, and passenger fees, and their spending in Hawaii for operations and administration. In total, the cruise lines spent $57.5 million in 2002. This grew 12% in 2003 to $64.5 million, mainly due to the higher spending from the cruise lines in operations and administration.
- In 2002 and 2003, the direct, indirect, and induced effects from the cruise industry amounted to $381.1 and $390.5 million of Gross State Product, respectively. In addition, the cruise industry generated $108.1 and $110.4 million of earnings in 2002 and 2003, respectively. Job creation was significant – 4,547 and 4,582 jobs in 2002 and 2003, respectively. In terms of the state and county taxes, cruise industry generated $37.4 and $38.2 million in 2002 and 2003, respectively.

## II. INTRODUCTION

The cruise industry has increased rapidly during the past two years. According to the Cruise Lines International Association (CLIA), the number of passengers who took cruise vacations in 2003 increased 10% from 8.6 million in 2002. CLIA also reported 103% occupancy rate among its member line ships in 2003, a 4% increase from the previous year.[1]

As a response to the substantial increases in passenger numbers, cruise lines have again expanded their fleet size and passenger capacity. In 2003, passenger capacity reached 296,000 lower-berth worldwide, and the cruise industry consisted of more than 300 vessels catering for a record 9.5 million passengers worldwide.

It is estimated that North American passengers account for about 78% of the global market.[2] The number of North American cruise passengers increased from 4.7 million in 1996 to 7.3 million in 2002, a 55.3% increase.[3,4] The capacity of cruise ships serving North Americans waters also increased 78.2% from 110,000 berths in 1996 to 196,000 berths in 2002. The number of North American passengers increased even further in 2003 to 8.3 million, according to the U.S. Maritime Administration (MARAD).[5]

Within the North American market, Hawaii ranks in the top 10 cruise destinations. According to MARAD, Hawaii was the seventh most popular cruise destination in North America in 2002 and 2003 (Table 1). Like the overall industry, the Hawaii cruise industry has also undergone an extraordinary growth in the past couple of years. As shown in Table 1, cruise passengers more than tripled in a three-year period ending 2003, while cruises grew 166%.

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[1] CLIA, CLIA Member Cruise Lines Post Strong Passenger Growth With Over 9.5 Million Cruisers in 2003, Cruise News, February 26, 2004.
[2] O Mathisen, Cruise Industry News (Annual 2003), New York: Cruise Industry News.
[3] ICCL, International Council of Cruise Lines, Economic Summary 2002, 2002.
[4] ICCL, International Council of Cruise Lines, Economic Summary 2000, 2000.
[5] William Ebersold, Cruise Industry in Figures, May 2004.

| Table 1 -- North America Destinations (2001 - 2003) | | | | | | |
|---|---|---|---|---|---|---|
| **Cruise Passenger Statistics[1]<br>Cruise Destinations (2001-2003)<br>(Passengers in Thousands)** | | | | | | |
| | **2003** | | **2002** | | **2001** | |
| **PORT** | **Cruises** | **Passengers** | **Cruises** | **Passengers** | **Cruises** | **Passengers** |
| Western Caribbean | 1,324 | 2,916 | 1,138 | 2,445 | 755 | 1,653 |
| Bahamas | 531 | 1,293 | 524 | 1,237 | 522 | 1,232 |
| Eastern Caribbean | 423 | 1,016 | 427 | 1,003 | 439 | 1,013 |
| Alaska | 432 | 766 | 389 | 722 | 380 | 678 |
| Southern Caribbean | 324 | 741 | 332 | 748 | 379 | 765 |
| Mexico(Pacific) | 327 | 731 | 285 | 627 | 313 | 611 |
| Hawaii | 109 | 222 | 117 | 231 | 41 | 71 |
| Bermuda | 129 | 207 | 133 | 190 | 126 | 167 |
| Canada/New England | 87 | 169 | 76 | 158 | 78 | 154 |
| Trans-Panama Canal | 62 | 91 | 67 | 96 | 78 | 117 |
| Other Destinations | 92 | 130 | 118 | 188 | 112 | 164 |
| **TOTAL** | **3,840** | **8,283** | **3,606** | **7,645** | **3,223** | **6,626** |

[1]North America Cruises by Ten Major Brands
Source: U.S. Maritime Administration, Office of Statistical and Economic Analysis

With the increasing importance of the cruise industry in the Islands, the purpose of this study is to examine the direct, indirect, and induced effects of the cruise industry on Hawaii's local economy, including the expenditures of cruise visitors, crew members, cruise lines, shipping agents, and harbor fees. Specifically, the economic impacts on the Gross State Product (GSP), earnings, state and county taxes, and jobs are quantified based on the multiplier effects generated from the input-output model.

## III. STATE OF HAWAII CRUISE INDUSTRY

Back in the 1970's and 1980's, cruise ships periodically visited the Hawaiian Islands; however, overnight cruising was almost non-existent. In 1985, American Hawaii Cruises (AHC), a subsidiary of American Classic Voyages, started operating its two U.S.-flag ocean liners, the S.S. Independence, and the S.S. Constitution, sailing exclusively around the Hawaiian Islands year-round on 7-day cruises.[6] This was the start of the contemporary cruise industry in Hawaii.

In 2001, the cruise industry in Hawaii underwent a major structural change. American Cruise Lines, with operations only in Hawaii, did not have the financial strength to weather both the post September 11 impact and the continuation of its ambitious new ship construction program. American Classic Voyages filed bankruptcy shortly after the World Trade Center terrorist attacks. Norwegian Cruise Lines (NCL) capitalized on this market opportunity, entering the market with an innovative route to Hawaii that included an international stop in Fanning Island. It has emerged as the leading cruise company in Hawaiian waters ever since.

As a result of NCL's entry and aggressive expansion, the Hawaii cruise industry has shown an unprecedented growth in the past couple of years. Hawaii cruise visitor arrivals have tripled from 88,834 in 1997 to 236,149 in 2003 (Figure 1). Cruise passenger share of the overall Hawaii visitor market has also increased from less than 1.5% in 1997 to 3.6% in 2003 (Figure 2).[7] Below are some highlighted facts on the State of Hawaii cruise industry in 2002 and 2003.

- A total of 57 Hawaii-home-ported and Out-of-State cruise ships made 131 tours around the Hawaiian Islands in 2002, while a total of 47 ships made 125 tours in 2003.[8]

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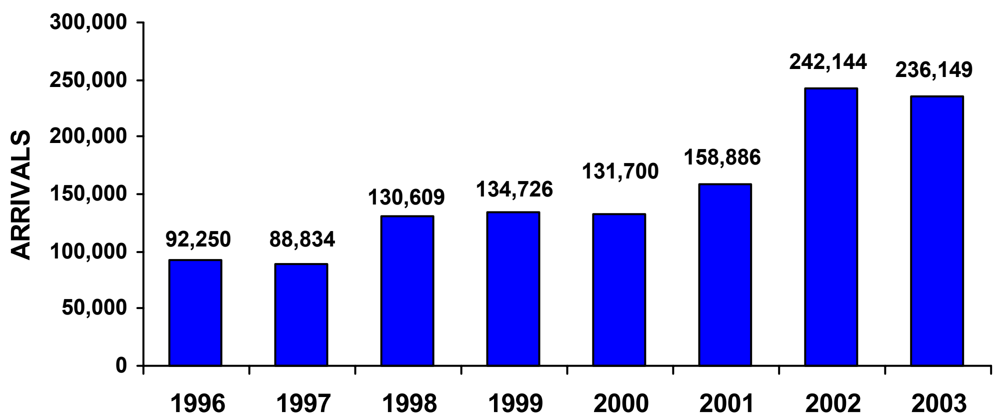
[6] DBEDT, The Emerging Cruise Ship Market. Towards a Productivity-Driven Growth Strategy, 1997. Retrieved from http://www.hawaii.go/dbedt/hecon/he7-99/cruise.html.
[7] DBEDT, Survey of Cruise hip Passengers in Hawaii. Retrieved from http://www2.hawaii.gov/dbedt/index.cfm?section=READ_VistorStatistics765.
[8] DBEDT, Cruise Passengers Staying Longer, Spending More, DBEDT News Release, February 19, 2004.

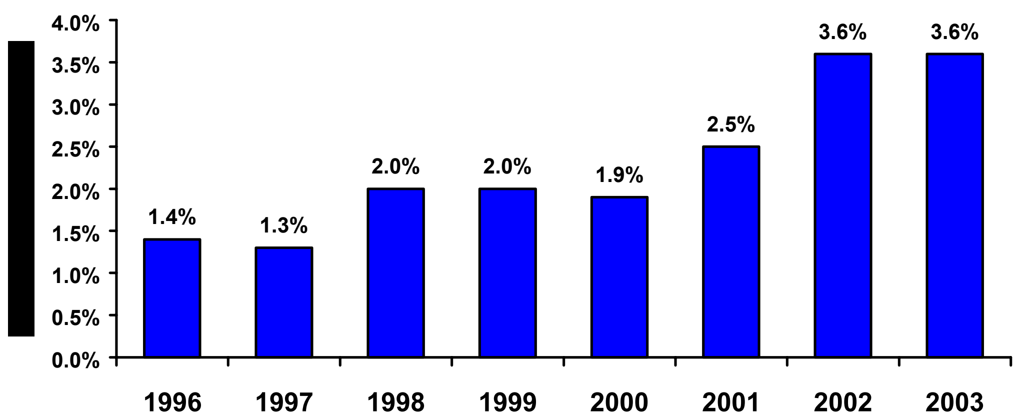
- In 2002 and 2003, Norwegian Cruise Lines (NCL), the primary cruise line in the State of Hawaii, operated the Norwegian Star (permanently based in Hawaii) and the Norwegian Wind in the Hawaii market. These two ships make a combined 63 tours around the State, comprising approximately half of the total tours by all cruise ships.
- Cruise passenger arrivals in Hawaii for 2003 and 2002 were 236,149 and 242,144 respectively, both accounting for approximately 3.6% of the total visitors to Hawaii (Table 2). In terms of visitor expenditures, cruise visitors accounted for about 1.6% of the total visitor expenditures in 2002 and 2003 (Table 3).
- Despite a slight decrease in passenger volume, the average length of stay in 2003 was up 4% from the previous year to 7.2 days. The longer stay has led to a 1.5% increase of total cruise days in 2003 over 2002. Meanwhile, the total visitor days by Out-of-State cruise visitors rose 2.3 % in 2003 compared to 2002.
- The largest group of cruise passengers comes from the U.S. East, accounting for nearly 55% of the total passenger market in 2003. Passengers from the U.S. West comprise the second largest market mix (29%), followed by those from Canada (7%) (Table 4). U.S. East cruise passengers accounted for about 0.9% of the total visitor expenditures in 2002 and 2003 (Table 3).
- Over half of the cruise passengers to Hawaii are repeat visitors. In 2003, nearly 58% of cruise visitors had been to Hawaii before.
- Daily cruise passenger spending rose from $99 per person in 2002 to $101 per person in 2003. This amount includes shore tour costs and other on-shore expenditures such as lodging, food and beverages, entertainment, shopping, transportation, and souvenirs.

**Figure 1 -- Cruise Passenger Arrivals (1996-2003)**




*Source: DBEDT*

**Figure 2 -- Cruise Passenger Share of Total Hawaii Visitor Market (1996-2003)**




*Source: DBEDT*

| Table 2 -- Hawaii Ship Arrivals & Passenger Count (2002-2003) | | | |
|---|---|---|---|
| | **2003** | **2002** | **Growth Rate** |
| **No. of Ship Arrival** | 47 | 57 | -17.5% |
| **No. of Tours*** | 125 | 131 | -4.6% |
| **No. of Passenger** | 236,149 | 242,144 | -2.5% |
| Out-of-State Visitors | 230,495 | 235,027 | -1.9% |
| Arrived by Ship | 29,032 | 63,776 | -10.6% |
| Arrived by Air | 173,463 | 171,251 | 1.3% |
| Hawaii Residents | 5,654 | 7,117 | -20.6% |

* A tour starts when a ship first calls on a Hawaiian port or when all new passengers embark at a Hawaiʻi port. One ship may make several tours around the Hawaiian Islands with a stop at Fanning Island or Christmas Island during the trip.

*Source: DBEDT*

| Table 3 -- Hawaii Visitor Expenditures, Total vs. Cruise Visitors (2002-2003) | | | | |
|---|---|---|---|---|
| | **2003 ($ Million)** | **% of Total Visitor Expenditures** | **2002 ($ Million)** | **% of Total Visitor Expenditures** |
| **Total Visitors** | **10,460.0** | | **10,000.0** | |
| **Total Cruise Out-of-State Visitors** | **169.3** | **1.6%** | **169.1** | **1.7%** |
| US East | 96.3 | 0.9% | 91.5 | 0.9% |
| US West | 41.4 | 0.4% | 44.7 | 0.4% |
| Canada | 11.5 | 0.1% | 11.3 | 0.1% |
| Europe | 5.4 | 0.1% | 3.9 | 0.0% |
| Other | 14.3 | 0.1% | 11.0 | 0.1% |

*Source: DBEDT*

| Table 4 -- Hawaii Cruise Visitors -- Major Market Areas (2002-2003) | | | |
|---|---|---|---|
| **MAJOR MARKET AREAS** | **2003** | **2002** | **Growth Rate** |
| **United States** | 83.1% | 84.9% | -1.8% |
| US West | 28.6% | 30.3% | -1.8% |
| US East | 54.5% | 54.6% | -0.1% |
| **Canada** | 6.5% | 6.6% | -0.1% |
| **Europe** | 2.8% | 2.4% | 0.4% |
| **Other** | 7.6% | 6.1% | 1.5% |

*Source: DBEDT*

## IV. METHODOLOGY

The data which was used to estimate the direct impact of the cruise industry was collected mostly from self-administered surveys, including Cruise Visitor Expenditure Survey, Crew Member Expenditure Survey, Cruise Line Questionnaire, and Shipping Agent Questionnaire.

The indirect and induced effects of the cruise industry were calculated based on 1) the direct impact of the cruise industry by sector, and 2) the output, earnings, job, and state tax multipliers, which were derived from the Hawaii Input-Output Study 1997 (DBEDT, 2002).[9]

### A. Cruise Visitor Expenditures

Total cruise visitor expenditures, including Hawaii residents and Out-of-State visitors, were calculated based on the News Release from DBEDT on Feb 19, 2004 (News Release 04-05). The DBEDT Cruise Visitor Expenditure Study uses a self-administered survey methodology to collect year round data and then estimates cruise visitor expenditure by category (Cruise Visitor Expenditure survey).

A sample was drawn from every trip made by an Out-of-State ship and from all trips made by ships with Hawaiian homeports. A random sample of cabins on each ship was drawn by a random number generator. Surveys were distributed to each ship when it docked in Hawaii. The sample was large enough to represent the passengers on both Out-of-State and Hawaii home-ported ships. A survey packet was then placed in each selected cabin with the assistance of the Pursers' Office to ensure the random sampling was implemented.

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[9] Hawaii Department of Business, Economic Development & Tourism (DBEDT), The Hawaii Input-Output Study 1997 Benchmark Report, March 2002.

Table 5 shows the number of cabins sampled, the number of cabins returned, the cabin response rate, corresponding cruise passenger population, passenger sample size, and the response rate in 2002 and 2003, for both international and domestic (Hawaii home-ported) ships.

| Table 5 -- Cruise Visitor Expenditure Survey Response Rate | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | CABIN | | | PASSENGER | | |
| | | Cabin Sampled | Cabin Returned | Cabin Response Rate | Passenger Population | Passenger Sample | Passenger Response Rate |
| **INTERNATIONAL** | 2002 | 42,279 | 10,127 | 24% | 100,357 | 23,788 | 24% |
| | 2003 | 32,494 | 5,170 | 16% | 86,535 | 12,070 | 14% |
| **DOMESTIC** | 2002 | 57,787 | 17,772 | 31% | 141,444 | 39,448 | 28% |
| | 2003 | 27,482 | 8,811 | 32% | 149,614 | 21,127 | 14% |
| **TOTAL** | 2002 | 100,066 | 27,899 | 28% | 241,801 | 63,236 | 26% |
| | 2003 | 59,976 | 13,981 | 23% | 236,149 | 33,197 | 14% |

Completed surveys are weighted by party size and length of stay, and passenger per person per day (PPPD) expenditure is calculated on a monthly, quarterly, and yearly basis. A sample of the Cruise Visitor Expenditure survey is attached in Appendix A.

## B. Crew Member Expenditures

Crew member expenditures were estimated from data collected from the Crew Member Expenditure survey. The self-administered survey analyzed the crew member expenditures in 2003 by category. It is important to note that this survey was the first survey has ever done in Hawaii, so more detailed analyses are presented in the next section. Surveys were sent to nine different ships, all of which responded. A total of 648 crew members returned the survey for an average response rate of 9.4%.

The per crew member per day expenditures from the sample cruise ships were applied to the cruise ships under the same cruise line. If none of the cruise ships were sampled under the same cruise line, the per crew member per day expenditures from the nine cruise ships were used. The total crew member expenditures per ship was calculated based on 1) per crew member per day expenditures (based on the length of stay including before, during, and after cruise), 2) number of trips, 3) average length of stay, and 4) total number of crew members. A sample of the Crew Member Expenditure Survey is attached in Appendix A.

## C. Cruise Line Expenditures

Part of cruise line expenditures were estimated from the data collected from the Cruise Line Questionnaire. The other part of the expenditures, which includes the port entry, dockage, miscellaneous, and pax fees, were data provided by DBEDT. The Cruise Line Questionnaire was a self-administered survey completed in 2003. Eleven surveys were sent to different cruise lines and four of them responded (36.4% response rate). The four cruise lines covered nine and eight cruise ships in 2002 and 2003, respectively.

To apply the sample cruise line expenditures to all the cruise ships, the sample cruise line expenditures were converted into average cruise line expenditures per visitor day. The cruise line expenditures per cruise ship were calculated based on 1) average cruise line expenditures per visitor day, 2) number of trips per cruise ship, 3) average number of passengers per trip, and 4) average length of stay. A sample of the Cruise Line Questionnaire is attached in Appendix A (one for NCL, one for other cruise lines).

Note that the shipping agents fees provided in the Cruise Line Questionnaire were not included in the calculation to avoid the double counting with the expenditures collected from the Shipping Agent Questionnaire.

## D. Shipping Agent Expenditures

Shipping agent expenditures were estimated based on the data collected from the Shipping Agent Questionnaire done in 2003. It was a self-administered survey. Five surveys were sent out and 2 of them responded (40% response rate). Twelve and seven cruise ships were covered under the two shipping agents in 2002 and 2003, respectively.

To apply the sample shipping agent expenditures to all the cruise ships, the sample shipping agent expenditures were converted into average shipping agent expenditures per visitor day. The total shipping agent expenditures were estimated based on 1) average shipping agent expenditures per visitor day, 2) total number of visitors, and 3) average length of stay. A sample of Shipping Agent Questionnaire is attached in Appendix A.

## E. Related Studies

Survey method is commonly used to estimate the direct impact of cruise industry. For example, MarketQuest used intercept surveys of passengers and crew members to estimate the economic impact of the cruise industry in Atlantic Canada.[10] International Council of Cruise Lines (ICCL) surveyed their member cruise lines and vendors to estimate the impact of North American cruise industry to the U.S. economy and individual states.[11,12] To examine the indirect and induced economic impacts of the cruise industry, economic multipliers were commonly used. [11,13,14]

Two studies have examined the economic impacts of cruise industry in Hawaii, including one prepared for ICCL by Business Research & Economic Advisors (BREA) and the other prepared for Norwegian Cruise Line by PricewatehouseCoopers L.L.P.[12,14] The results of the economic impacts of these two studies are compared with this study and presented in section VII.

ICCL examined the impact of the North American cruise industry to the U.S. economy in 2002. Individual state impact was estimated using the top-down approach. Basically, the total economic impact of the cruise industry in the U.S. was estimated based on the ICCL's member cruise lines' operational and administrative expenditures. Twelve cruise lines representing approximately 90% of the passengers traveled by North American

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[10] MarketQuest Research Group, Economic Impact of the Cruise Ship Industry in Atlantic Canada, prepared for Atlantic Canada Cruise Association, February 2003.

[11] Business Research & Economic Advisors, Contribution of the North American Cruise Industry to the Florida Economy, prepared for Florida-Caribbean Cruise Association, January 2001.

[12] Business Research & Economic Advisors, The Contribution of the North American Cruise Industry to the U.S. Economy in 2002, prepared for International Council of Cruise Lines, August 2003.

[13] Market Economics, The Economic Impacts of Cruise Ship Visits; 2001/02 Season, prepared for The New Zealand Tourism Board and Cruise New Zealand, September 2002.

[14] PricewaterhouseCoopers L.L.P., The Economic Impact of the Proposed Operation of Three U.S.-Flagged Cruise Ships in the Hawaii Market, prepared for Norwegian Cruise Line, January 2003.

cruise ships in 2002 were included. More comprehensive data on vendor purchases were obtained from a smaller group of cruise lines. In addition, other survey data from individual state were used if available. The direct impact of cruise industry to the U.S. economy was distributed to individual state according to several rules: 1) cruise passenger and crew expenditures were based on embarkation and arrival; 2) wages and salaries of cruise lines' shore side employees were based on the location of the administrative facilities; 3) vendor purchases by industry were based on the sample cruise lines data of vendor purchases by state and by industry; 4) travel agent commissions were based on the residence of cruise passengers; 5) air transportation expenditures were based on a combination of the passengers' place of residence and ports of embarkation. Finally, the total economic impact by state was estimated using state- and industry- specific multipliers collected from the Bureau of Economic Analysis.

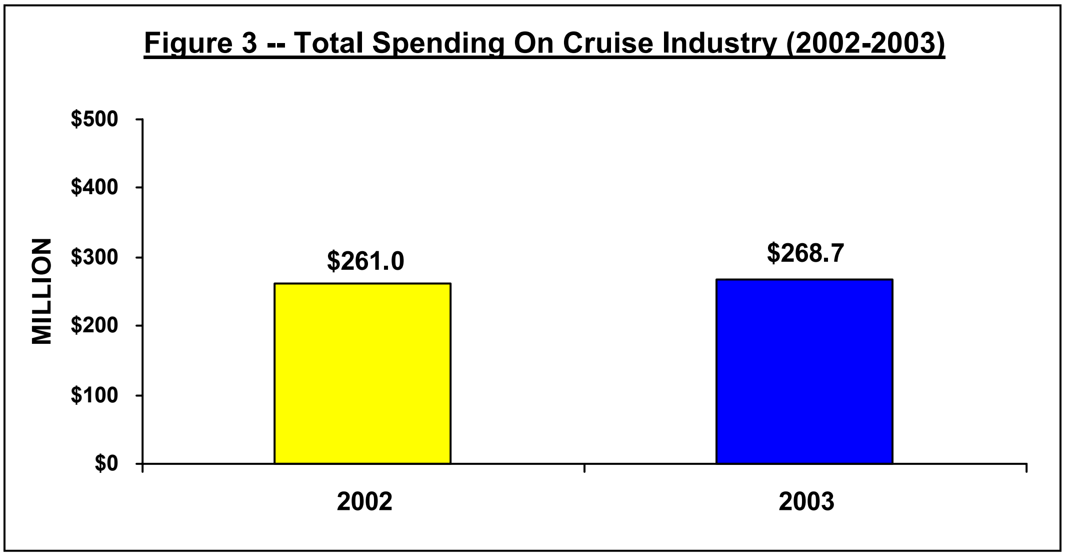
PricewatehouseCoopers L.L.P. examined the economic impact of three cruise ships which proposed to be fully operated in Hawaii in 2006 by Norwegian Cruise Line (NCL). It assumed three cruise ships, each carrying 2,000 passengers, operated year-round on seven-day Hawaii itineraries with Honolulu serving as the homeport. Input-output economic impact multipliers were used to examine the direct and indirect economic impacts of the three cruise ships. Data source included historical operating data of Norwegian Star and passenger expenditures data from DBEDT. Six expenditure categories were included in the analysis, including 1) wages and salaries of the shipboard crew, 2) wages and salaries of shore side employees, 3) cruise ship operating expenditures, 4) passenger expenditures on airfare, 5) passenger expenditures during port calls in Hawaii, and 6) customs, immigration, and passenger taxes.

This study is different from ICCL in that more detailed surveys were implemented in this study when estimating the direct expenditures of visitors, crew members, cruise lines, and shipping agents. Moreover, the surveys in this study were focused on the expenditures on Hawaii's local economy; as a result, less estimation was involved than ICCL's top down approach. Comparing with the study by PricewatehouseCoopers L.L.P., both studies used Hawaii economic multipliers based on input-output model developed by DBEDT;

however, the two analyses are difficult to compare as PricewatehouseCoopers L.L.P. focused on the impact of one particular cruise ship and did not provide a complete overview of the impact of the entire cruise industry on Hawaii's economy.

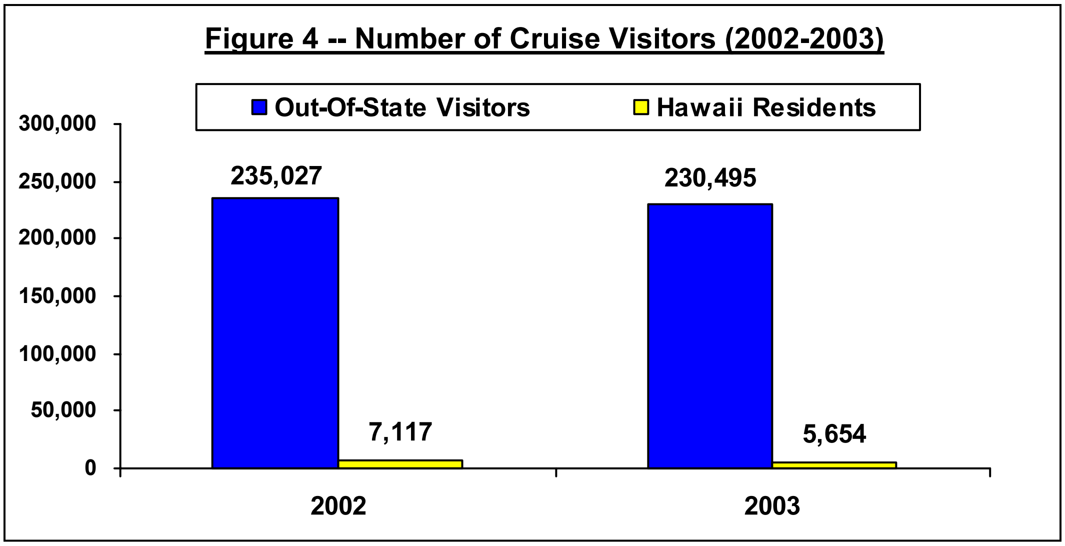
## V. DIRECT IMPACT OF CRUISE INDUSTRY (2002-2003)

### A. Total Size of Hawaii Cruise Industry

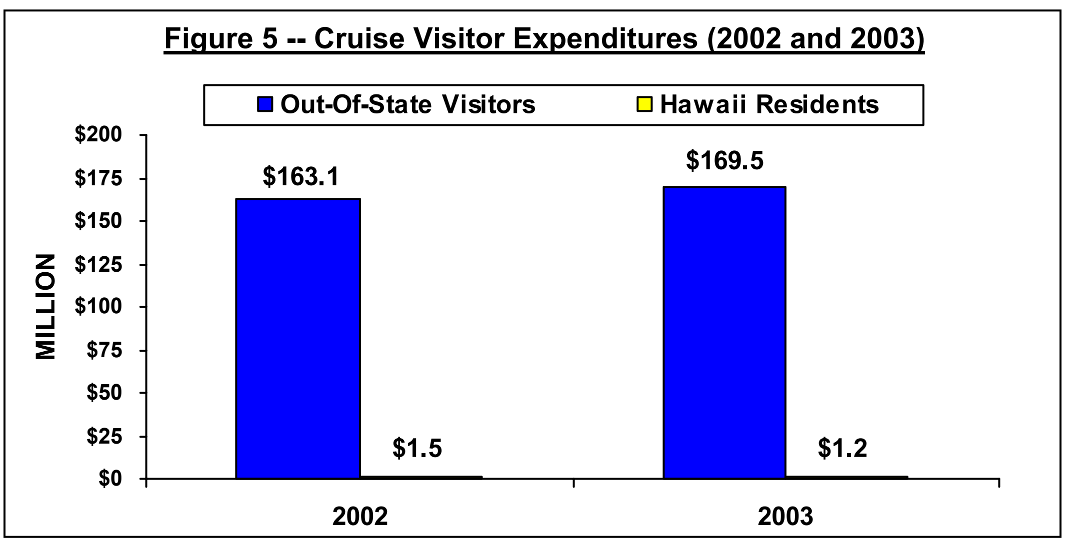



- Total industry spending was $261.0 million in 2002 and $268.7 million in 2003.
- Cruise industry constituted 0.46% and 0.45% of Gross State Product in 2002 and 2003, respectively.
- Cruise industry constituted 1.94% and 1.92% of visitor industry (consumption) in 2002 and 2003, respectively.
- Total economic impact per cruise visitor day was $155.20 in 2002 and $157.47 in 2003.

## B. Cruise Visitors

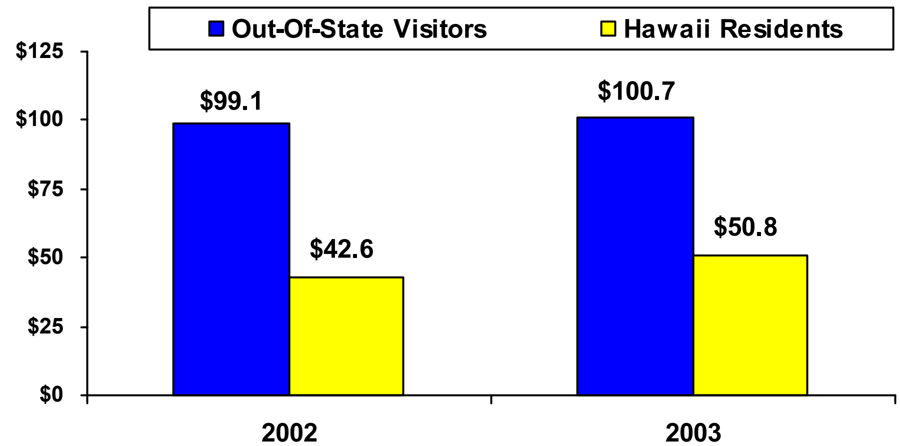



- In 2002, there were 57 ships that came to the State of Hawaii, with a total number of 242,144 cruise passengers.
- In 2003, there were 47 ships that came to the State of Hawaii, with a total number of 236,149 cruise passengers.




- Despite the decrease in volume, cruise visitor impact by Out-of-State visitors and Hawaii residents increased by 3.7% from $164.6 million to $170.6 million. This is due to a 4.3% increase in the length of stay from Out-of-State visitors and a 6.9% increase in average cruise passenger expenditures.

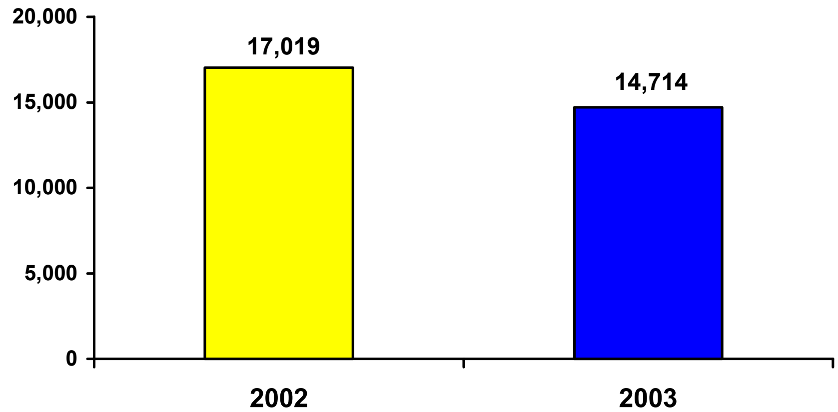
**Figure 6 -- Cruise Visitors' Per Person Per Day Expenditure (2002-2003)**




- In 2002, 97.1% (235,027) of cruise visitors were Out-of-State visitors, with an average per person per day (PPPD) expenditure of $99.08 and an average length of stay of 7.0 days.
- In 2003, 97.6% (230,495) of cruise visitors were Out-of-State visitors, with an average PPPD expenditure of $100.69 and an average length of stay of 7.3 days.
- In 2002, 2.9% (7,117) of the cruise visitors were Hawaii residents, with an average PPPD expenditure of $42.62 and an average length of stay of 5.0 days.
- In 2003, 2.4% (5,654) of the cruise visitors were Hawaii residents, with an average PPPD expenditure of $50.79 and an average length of stay of 4.1 days.

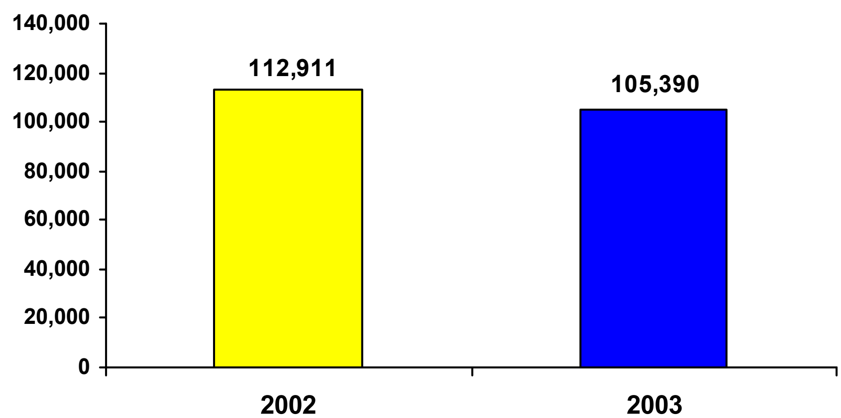
## C. Crew Members

**Figure 7 – Total Number of Crew Members (2002-2003)**

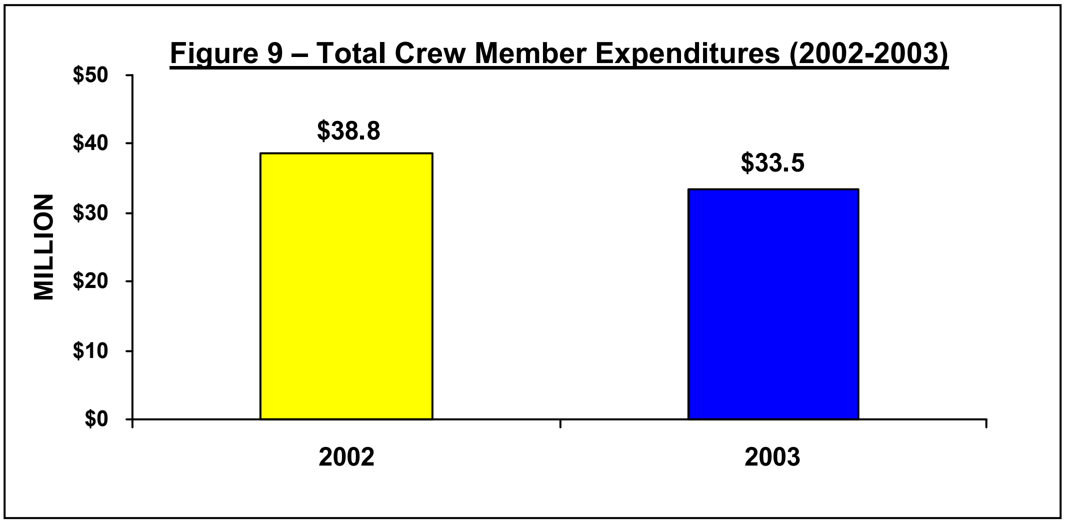



- In 2002, crew members made a total of 135 trips to Hawaii. In 2003, this decreased 8.1% to 124 trips. From the 135 trips to Hawaii in 2002, 17,019 of crew members visited the State. In 2003, crew members on Island cruises dropped to 14,714. The average number of crew members per trip increased slightly (1.6%) from 836 in 2002 to 850 in 2003.

**Figure 8 – Total Crew Member Trips (2002-2003)**

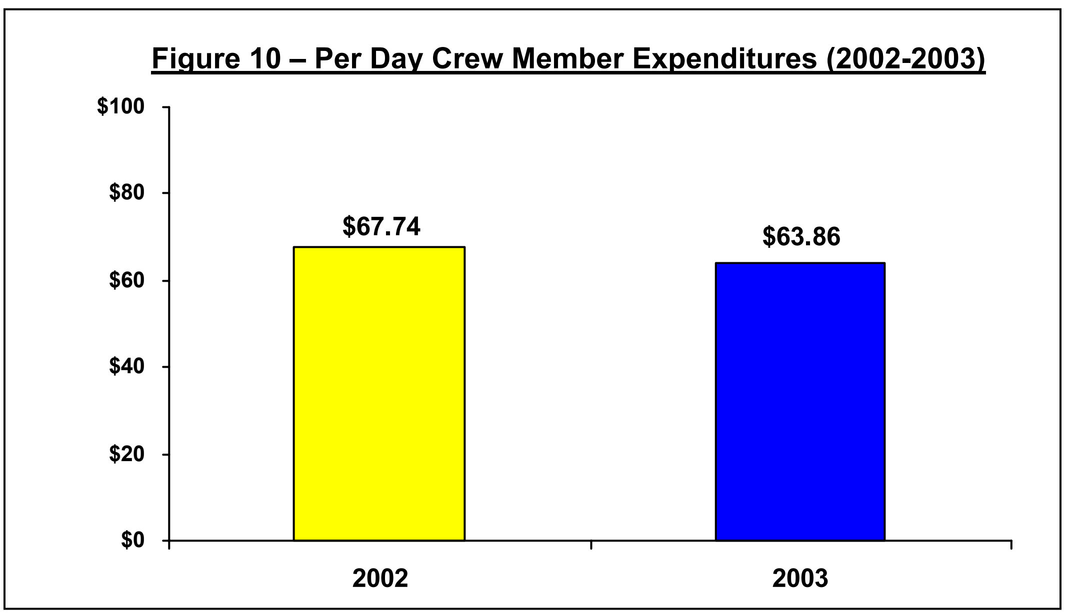



- The total crew member trips is calculated as the summation of the number of trips per ship times the number of crew members per ship. In 2002, crew member trips totaled 112,911 and decreased 6.7% in 2003 to 105,390.




- Total spending by crew members on shore was $38.8 million in 2002 and $33.5 million in 2003.

- The 13.6% decrease in crew expenditures appears to be based on fewer trips to Hawaii in 2003 (135 in 2002 vs. 124 in 2003).



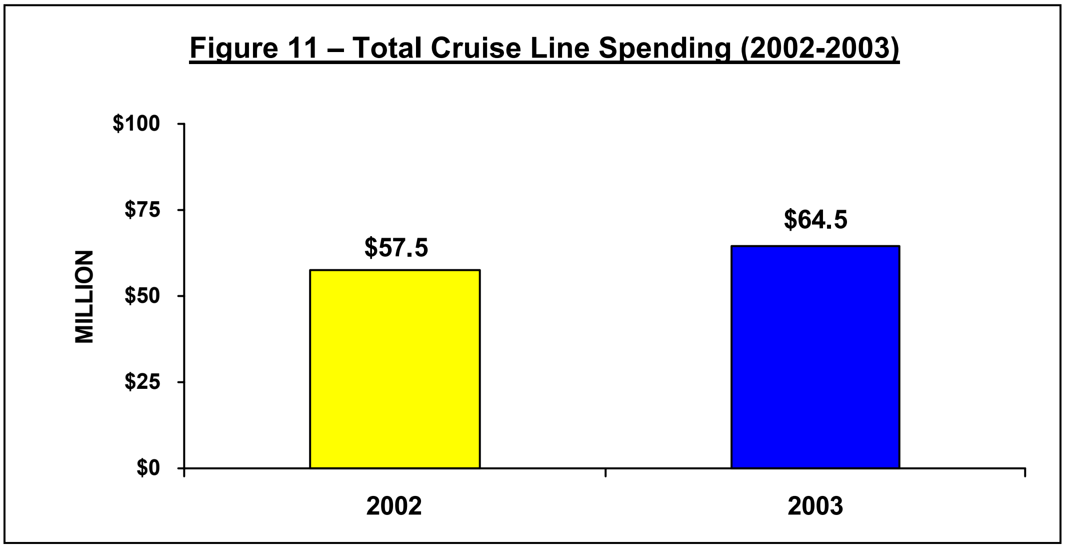

- Based on the estimated 5.1 and 5.0 days length of stay by crew members before, during, and after cruise for 2002 and 2003, respectively, the per day expenditures by crew members was $67.74 in 2002 and changed only slightly to $63.86 in 2003.

In the next section -- Summary of Direct Impacts of Cruise Industry by Industry -- the detailed breakdown of expenditures by industry, by cruise visitor segments (including Hawaii residents, out-of-state visitors, and crew members) and cruise lines are shown in Table 8. Table 6 presents the crew member expenditures by industry. Crew members spent approximately 56% of their spending on shopping. The rest of the spending includes restaurants (12%) and transportation (11%). Note that the total spending in Hawaii in 2002 and 2003 were less than the total crew member expenditures ($38.8 million in 2002 and $33.5 million in 2003) due to imports.

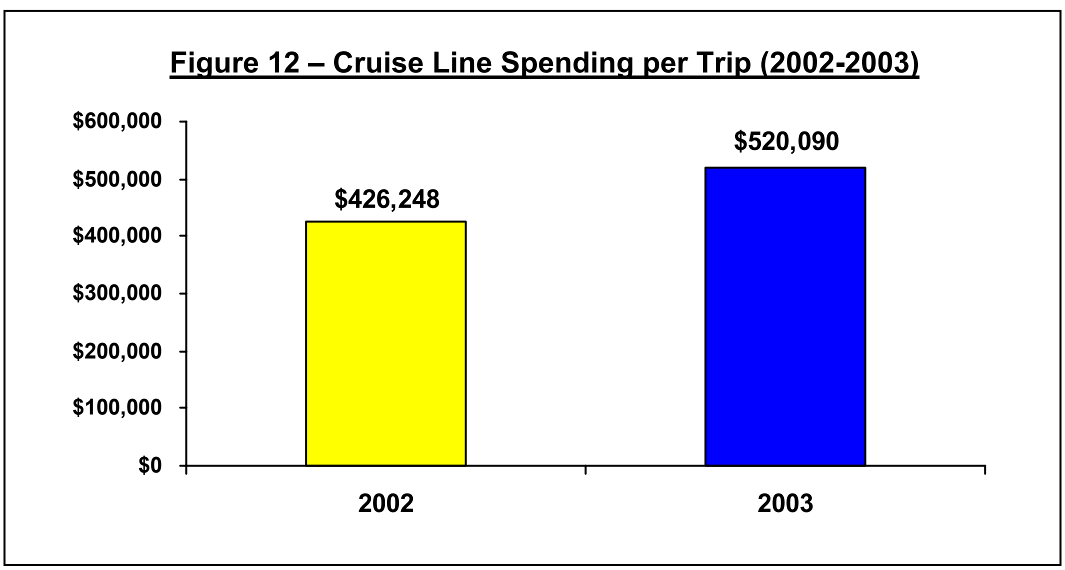
**Table 6. Crew Member Expenditures, 2002 and 2003 ($mil and %)**

| INDUSTRY | 2002 ($mil) | % of 2002 Total | 2003 ($mil) | % of 2003 Total |
|---|---|---|---|---|
| Agriculture | 0.02 | 0% | 0.02 | 0% |
| Construction | 0.00 | 0% | 0.00 | 0% |
| Manufacturing | 1.24 | 4% | 1.07 | 4% |
| Transportation and Utilities | 3.56 | 11% | 3.08 | 11% |
| Trade | 19.11 | 56% | 16.51 | 56% |
| Accommodation | 2.11 | 6% | 1.82 | 6% |
| Eating and Drinking | 4.04 | 12% | 3.49 | 12% |
| Finance, Insurance, and Real Estate | 1.18 | 3% | 1.02 | 3% |
| Other Services | 2.63 | 8% | 2.27 | 8% |
| **TOTAL SPENDING** | **33.89** | **100%** | **29.28** | **100%** |

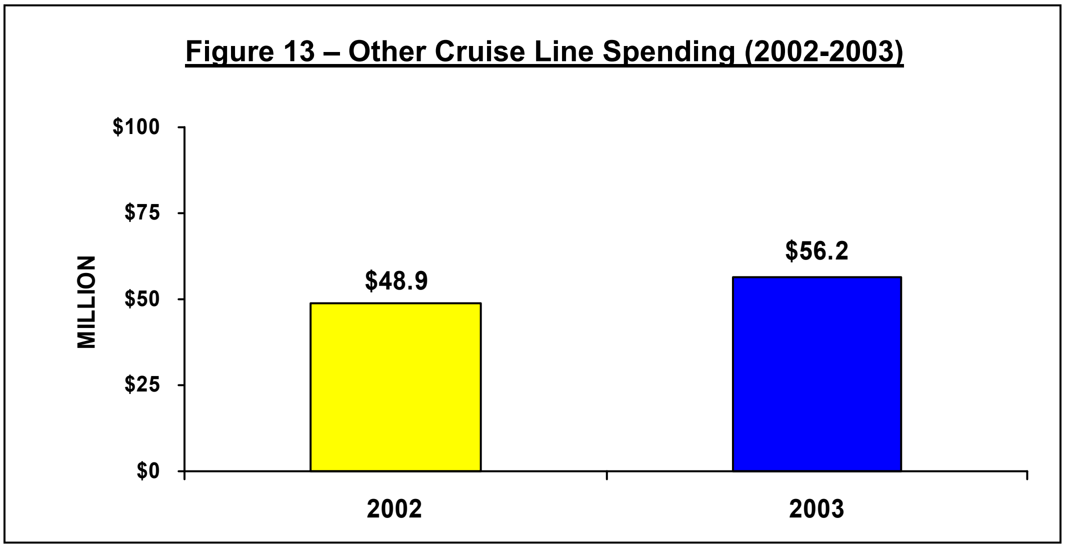
## D. Cruise Lines




- Total spending by the cruise lines includes 1) shipping agent spending, 2) port entry, dockage, misc. and passenger fees, and 3) other spending (estimated from Cruise Line Questionnaire).
- Total spending by cruise lines was $57.5 million in 2002 and $64.5 million in 2003, an increase of 12.1%.

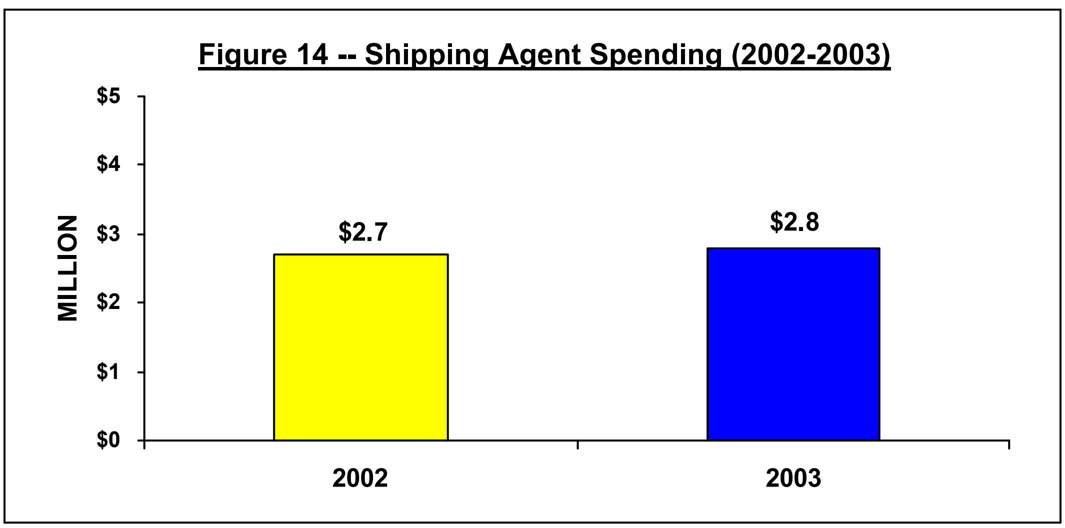



- With 135 trips in 2002 and 124 trips in 2003, cruise line spending per trip was $426,248 and $520,090 in 2002 and 2003, an increase of 22%.



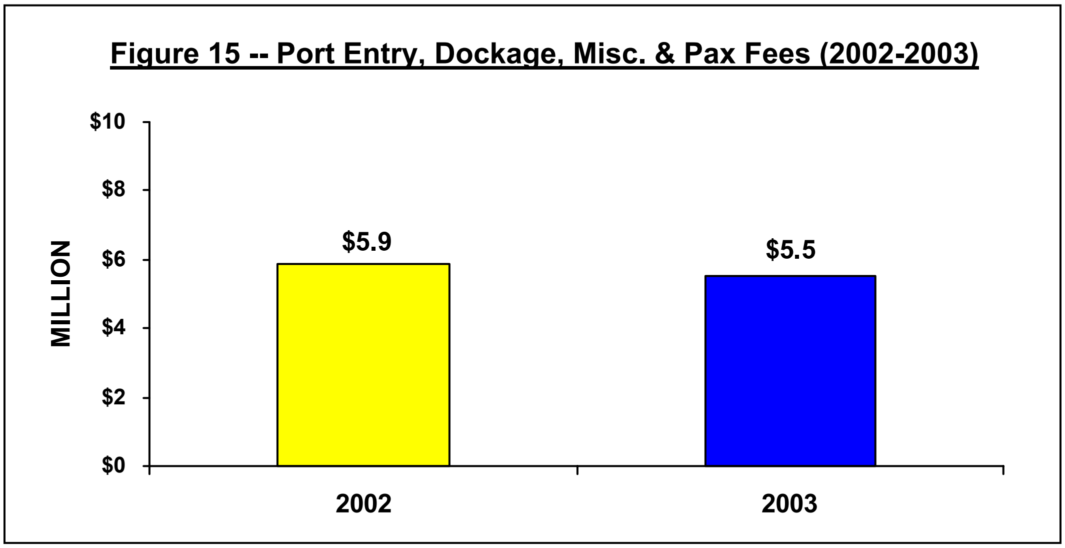

- Spending by cruise lines excluding spending on shipping agents and port entry, dockage, misc., and pax fees, was $48.9 million in 2002 and $56.2 million in 2003, an increase of 14.9%.

## D1. Shipping Agents




- Total spending by shipping agents remained relatively constant over the two-year period analyzed. Shipping agent spending was $2.7 million in 2002 and $2.8 million in 2003.

## D2. Port Entry, Dockage, Misc. and Pax Fees




- Port entry, dockage, misc. and passenger fees were $5.9 million in 2002 and $5.5 million in 2003. The 6.6% decline is tied to lower ship and passenger volume in 2003.

Table 7 shows the summary of the size of the Hawaii Cruise Industry in 2002 and 2003. Detailed break down of cruise industry spending by PPPD, total number of visitors, crew member trips, and length of stay are presented in Table A for 2002 and Table B for 2003 in Appendix B.

**Table 7 -- Total Spending of Cruise Industry in Hawaii (Direct Effect, $)**

| | 2002 | 2003 | Change from 2003 |
|---|---|---|---|
| **Spending by Hawaii Residents** | 1,512,839 | 1,175,991 | -22.3% |
| **Spending by Out-of-State Visitors** | | | |
| Spending by Cruise Visitors | 163,083,698 | 169,470,836 | 3.9% |
| Spending by Cruise Crews | 38,818,810 | 33,536,767 | -13.6% |
| **Cruise Line Spending** | | | |
| Shipping Agent Spending | 2,715,143 | 2,756,538 | 1.5% |
| Port Entry, Dockage, Misc. and Pax Fee | 5,878,999 | 5,490,804 | -6.6% |
| Others Supplies (Fuel, Food, Etc) | 48,949,287 | 56,243,851 | 14.9% |
| **TOTAL SPENDING** | **260,958,776** | **268,674,787** | **3.0%** |
| Percentage Share of Visitor Industry (Consumption) (%) | 1.94% | 1.92% | -1.0% |
| Percentage share of Hawaii GSP (%) | 0.46% | 0.45% | -2.2% |
| **TOTAL SPENDING PER CRUISE VISITOR PER DAY** | **155.20** | **157.47** | **1.5%** |

Note: All the spending are on shore spending, visitor spending for cruising and accommodation on the ships are not included.

## E. Summary of Direct Impacts of Cruise Industry by Industry

Tables 8 and 9 show the break down of spending by visitors, crew members, and cruise lines by industry on Hawaii local economy (imports excluded). In 2002 and 2003, the sector affected most by the cruise industry was accommodation, with $51.9 and $53.4 million direct impact, followed by transportation and utilities ($44.7 million in 2002 and $46.1 million in 2003), trade ($40.7 million in 2002 and $38.7 million in 2003), and eating and drinking ($21.3 million in 2002 and $21.4 million in 2003).

**Table 8 -- Direct Effect of Cruise Industry by Industry, 2002 ($ Million)**

| INDUSTRY | Hawaii Residents | Out-of-State Visitors | Crew Members | Cruise Lines | TOTAL FINAL DEMAND |
|---|---|---|---|---|---|
| Agriculture | 0.00 | 0.28 | 0.02 | 1.33 | 1.63 |
| Construction | - | - | - | 0.18 | 0.18 |
| Manufacturing | 0.01 | 1.58 | 1.24 | 12.80 | 15.64 |
| Transportation and Utilities | 0.29 | 31.66 | 3.56 | 9.17 | 44.68 |
| Trade | 0.18 | 19.41 | 19.11 | 2.00 | 40.70 |
| Accommodation | 0.46 | 49.32 | 2.11 | - | 51.88 |
| Eating and Drinking | 0.16 | 17.10 | 4.04 | 0.03 | 21.34 |
| Finance, Insurance, and Real Estate | 0.08 | 8.42 | 1.18 | 0.05 | 9.73 |
| Other Services | 0.13 | 13.48 | 2.63 | 3.10 | 19.33 |
| **TOTAL SPENDING IN HAWAII** | **1.31** | **141.25** | **33.89** | **28.67** | **205.12** |

**Table 9 -- Direct Effect of Cruise Industry by Industry, 2003 ($ Million)**

| INDUSTRY | Hawaii Residents | Out-of-State Visitors | Crew Members | Cruise Lines | TOTAL FINAL DEMAND |
|---|---|---|---|---|---|
| Agriculture | 0.00 | 0.29 | 0.02 | 4.00 | 4.30 |
| Construction | - | - | - | 0.15 | 0.15 |
| Manufacturing | 0.01 | 1.64 | 1.07 | 14.45 | 17.17 |
| Transportation and Utilities | 0.23 | 32.90 | 3.08 | 9.90 | 46.11 |
| Trade | 0.14 | 20.17 | 16.51 | 1.83 | 38.65 |
| Accommodation | 0.36 | 51.25 | 1.82 | - | 53.42 |
| Eating and Drinking | 0.12 | 17.77 | 3.49 | 0.04 | 21.43 |
| Finance, Insurance, and Real Estate | 0.06 | 8.75 | 1.02 | 0.08 | 9.91 |
| Other Services | 0.10 | 14.01 | 2.27 | 3.00 | 19.37 |
| **TOTAL SPENDING IN HAWAII** | **1.02** | **146.78** | **29.28** | **33.45** | **210.53** |

## VI. INDIRECT IMPACT OF CRUISE INDUSTRY (2002-2003)

### A. Indirect Impact Calculation

- Gross State Product from cruise industry includes the domestic demand by cruise visitors, crew members, cruise lines, and shipping agents.

- Direct earnings and direct total jobs were derived based on the ratio of cruise visitor and crew member expenditures relative to the output by industry from the 1997 I-O table, and then applied that ratio to the earnings by industry and the number of jobs by industry from the 1997 I-O table.

- State and County Taxes were calculated based on 1) 4.16% of the total expenditures from cruise visitors and crew members; 2) income taxes from the direct earnings (assume 17%); and 3) reported G.E.T from Cruise Line Questionnaire.

- Output, Earning, and State Tax Multipliers were derived from the 1997 I-O table and Job Multipliers were based on the 2002 and 2003 Total Jobs Multipliers provided by DBEDT.

- Cruise visitor (including residents and Out-of-State visitors) expenditures followed the same expenditure and import patterns as the visitor expenditures in the 1997 I-O table.

- Crew member expenditures by industry was derived based on the data collected from the Crew Member Expenditure survey and imports by industry followed the same pattern as the imports by industry in the 1997 I-O table.

- For cruise line and shipping agent expenditures, their import shares followed the same import pattern as water transportation industry in the 1997 I-O table.

Tables 10 and 11 show the size of the Hawaii cruise industry (direct, indirect, and induced effects) in 2002 and 2003, respectively. Table 12 shows the difference in dollars of the size of Hawaii cruise industry from 2002 to 2003 and Table 13 shows the percentage difference.

The total direct and indirect effects of cruise industry on Hawaii GSP were about $286.3 and $293.7 million in 2002 and 2003, respectively. The direct and indirect effects of the cruise industry on earnings were about $82.2 and $84.0 million in 2002 and 2003, respectively. Directly and indirectly, the Hawaii cruise industry generated $32.6 and $33.3 million of state and county taxes and created 3,550 and 3,579 jobs in 2002 and 2003, respectively.

Including the induced effects, the Hawaii cruise industry in 2002 and 2003 generated approximately $381.1 and $390.5 million of GSP, $108.1 and $110.4 million of earnings, $37.4 and $38.2 million of state and county taxes, and created approximately 4,547 and 4,582 jobs, respectively.

**Table 10 -- Size of Hawaii Cruise Industry, 2002**

| | Direct ($ Million) | Direct and Indirect ($ Million) | Direct and Indirect and Induced ($ Million) |
|---|---|---|---|
| Gross State Product | 205.12 | 286.31 | 381.07 |
| Earnings | 61.56 | 82.20 | 108.09 |
| State & County Taxes | 22.70 | 32.63 | 37.41 |
| **TOTAL JOBS** | **2,962** | **3,550** | **4,547** |

**Table 11 -- Size of Hawaii Cruise Industry, 2003**

| | Direct ($ Million) | Direct and Indirect ($ Million) | Direct and Indirect and Induced ($ Million) |
|---|---|---|---|
| Gross State Product | 210.53 | 293.68 | 390.47 |
| Earnings | 62.74 | 83.96 | 110.40 |
| State & County Taxes | 23.34 | 33.33 | 38.21 |
| **TOTAL JOBS** | **3,021** | **3,579** | **4,582** |

| Table 12 -- Changes of the Size of Hawaii Cruise Industry from 2002 to 2003 ($ Difference) | | | |
|---|---|---|---|
| | Direct ($ Million) | Direct and Indirect ($ Million) | Direct and Indirect and Induced ($ Million) |
| Gross State Product | 5.41 | 7.37 | 9.39 |
| Earnings | 1.18 | 1.76 | 2.31 |
| State & County Taxes | 0.64 | 0.70 | 0.80 |
| **TOTAL JOBS** | **59** | **29** | **35** |

| Table 13-- Changes of the Size of Hawaii Cruise Industry from 2002 to 2003 (% Difference) | | | |
|---|---|---|---|
| | Direct | Direct and Indirect | Direct and Indirect and Induced |
| Gross State Product | 2.64% | 2.57% | 2.46% |
| Earnings | 1.92% | 2.14% | 2.14% |
| State & County Taxes | 2.81% | 2.15% | 2.14% |
| **TOTAL JOBS** | **1.99%** | **0.80%** | **0.77%** |

## B. Summary of Indirect Impacts of Cruise Industry by Industry

Table 14 summarizes the direct and indirect effects of the cruise industry by industry and table 15 includes the induced effect. The total direct and indirect effects on GSP by the Hawaii cruise industry were approximately $286 million in 2002 and $294 million in 2003. Including the induced effect, the total effects on GSP added up to $381 million in 2002 and $390 million in 2003. The industry that was affected most by the cruise industry was accommodation, which was approximately 26% of the total GSP effect; whereas transportation and utilities amounted to 21% and trade amounted to 20%. The total direct, indirect, and induced effects on earnings were $108 and $110 million in 2002 and 2003, respectively. About 28% of them were related to accommodation, 21% related to transportation and utilities, and 20% related to trade. Total state and county taxes effects were $37 million in 2002 and $38 in 2003; whereas accommodation generated 27% of the taxes, transportation generated 25%, and trade generated 23%. In terms of the total jobs effect, about 4,600 of jobs were generated by cruise industry in 2002 and 2003. Approximately 24% of the jobs belong to accommodation, another 24% belong to trade sector, and 16% belong to transportation and utilities. Approximately 14% of the jobs were eating and drinking and another 14% were other services.

| Table 14 -- Direct and Indirect Effects of Cruise Industry by Industry (2002-2003) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Gross State Product ($ Million) | | Earnings ($ Million) | | State & County Taxes ($ Million) | | Jobs | |
| **INDUSTRY** | **2002** | **2003** | **2002** | **2003** | **2002** | **2003** | **2002** | **2003** |
| Agriculture | 2.39 | 6.30 | 0.69 | 1.84 | 0.16 | 0.43 | 51 | 134 |
| Construction | 0.25 | 0.21 | 0.09 | 0.08 | 0.03 | 0.02 | 3 | 2 |
| Manufacturing | 20.36 | 22.04 | 2.77 | 2.94 | 0.68 | 0.71 | 105 | 107 |
| Transportation and Utilities | 61.66 | 63.60 | 16.99 | 17.58 | 8.01 | 8.55 | 520 | 525 |
| Trade | 55.84 | 53.08 | 17.61 | 16.71 | 7.95 | 7.53 | 918 | 857 |
| Accommodation | 73.42 | 75.60 | 22.59 | 23.26 | 8.76 | 9.01 | 806 | 817 |
| Eating and Drinking | 31.09 | 31.22 | 9.06 | 9.10 | 2.82 | 2.83 | 539 | 534 |
| Finance, Insurance, and Real Estate | 14.56 | 14.82 | 2.49 | 2.53 | 1.35 | 1.37 | 99 | 100 |
| Other Services | 26.75 | 26.80 | 9.90 | 9.92 | 2.87 | 2.87 | 510 | 502 |
| **TOTAL** | **286.31** | **293.68** | **82.20** | **83.96** | **32.63** | **33.33** | **3,550** | **3,579** |

| Table 15 -- Direct, Indirect, and Induced Effects of Cruise Industry by Industry (2002-2003) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Gross State Product ($ Million) | | Earnings ($ Million) | | State & County Taxes ($ Million) | | Jobs | |
| **INDUSTRY** | **2002** | **2003** | **2002** | **2003** | **2002** | **2003** | **2002** | **2003** |
| Agriculture | 3.19 | 8.43 | 0.91 | 2.42 | 0.20 | 0.53 | 60 | 156 |
| Construction | 0.35 | 0.30 | 0.12 | 0.10 | 0.03 | 0.03 | 4 | 3 |
| Manufacturing | 23.56 | 25.43 | 3.64 | 3.86 | 0.84 | 0.89 | 138 | 143 |
| Transportation and Utilities | 81.25 | 83.86 | 22.35 | 23.11 | 9.00 | 9.57 | 726 | 735 |
| Trade | 76.15 | 72.34 | 23.16 | 21.97 | 8.97 | 8.51 | 1,131 | 1,057 |
| Accommodation | 99.46 | 102.42 | 29.71 | 30.59 | 10.07 | 10.37 | 1,080 | 1,095 |
| Eating and Drinking | 41.53 | 41.70 | 11.91 | 11.96 | 3.34 | 3.36 | 649 | 643 |
| Finance, Insurance, and Real Estate | 17.43 | 17.74 | 3.27 | 3.33 | 1.49 | 1.51 | 129 | 130 |
| Other Services | 38.17 | 38.25 | 13.02 | 13.05 | 3.45 | 3.45 | 630 | 621 |
| **TOTAL** | **381.07** | **390.47** | **108.09** | **110.40** | **37.41** | **38.21** | **4,547** | **4,582** |

## VII. SUMMARY OF RESULTS

### A. Economic Impacts Comparison

The economic impacts of cruise industry in Hawaii in this study were between the estimates of ICCL and PricewaterhouseCoopers L.L.P. According to the ICCL report, the direct cruise spending in Hawaii was $146.3 million in 2002, creating an estimated 2,452 direct jobs and payroll of $82 million of income. These numbers are all lower than this study's estimates. On the other hand, PricewaterhouseCoopers L.L.P. estimated that the proposed three cruise ships will generate about $496.2 million of direct impact, $270.6 million of earnings and approximately 10,200 of jobs. The higher estimates can be explained by PricewaterhouseCoopers L.L.P.'s assumption that 60% of the payroll will be earned by Hawaii residents and higher percentage of the portions of goods and services will be purchased locally.

Note that the estimates by PrincewaterhouseCoopers L.L.P. are forward looking in 2006 when three cruise ships are fully operated in Hawaii as Honolulu is served as the homeport, whereas the results of DBEDT and ICCL are historical results of 2002, where no cruise ship was using Honolulu as the homeport. Whether Honolulu served as the homeport creates a potential big difference in the estimates since the local purchases, employment of Hawaii residents, and Hawaii tax revenues could be substantially different. In addition, the estimates by PricewatehouseCoopers L.L.P. only focused on the impact of one particular cruise line and did not provide a complete overview of the impact of the entire cruise industry on Hawaii's economy.

There is also difference in the assumption of PPPD spending between PricewaterhouseCoopers L.L.P. and DBEDT. PricewaterhouseCoopers L.L.P. assumed cruise visitors spent $123 PPPD during port calls, and pre- and post-cruise stays in Hawaii while DBEDT assumed cruise visitors from out-of-state visitors and Hawaii residents spent on average of $97.9 PPPD in 2002. The higher spending from PricewaterhouseCoopers L.L.P. was due to the assumption that a disproportionate share of Norwegian star passengers are from U.S. East, who tend to spend more than visitors from other areas while DBEDT's estimate was based on self-administered survey, which included cruise visitors from different parts of the world.

The different estimates by ICCL and this report can be explained by the different approaches in collecting the data. Self-administered surveys were implemented in this study when estimating the direct expenditures of visitors, crew members, cruise lines, and shipping agents and less estimation was involved than ICCL's top down approach.

**Table 16 -- Comparison of Cruise Impact in Hawaii**

| | GSP Direct Impact ($ Million) | Direct, Indirect, and Induced Earnings ($ Million) | Direct, Indirect, and Induced Jobs |
|---|---|---|---|
| DBEDT | 205.1 | 108.1 | 4,547 |
| ICCL | 146.3 | 82.0 | 2,452 |
| PricewaterhouseCoopers L.L.P. | 496.2 | 270.6 | 10,200 |