As of Sept. 2015

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HAKUSAN

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一般社団法人 日本作業船協会

THE JAPAN WORKVESSEL ASSOCIATION

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1. History of the Japan Workvessel Association
25 June 1958: Establishment of the Workvessel Technology Association
22 July 1960: Name changed to the Japan Workvessel Association
24 December 1964: The Association was approved by the Minister of Transport as an authorized corporation
20 July 2011: The Association became a general incorporated association as a part of the privatization of governmental associations

2. Objectives of the Japan Workvessel Association
The Japan Workvessel Association aims to contribute to economic and social development, and the development and conservation of national land through the development, improvement and disseminating of engineering and technology of workvessels, ships and related mechanical and electrical equipment.

3. Business of the Japan Workvessel Association
The Japan Workvessel Association conducts the following business to attain the above stated objectives.

1) Research on workvessels, ships and related mechanical and electrical equipment.
2) Disseminating of engineering and technology related workvessels, ships and related mechanical and electrical equipment through publications and lecture meetings
3) Research and studies on the evaluation and improvement of the performance of workvessels and ships, and putting their results to practical use.
4) Research and studies on the evaluation and improvement of the performance of mechanical and electrical equipment related to workvessels and ships, and putting their results to practical use.
5) Research and studies on construction engineering using workvessels and/or ships, and putting their results to practical use.
6) Planning, basic design, cost estimation and construction supervision of building, modification and repair of workvessels and ships.
7) Planning, basic design, cost estimation and construction supervision of manufacture, modification and repair of mechanical and electrical equipment related to workvessels and ships.
8) Other necessary business to attain the objectives of the Association.

4. Members of the Japan Workvessel Association
Class-1 member (Shipbuilding companies): 8 companies
Class-2 member (Equipment manufacturing companies): 16 companies
Class-3 member (Marine construction companies): 19 companies
Class-4 member (Technical service companies): 8 companies
Class-5 member (Sales companies): 1 company
SUMMARY OF BUSINESS OF JWA

I. Business Sector
(1) Steering Committee
Business plans will be created and the agenda for Board of Directors will be prepared for the smooth conduct of business operations.

(2) Business Committee
Plans for field surveys and lectures related to the latest technology and/or utilization of workvessels, will be prepared and enacted.

(3) Periodical Journal Editorial Board
The journal "Workvessels", issued four times a year, will be edited and distributed to the members, central & local governments, universities and national libraries.

(4) Existing Workvessel List Editorial Board
The latest Workvessel List existing in Japan will be investigated, updated and edited for issuing biannually.

(5) Overseas Technologies Research Committee
Information about the workvessels and related technology used abroad will be collected and introduced in the journal "Workvessel". In addition, technologies related to Japanese workvessels and related technologies will be presented at the world dredging conference (WODCON). Next WODCON(21st) will be held in Florida, USA in June, 2016.

(6) Technical Steering Committee
Research contents will be evaluated and the research program for the next fiscal year will be planned.

(7) Organizing Lectures on Topics of Interest

(8) Issuing Publications
1) The journal “Workvessels” (Quarterly, 4 times per year)
2) “Existing Workvessel List” (Biannually, 2015 edition has been issued)
II. Technical Sector

1. Independent studies division
   (1) Research of Aerial Photography from Balloon System
   (2) Research of construction and maintenance support vessels for ocean energy facilities
   (3) Riprap input operation support and maintenance system

2. Survey division
   Research, planning, design, cost integration, and construction supervising of workvessels and related facilities

3. Technical consultation
   Technical consultation on workvessels, such as statistics data, capacity of vessels, design, construction cost integration, and accidents, etc.

III. Lectures
   Lectures on technical topics of current interest and/or by public figures every year.
   Past examples of the lectures held by JWA are as follows:
   1) Lectures on technologies of outstanding interest
      2010-8-10 The Science of Traffic Jams --K. Nishinari (Prof., Tokyo Univ.)
      2011-9-27 Japanese Energy Policy--A. Kuroki (Managing Director, IEE Japan)
      2012-7-20 Status of Radioactive Contamination--H. Yamazaki (Prof. Kinki Univ.)
      2013-7-31 Deep Sea Mining Sources-- T. Tsujimoto(Manager, JOGMEC)
      2014-7-29 Deep Sea Research Technologies--Y. Isozaki (Director, JAMSTEC)
      2015-7-28 Dragging of Anchors--T. Okada (Japan Ship Owners' P & I Club)

   2) Lectures by public figures
      2008-6-16 Hiroyuki Itsuki (Novelist)
      2009-3-5 Masataka Matsubara (Social Anthropologist)
      2010-3-1 Yutaka Mino (Vice President, Sotheby's North America)
      2011-3-3 Ayako, Sono (Novelist)
      2012-3-7 Katsutoshi Hando (Novelist)
      2013-3-7 Jiro Asada (Novelist)
      2014-3-6 Yoichi Funabashi (Critic, formerly the editor-in-chief of Asahi Shimbun)
      2015-3-4 Tetsuo Yamaori (Religious philosopher)
IV. Overseas Technologies Research Committee
The World Dredging Conference (WODCON) has been held to date since 1967 (1st conference) in the USA, as a forum for exchanging information about workvessels engaged in dredging and landfill.

1) Participation in WODCON:
From 1968 (the 2nd conference) to 2013 (the 20th conference), JWA had sent participants to WODCON. The next WODCON (21st conference) will be held in Florida, USA in June, 2016.

2) Participation in Dredging Seminar held by Eastern Dredging Association (EADA), one of the three operating organizations of WODCON:
Three (3) persons from JWA attended an EADA Seminar held in Kolkata, India in January 2014.

● SUMMARY OF CONSULTING SERVICES BY JWA
(1) Surveys, Studies, Development, and Testing
JWA has received orders for surveys, technical studies, test planning, and test implementation, etc. for workvessels and related equipment as follows:

Workvessels:
- Surveys and technical studies on the automation and efficiency of Trailing Suction Hopper Dredgers
- Surveys and technical studies on the sophistication of Sea Surface Cleaning & Oil Recovery Vessels
- Surveys and technical studies on the sophistication of Survey Vessels
- Surveys and technical studies on new concept workvessels, such as Dredger with DPS (Dynamic Positioning System)
- Surveys and technical studies on transportation Shuttle Boat for seabed mineral resources

Sea Surface Cleaning & Oil Recovery Vessels:
- Surveys, technical studies and testing of oil recovery equipment and systems
- Surveys, technical studies and testing of recovery, cutting & separation for garbage & ulva
- Development studies of shallow water floating garbage recovery devices
- Technical studies of automatic mooring system
Observation Equipment:
- Surveys, technical studies and testing of Aerial Photography from Balloon Systems
- Surveys, technical studies and testing of sea-water suspended solids exploration equipment and systems
- Surveys, technical studies and testing of underwater obstacle exploration equipment and systems

Measures for Reduction of Exhaust Gas, Noise & Vibration
- Surveys, technical studies and testing of exhaust gas reduction measures for workvessels
- Technical studies on reducing rolling/pitching/heaving for workvessels
- Technical studies on reducing noise/vibration for workvessels

Others
- Surveys, technical studies and testing on riprap input operation support systems
- Surveys and technical studies of crisis management systems by workvessels
- Technical studies on long-period wave upset reduction systems
- Surveys of integration index for workvessels & machines

(2) Design and Supervising Work for Workvessels
JWA has received orders for technical studies, concept & basic designs, preparation of technical specification, cost estimation, drawing review for approval, and construction supervision, etc. of workvessels and related equipment as follows:

- Concept & basic design, preparation of technical specification, cost estimation, and construction supervision of Trailing Suction Hopper Dredgers
- Construction/ modification design, preparation of technical specification, cost estimation, and construction supervision of Sea Surface Cleaning & Oil Recovery Vessels
- Construction/ modification design, preparation of technical specification, cost estimation, and construction supervision of Survey Vessels
- Construction design, preparation of technical specification, cost estimation, and construction supervision of Channel Patrol Boats
- Construction/ modification design, preparation of technical specification, cost estimation, and construction supervision of Harbor Patrol Boats
- Construction design, preparation of technical specification, cost estimation, and construction supervision of Sea-surface Cleaning Boats
- Construction/modification design, preparation of technical specification, and drawing review of Floating Piers/Port Facilities
- Quantity calculation of GPS Wave Meters
- Design studies of dredging systems for deposited sands in dam lakes
- Support for design and procurement of Dredgers for dam lakes
- Studies on dosing system for Waste Repositories

**(3) Maintenance & Management of Workvessels**

JWA has received orders for actual surveys, technical studies of construction, preparation of technical specification, cost estimation, etc. for maintenance and management of workvessels and related equipment as follows:

- Trailing Suction Hopper Dredgers
- Sea Surface Cleaning & Oil Recovery Vessels
- Survey Vessels
- Channel Patrol Boats
- Harbor Patrol Boats

**(4) Overseas Business Projects**

JWA has received orders for design, bidding support, drawing review, and supervision at shipyards for workvessels and related facilities as follows:

- Basic design, bidding support, construction supervision of dredger fleet for the General Company for Ports of Iraq  
  - Basic Plan  (Location: Tokyo and Jordan)  
  - Bid support  (Location: Tokyo and Jordan)  
  - Construction supervision  (Location: Tokyo, Netherlands & South Korea)  
    - Trailing Suction Hopper Dredger  (Location: Netherlands)  
    - Self-propelled Grab Dredger  (Location: Netherlands)  
    - Self-propelled Crane Vessel  (Location: South Korea)
- Design and procurement support services of dredgers for dam in Malawi  
  - Backhoe Dredgers  (Location: Tokyo)  
  - Hopper Barges  (Location: Tokyo)  
  - Pusher Barges  (Location: Tokyo)  
- Concept design of floating port facilities for Vietnam  
  - Imported Coal Loading Facilities  (Location: Tokyo & Vietnam)
JWA MEMBER COMPANIES

JWA is composed of five (5) classes of member companies as follows:
(Total 52 companies) As of Sept. 2015

**Class-1 Member** (Shipbuilding Companies)

JMU AMTEC
Japan Marine United Corporation
IHI Corporation
Kanagawa Dockyard Co., Ltd.
Kawasaki Heavy Industries, Ltd.
Mitsui Engineering & Shipbuilding Co., Ltd.
Mitsubishi Heavy Industries, Ltd.
Niigata Shipbuilding & Repair, Inc.

**Class-2 Member** (Equipment Manufacturing Companies)

Kamome Propeller Co., Ltd.
Kurimoto, Ltd.
Koei Iron Works Co., Ltd.
Kobelco Construction Machinery Co., Ltd.
Sanwa Kizai Co., Ltd.
Daihatsu Diesel Co., Ltd.
Nakashima Propeller Co., Ltd.
Niigata Power Systems Co.Ltd.
Nishishiba Electric Co., Ltd.
Hitachi Construction Machinery Co., Ltd.
Furuno Electric Co., Ltd.
Minotsu Iron Works Co., Ltd.
Yanmar Co., Ltd.
Sekigahara Seisakusho Ltd
Denyo Co., Ltd.
Marine Hydro Tech Co. Ltd.

**Class-3 Member** (Marine Construction Companies)

Ohtaki-Kohmuten Engineering Co., Ltd.
Ohmoto Gumi Co., Ltd.
Kanmon Kowan Kensetsu Co., Ltd.

**Class-4 Member** (Technical Service Companies)

MEC Engineering Service Co., Ltd.
MHI Marine Engineers Ltd.
Marine GPS Promoting Solution
Marine Technology Institute Corp.
Research Institute for Ocean Economics
Japan Association of Cargo-Handling Machinery Systems
Japan Port Consultants Ltd.
Hikari Industrial Co., Ltd.

**Class-5 Member** (Sales Company)

Nippon Quaker Chemical , Ltd.
ISHIZUCHI

NAJIMA

KAIKI

HAYATAMA

SOKAKU·Maru
CONSULTING RECORD
ON
PREPARATION OF TECHNICAL SPECIFICATION,
COST ESTIMATION
and CONSTRUCTION SUPERVISION
FOR
WORKVESSELS
(the last two decades)

Tug Boat: JWA Publication of Guideline for Basic Design of Tug Boat in 1985
Tug Boat: Loa=33.9m BP=min.54T Yokkaichi Port Authority

Tug Boat: 32 Tug Boats Local Governments

Trailing Suction Hopper Dredger: Loa=103m Kyushu Regional Bureau

Trailing Suction Hopper Dredger: Loa=94m Hokuriku Regional Bureau

Trailing Suction Hopper Dredger: Loa=104m Chubu Regional Bureau

Trailing Suction Hopper Dredger: Loa=70m, Tokyo metropolitan government

Sea Surface Cleaning & Oil Recovery Vessel: Loa=32.5m Kinki Regional Bureau

Sea Surface Cleaning & Oil Recovery Vessel: Loa=33.5m Chubu Regional Bureau
<table>
<thead>
<tr>
<th>Vessel Type</th>
<th>Loa (m)</th>
<th>Bureau</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>Sea Surface Cleaning &amp; Oil Recovery Vessel</td>
<td>32.2</td>
<td>Kinki Regional Bureau</td>
<td>Basic Design, Preparation of Technical Specification, Cost Estimation and Construction Supervision from 2007 to 2011</td>
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<tr>
<td>Sea Surface Cleaning &amp; Oil Recovery Vessel</td>
<td>32.2</td>
<td>Kinki Regional Bureau</td>
<td>Basic Design, Preparation of Technical Specification, Cost Estimation and Construction Supervision from 2009 to 2013</td>
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<tr>
<td>Sea Surface Cleaning &amp; Oil Recovery Vessel</td>
<td>33.5</td>
<td>Shikoku Regional Bureau</td>
<td>Basic Design, Preparation of Technical Specification, Cost Estimation and Construction Supervision from 2008 to 2011</td>
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<tr>
<td>Survey &amp; Sea Surface Cleaning Vessel</td>
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<td>Kyushu Regional Bureau</td>
<td>Basic Design, Preparation of Technical Specification and Cost Estimation in 2010</td>
</tr>
<tr>
<td>Channel Patrol Boat</td>
<td>22</td>
<td>Kyushu Regional Bureau</td>
<td>Basic Design, Preparation of Technical Specification and Cost Estimation in 2005</td>
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<tr>
<td>Harbor Patrol Boat</td>
<td>17.4</td>
<td>Yokkaichi Port Authority</td>
<td>Basic Design and Preparation of Technical Specification from 2011 to 2012</td>
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<td>Sea Surface Cleaning Boat</td>
<td>14</td>
<td>Niigata Prefecture</td>
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<tr>
<td>Year Range</td>
<td>Projects Description</td>
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<tr>
<td>2012-2014</td>
<td>Basic Design, Prep. of Tech. Specification, Cost Estimation and Construction Supervision</td>
<td>Loa=9.5m catamaran Kyoto Prefecture</td>
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