



## ***Crane and Derrick Barges***

**Project:**

1000-ton Derrick Barge *E.P. Paup*

**Owner:**

Manson Construction Company

**Builder (Hull):**

Gunderson, Inc.

**Builder (All Outfit):**

Manson Construction Company

**Scope:**

Glostten designed the basic hull, supervised the detailed hull design by a subcontractor in India, handled all regulatory submittals (except quarters), performed stability testing, and prepared the stability booklet.



*Shown is the 1100 short ton proof load test using a water-filled barge. The testing was performed at Manson's Houma, Louisiana facility. (Manson photo.)*

**Project Description:** The *E.P. Paup* will be used to install or dismantle offshore oil-and-gas platforms. This derrick barge is 380 feet long, and has an American MG 509 crane with a 265' boom, and a capacity of 1000 tons over the stern and 900 tons fully revolving.

**Project:**

Crane Barge *D.B. General*

**Owner:**

General Construction Company

**Builder:**

Conrad Industries

**Scope:**

Glosten worked with the Builder to adapt an existing shipyard barge hull design. Glosten designed the crane tub, foundations, and deck outfit, and engineered the stowage and seafastenings of the dismantled crane for its delivery voyage from Ardersier, Scotland to Seattle. In 2008, Glosten also designed a load test to increase its rating to 700 tons over the stern and 500 tons fully revolving.



*Shown left is the D.B. General at work on the Benecia Bridge across the Carquinez Strait.*



*Shown above is the rigging for the load test.*



*Shown left is the lift of a water-filled barge for the 770-ton proof load test..*

**Project:**

Offshore Crane Barge *Betty L.*

**Owner:**

Morrison Knudsen Company (now Washington Group)

**Builder (Hull):**

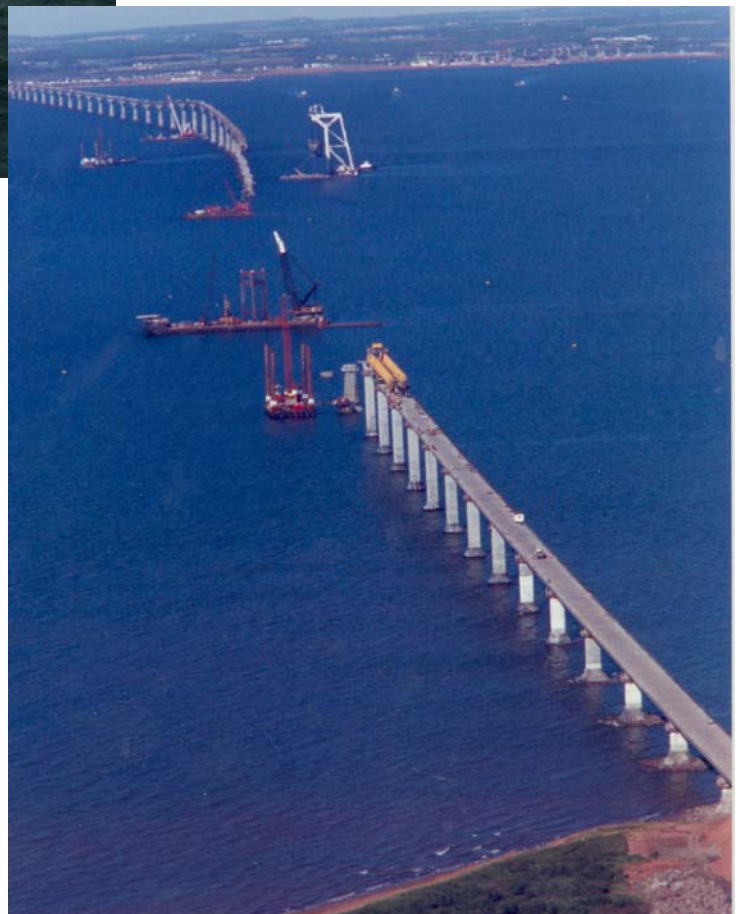
Gunderson, Inc.

**Scope:**

Glosten conducted parametric studies of boom tip motions versus barge size to optimize weather operability for the *Betty L's* first project, laying concrete pipe for the San Francisco Ocean Beach Outfall. Glosten also provided the complete barge contract design and procurement support.



*Pictured left is the 6,800 ton, 100 ft x 400 ft Betty L. on her delivery voyage.*



*Pictured right is the Betty L. working on the Confederation Bridge in eastern Canada. The Confederation Bridge is a 12.9 km long multi-span bridge spanning the Northumberland Strait to connect the provinces of Prince Edward Island and New Brunswick on the east coast of Canada. It is the longest continuous marine span bridge over ice-covered water in the world.*

**Project:**

Interstate-95-W Bridge  
Replacement, Minneapolis

**Owner:**

Minnesota Department of  
Transportation

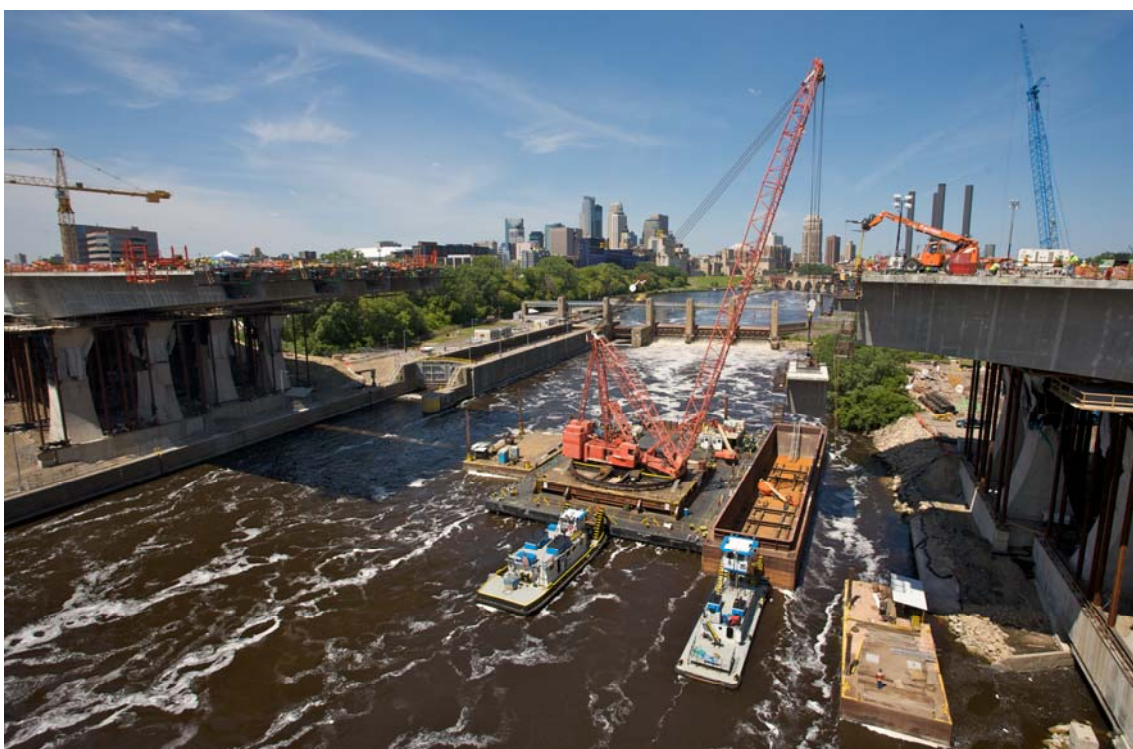
**Client/Contractor:**

Flatiron/Manson Joint Venture

**Scope:**

Glosten was asked to evaluate several alternate lifting schemes, inspect prospective barges, design the grillage, create a finite element model of the barges and grillage, and analyze for a full range of load conditions.

For the grillage design, large beams were surplus from falsework on the Oakland Bay Bridge project.



*Shown is a Manitowoc 4600 S3 Ringer. This two-barge ringer crane assembly, nicknamed "Big Red," is lifting a precast segment from a transfer barge. (Manson photo.)*

**Project Description:** The over-water span is precast segmental construction, with segments weighing up to 260 tons. The navigation locks on this upper part of the Mississippi are only 56 feet wide (one can be seen in the photo). Two 54 foot wide barges were joined on site by a steel grillage to support the crane and provide enough stability for the lifts. The crane was disassembled from a Canadian barge at Manson's Seattle yard, trucked to Minneapolis (over 40 truckloads) and reassembled on site. The grillage, also too large to pass through the locks, was subassembled in two pieces at Manson's Houma, Louisiana yard, brought up river on the two chartered barges, and finished on site.

**Project:**

Richmond San Rafael Bridge  
Seismic Retrofit

**Client:**

Tudor-Saliba

**Builder:**

Corn Island Shipyard

**Scope:**

Glosten was asked to design two purpose-built barges, which could be joined to form a platform for a 900-ton capacity Liebherr 1800 LR crane.



**Project Description:** Because of the active use of the bridge, the seismic retrofit project was designed to allow the bridge to remain open to traffic. Consequently, for economy, schedule efficiency, and traffic mitigation, much of the repair of the bridge involved work being fabricated off site and shipment to the bridge over water by barge. The concrete segments of the trestle were precast in Petaluma and barged down to the bridge. Tugs positioned barges with one or two 100-foot (30 m) long, 500-ton pre-cast concrete roadway segments to be lifted into place by a 900-ton barge-mounted crane. After the new concrete road segment was in place, steel plates were used to temporarily fill the gaps, and the roadway was ready for the morning rush-hour traffic.