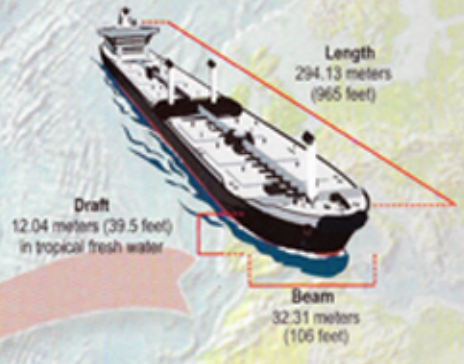
Maximum dimensions allowed



General information on the Panama Canal

- Locks chambers are 33.5 meters wide, 305 meters long, and 26 meters deep.
- Instead of using salt water for its operations, the Canal uses fresh water from the watershed rivers. For the Canal to use salt water, it would have to be pumped from sea level, 26 meters below the waterway channel. The cost of installing and maintaining such pumps would be exhorbitant, while the salt water would corrode locks mechanisms and destroy vegetation.
- The tallest and heaviest Canal miter gates are on the Pacific side at the southern entrance of Miraflores Locks and were designed to handle the Pacific coast's extreme tide fluctuations. The gates are 25 meters high and each weighs 730 tons.
- The Panama Canal locks have a total of 40 pairs of miter gates, all dating back to Canal construction days. Each set of miter gates undergoes maintenance every 10 to 15 years; for this process they are removed and transported to the Industrial Division dry dock on the Atlantic side.
- An average vessel transiting the Canal pays approximately $45,000 in tolls. Transiting ships pay Canal tolls in advance at an authorized local bank, usually through their shipping agents.

ACP

Historical facts

- During Canal construction days, over 200 million cubic yards of material were removed, almost half of which came from Gaillard or Culebra Cut alone. Were this material to be placed on railroad flatcars, it would circle the globe four times.
- On January 7, 1914, the floating crane *Alexander La Valley* made the first complete transit of the Canal. However, the waterway's official inauguration took place on August 15, 1914, with the transit of the *SS Ancon*.
- In 1928, Richard Halliburton paid 36 cents in tolls to swim the Canal. It took him ten days, from August 14 to August 23, to complete his journey.
- The Miraflores Swing Bridge, which was inaugurated on May 20, 1942, provided vehicles with the first permanent mode of ground transportation through the Canal.
- The Canal initiated round-the-clock operations in May 1963, with the installation of new fluorescent lighting in Gaillard Cut and the three sets of locks.
- The first widening of Gaillard Cut, from its original 91 meters to 152, took 16 years to be completed, from 1954 to 1970.

Additional information

Additional information on the Panama Canal may be requested by writing to the Panama Canal Authority, Corporate Communications Division, Balboa-Ancon, Republic of Panama (local), or P.O. Box 5413, Miami, Fl 33102-5413, U.S.A. (international). You may also send an e-mail to info@pancanal.com, call + (507) 272-3202 or 272-3165, or visit our website at http://www.pancanal.com.

The Panama Canal

Modernization and improvements

The ACP is constantly preparing and updating long-term plans and programs for a variety of maintenance and improvement projects. These include deepening, widening, and straightening certain areas of the channel; replacing worn or obsolete equipment; routine overhauls of the locks structures and equipment; and a continuous dredging program throughout the entire waterway.

The Panama Canal Authority is in the midst of an aggressive $1 billion modernization and improvement program to guarantee safe and efficient operation of the Canal and increase its capacity well into the future.

The most important components of the modernization and improvement program include, counterclockwise from the left, the modernization of the locks equipment control systems, the augmentation of the tug fleet, the purchase of newer and more potent locks locomotives, and the modernization of the Vessel Traffic Management System. Below, the widening of Gaillard or Culebra Cut will allow virtually unrestricted two-way Panamax traffic through the narrow stretch.

Principal trade routes using the Canal

From the East Coast of the U.S. to Asia

From the East Coast of the U.S. to the West Coast of South America

From Europe to the West Coast of the U.S. and Canada

Principal commodities

Grains
Containerized cargo
Petroleum and derivatives

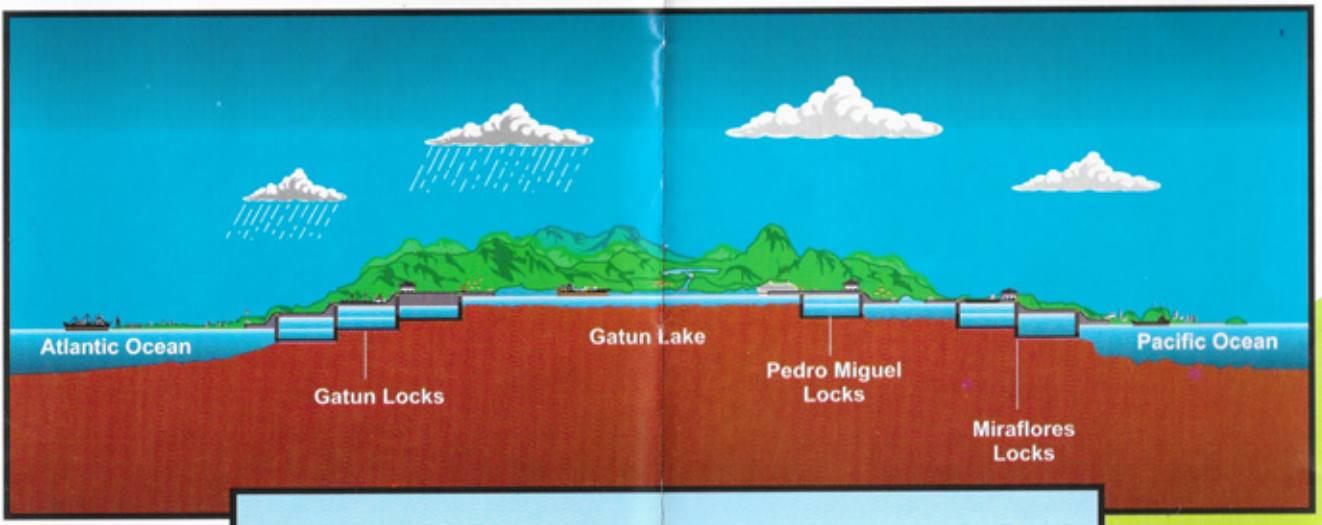
Toll rates

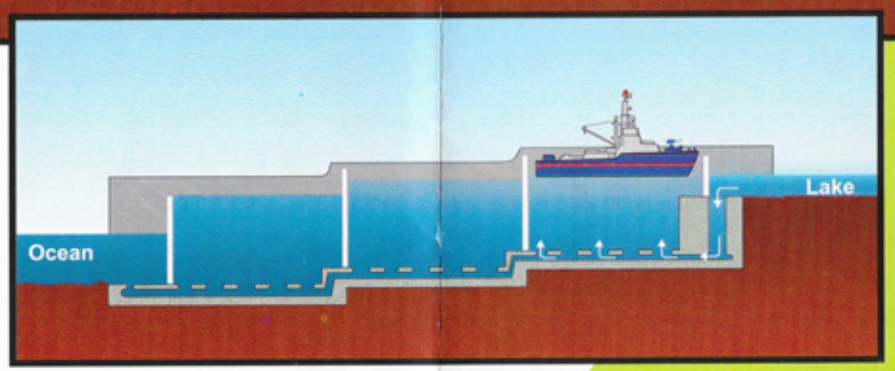
Toll rates
(in effect since January 1, 1998)

Laden	$2.57 per Panama Canal Net Ton
Ballast	$2.04 per Panama Canal Net Ton
Other	$1.43 per Displacement Ton
Vessels - 100 feet	$1,500 per vessel
Vessels 80 to 100 feet	$1,000 per vessel
Vessels 50 to 80 feet	$750 per vessel
Vessels 50 feet	$500 per vessel

Transit reservations

This service is available to a limited number of vessels and allows reservation of transit slots, up to a year in advance, by paying a preferential fee.





A complex system of culverts and valves controls the level of water required to elevate and lower the ships inside the locks.

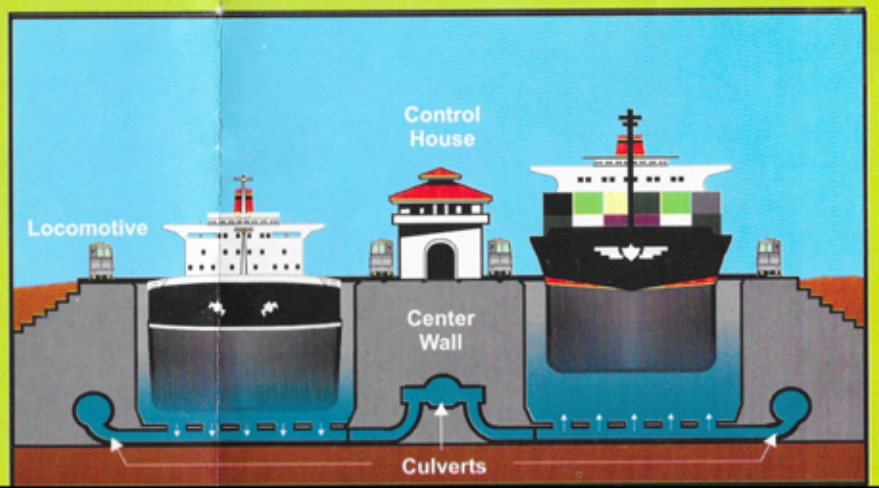
ACP
AUTORIDAD DEL CANAL DE PANAMÁ

ultimately flushed into the sea. Each set of locks features a Control House on the center wall of its higher chamber, from which this entire operation is directed.

Though vessels use their own propulsion for the greater part of their Panama Canal transit, they are assisted, when passing through the locks, by electric locomotives which use cables to align and tow the ships. Working in pairs, locomotives move on rails and keep the vessels in position within the locks chambers. Depending on its size, a vessel can require the assistance of four to eight locomotives.

The 12.6 kilometer Gaillard or Culebra Cut is the narrowest stretch in the Panama Canal, representing 15 percent of the waterway's total length. The Cut, extending from the Pedro Miguel Locks to Gamboa, crosses the Continental Divide. This section of the waterway is currently being widened from 152 to 192 meters in straight areas, and up to 222 meters on curves.

The project, scheduled for completion by the end of 2001, will allow for virtually unrestricted two-way passage for Panamax vessels, increasing Canal capacity and safety while reducing transit time.



the panama canal

The Republic of Panama assumed full responsibility for the administration, operation, and maintenance of the Panama Canal at noon on December 31, 1999. Panama meets its responsibilities through the Panama Canal Authority (ACP), a government entity established by Panama's Political Constitution, through Law 19 of June 11, 1997.

The ACP, an autonomous entity of the Panamanian government, is regulated by its own organic law and regulations approved by its Board of Directors. The ACP is solely responsible for the operation, administration, maintenance, improvement, and modernization of the

legal constitutional regulations. Thus, Panama Canal operations are guaranteed to be safe, efficient, and profitable. The ACP is headed by an Administrator and a Deputy Administrator, under the supervision of an 11-member Board of Directors that is primarily responsible for establishing policies concerning Canal operation, improvement, and modernization.

The Panama Canal is the inalienable patrimony of the Panamanian nation, and therefore can neither be sold, transferred, mortgaged, nor in any way levied or alienated. The main objective of the legal framework established for the ACP is to maintain the conditions that enable the Canal to provide peaceful and uninterrupted service to the maritime community and international commerce.

How does the Panama Canal work?

The Panama Canal is a lock-type canal, approximately 80 kilometers long, that unites the Atlantic and Pacific Oceans at one of the narrowest points of both the Isthmus of Panama and the American continent. The Canal officially opened its doors to international trade on August 15, 1914, and since then, more than 850,000 vessels have transited the waterway.

The Canal's three sets of locks, each of which has two lanes, serve as water lifts which elevate ships 26 meters above sea level to Gatun Lake. Here they cross the Continental Divide, to then be lowered back to sea level on the opposite side of the Isthmus. During these lockages, which use water obtained from Gatun Lake, the miter gates seal the locks chambers and gravity drains the fresh water to the lower levels. Approximately 197 million liters of water are used for each lockage and

Gatun Locks

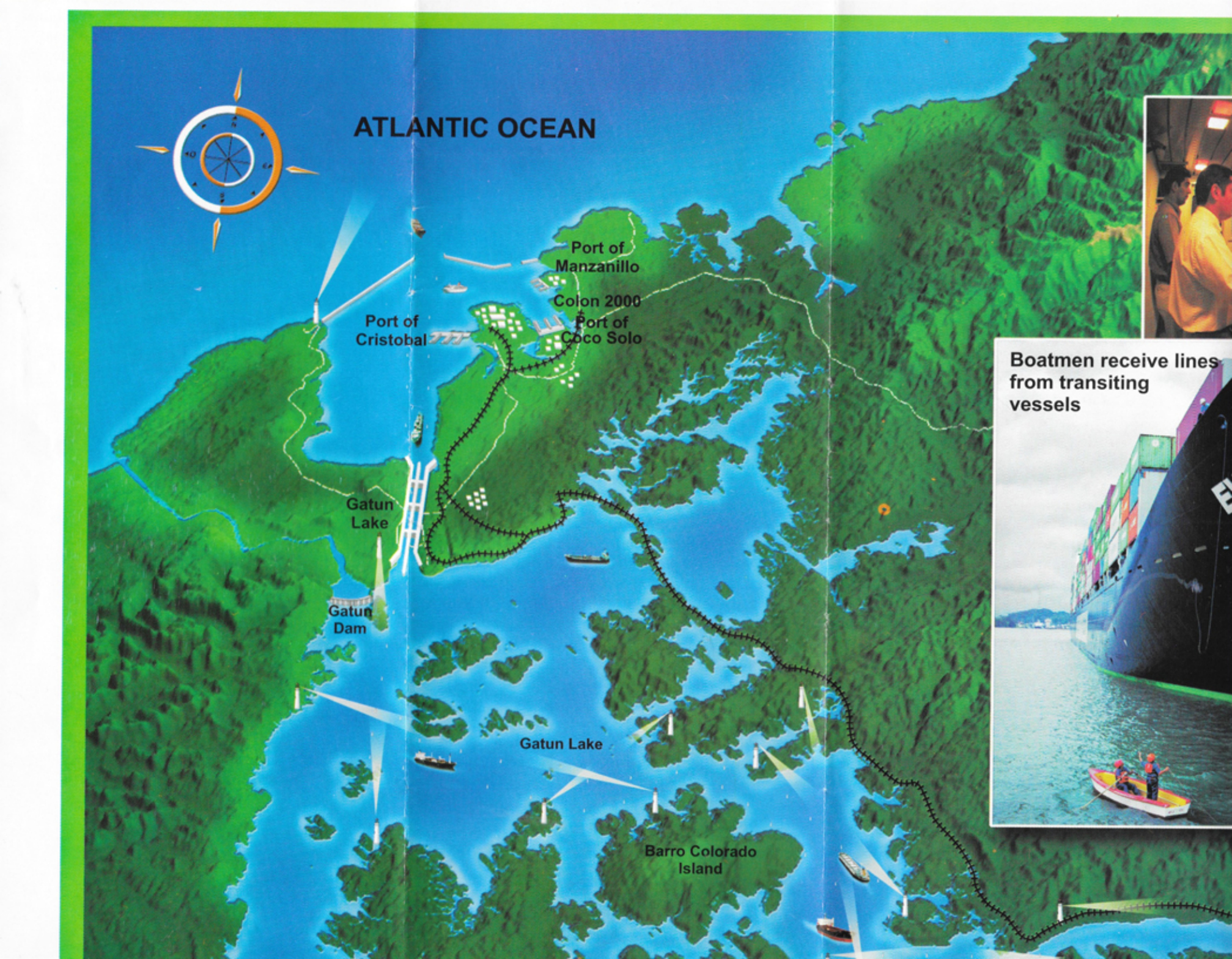
Dredge *Rialto M. Christensen*

Firefighters practice emergency response

Simultaneou
through Gail

This image is a digital radar elevation model. Some of its elements have been modified to make it easier to understand.


Pilots in training with the simulator
Miraflores Locks with Pedro Miguel Locks in the background
Alhajuela Lake
Madden Dam
Chagres River
Gamboa
Panama City seen from atop Ancon Hill
Panama Canal


ATLANTIC OCEAN
Port of Manzanillo
Colon 2000
Port of Coco Solo
Port of Cristobal
Gatun Lake
Gatun Dam
Gatun Lake
Barro Colorado Island
Boatmen receive lines from transiting vessels