Risk Management of Vessel Traffic

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Risk Based Approach

- Evaluate Ship Traffic/Waterways
- Implement Risk Mitigation Measures
- International and Federal Standards for International and Coastal Shipping
- Regulatory and Non-Regulatory
- Implement Continuous Improvement
Diverse Vessel Traffic Mix

- Auto Carriers
- Bulkers
- Containerships
- Cruise
- General Cargo
- Refrigeration
- Roll On/Roll Off
- Tankers and ATB’s
- Ocean-Going Tugs
- Special; Heavy Lift…
CARGO SHIP ARRIVALS
1992 THRU 2014

ALL DEEP DRAFTS

ALL CARGO VESSELS

CONTAINER VESSELS

BULK VESSELS


3247 2646 2621

3000 2500 2000 1500 1000 500 0

1816 1058 1114 981 343

TOTAL ARRIVALS PUGET SOUND
CARGO VSL PUGET SOUND
CONTAINER VSL PUGET SOUND
BULK
Linear (TOTAL ARRIVALS PUGET SOUND)
Linear (CARGO VSL PUGET SOUND)
Poly. (CONTAINER VSL PUGET SOUND)
Linear (BULK)
Vessel Arrival Traffic Decreased from Peak


✓ Cargo Vessels **Down** 830 from Peak
✓ Cruise **Up** from zero to an average of 200
✓ Tankers **Down** 216 from Peak in Yr 2000
✓ ATB Traffic **Up** from Zero to 250

**FUTURE?**

- Intensifying Port Competitiveness Impact?
- New Proposed Projects Impact?
How is Vessel Risk Managed?

Comprehensive Marine Safety System

- International, Federal & Other Standards
- Vessel Traffic System - Deep, Wide Waterways, Cooperative VTS Management between US/Canada
- Monitoring, Inspections, Enforcement
- Port State Control – Eliminate Substandard Vessels
- Tug Escort, Tug Assist, Pilots
- Double Hulls for Tankers & Cargo Vessel Fuel Tanks
- Enhanced Navigation & Crew Competency
- Harbor Safety Plan – Standards of Care

Continuous Improvement a Key
Leverage Deep Wide Waterways for Safety

Container Vessel Departing Tacoma
Added Vessel Traffic Service to Traffic Lanes
Providing Order, Predictability and Safety
Improve VTS with Technology, Training

**History:** Movement Reporting → Radar → AIS
FEATURES

It's easy to know exactly where you are and what other vessels are around you. You can also chat with friends on other boats, find the best fuel and dockage prices, see your way in low visibility, and much more.

**Smart Chart AIS gives you:**

- Electronic Charts
- AIS (Automatic Identification System) via cellular networks
- Augmented Reality (see your way into the harbor or anchorage even in the fog or dark)
- Social Networking
- All on your Smartphone or Tablet. And it's completely free!
21st Century Waterways
“Nav Display In Years Past”
Future Capability
Notice to Mariners – What do you need?
How do you want it delivered?
Implemented a Cooperative Vessel Traffic Service (CVTS) Using VTS Operations from Both Countries
When VTS intervenes?

- Vessel call-in
- Vessel course
- Aids to Nav marking Hazards

Lesson Learned = New Harbor Safety Plan Standard of Care
Port State Control Safety and Environmental Protection Compliance Targeting Matrix

**Total Targeting Score**
(Sum of Columns I-V) determines vessels priority (PI, PIL, or NPV)
Ships Screened, Monitored...Inspections/Enforcement

STEP 1
Provide 96 Hour Advance Notice of Arrival

STEP 2
Risk Based Screening of Vessels prior to Entry

STEP 3
Pre-Arrival Safety Tests

STEP 4
Check Into Traffic System

Vessel Approaching Puget Sound Area to Be Avoided
Olympic Coast National Marine Sanctuary

SEATTLE BELLINGHAM

VICTORIA, B.C.

PORT ANGELES

BELLINGHAM

TACOMA

SEATTLE
Traffic Routing Scheme Provides Order & Predictability (Joint Ops – US/Canada)

Pick up Tug Escorts for Laden Tankers

Implement Applicable Harbor Safety Plan Standards of Care

Pick Up a Pilot Conduct a Port State Control Boarding if Targeted (or farther out)

Vessel Entering the Strait of Juan de Fuca
Example: US/Canada Vessel Traffic Management Continuous Improvement

New Entrance

Old Entrance

Area To Be Avoided
Pilotage in Both US and Canada is Comparable

Both using Portable Pilot Units Now
Laden Tanker Tug Escort: US, Canadian Laden Tanker Tug Escort Schemes are Comparable
Vessel Design Improvements
Example: Larger Container Ships

New Technology and Ship Design Improvements like Protectively Located Fuel Tanks
“PARTNERSHIP FOR SUCCESS”

The informal organizational structure and mutual cooperation of its members have allowed HSC to become the ideal model for balancing the needs of various interests in the marine environment whether they are economic, environmental recreational, regulatory or national defense.

www.pshsc.org
Harbor Safety Plan

Continuous Improvement through Standards of Care (SOC’s)

- Modified Propulsion Loss Prevention Standard of Care (SOC) to address fuel switching
- Modified Anchoring SOC regarding severe weather
- Tug/Barge Situational Awareness SOC for Rosario Strait
- Deadship Tow Standard Developed
- Crane Ops SOC During Vessel Movement
Safety Net + Deep Wide Waterways = Safe System

Container Vessel Departing Tacoma
Results
Volume of Oil and Number of Spills
All Vessel Types in U.S. Waters

PNW Performance: Zero Spills by Cargo Vessels Transiting to/from Puget Sound Ports Since Recordkeeping Started in 1972
Worldwide Oil Spill Trends

Figure 4: Number of medium (7–700 tonnes) and large (> 700 tonnes) spills per decade from 1970 to 2012.
Summary

We Have a Very Safe System

BUT....

- Must Use Lessons Learned
- Adapt to Changes in Vessel Traffic
  Ongoing Studies Help to Identify Improvements
- Ensure System Checks and Balances
- Culture of Safety & Continuous Improvement