

MARINE SAFETY MANUAL

CHAPTER 21: SAMPLE VESSEL MANNING SCALES

A. Introduction.....	21-1
B. Mechanically-Propelled Passenger Vessels Of 100 And More Gross Tons (GT)	21-1
1. Sample Scales.....	21-1
a. Ocean Or Coastwise.....	21-1
b. Great Lakes.....	21-1
c. Lakes, Bays, And Sounds (Except Great Lakes)	21-2
(1) Crew (General Operations).....	21-2
(2) Crew (12-Hour Operation).....	21-2
d. Rivers.....	21-2
2. Variables	21-2
a. Mates.....	21-2
b. Mate/First Class Pilots.....	21-2
c. Able Seamen (ABs).....	21-2
d. Ordinary Seamen.....	21-2
e. ABs And Ordinary Seamen.....	21-3
f. Certificated Lifeboatmen	21-3
g. Patrolmen.....	21-3
h. Watchmen	21-3
i. Licensed Engineers.....	21-3
j. Firemen/Watertenders And Oilers.....	21-3
k. Radio Officers	21-3
C. Small Passenger Vessels (SPVs) (Under 100 GT).....	21-4
1. Sample Scales.....	21-4
a. Crew (General Operations).....	21-4
b. Table Of Additional Deckhands	21-5
c. COI Endorsements	21-5
d. High Capacity Small Passenger Vessels	21-5

2. Variables	21-5
a. Mates.....	21-5
(1) Ocean And Coastwise Routes	21-6
(2) Great Lakes And Inland Service, And Restricted Routes	21-6
(3) Less Than 12 Hours	21-6
b. Deckhands	21-6
c. Machinery Operation.....	21-7
(1) Simple Systems.....	21-7
(2) Complex Systems.....	21-7
(3) Main And Auxiliary Systems	21-7
3. Drills	21-8
4. Launches And Water-Taxi Vessels.....	21-8
a. Debarking Alongside.....	21-8
b. Intoxicated Passengers	21-8
c. Language Difficulties	21-8
d. Man Overboard.....	21-8
D. Passenger Barges Under Tow	21-8
1. General.....	21-8
2. Dual-Mode Tug/Passenger Barge Combination (Inland Waters).....	21-9
3. Table Of Additional Deckhands	21-9
4. Variables	21-9
a. Master	21-9
(1) One Master In Charge Of Towing Vessel And Passenger Barge	21-9
b. Mates.....	21-10
c. Deckhands	21-10
d. Multiple Barge Combinations	21-10
e. Machinery Operation.....	21-10
5. Push Mode - Integrated Tug/Passenger Barge Combinations (ITB) (Inland Waters)	21-10
6. COI Endorsements	21-11
7. Seagoing Passenger Barges	21-11

E. Mechanically-Propelled Cargo/Tank Vessels Of 100 And More GT.....	21-11
1. General.....	21-11
2. Sample Scales.....	21-12
a. Ocean And Coastwise.....	21-12
b. Great Lakes.....	21-12
c. Lakes, Bays, And Sounds	21-12
(1) Crew (General Operations).....	21-12
(2) Crew (12-Hour Operation).....	21-12
3. Variables	21-12
a. Workhour Limits.....	21-12
b. Mates.....	21-13
c. ABs.....	21-13
d. Ordinary Seamen.....	21-13
e. ABs And Ordinary Seamen.....	21-13
f. Certificated Lifeboatmen and Tankermen.....	21-13
g. Licensed Engineers.....	21-13
h. Firemen/Watertenders And Oilers.....	21-13
i. Radio Officers	21-13
F. Mechanically-Propelled Cargo/Tank Vessels Under 100 GT.....	21-14
1. Sample Scales.....	21-14
a. General Operations.....	21-14
b. With 12-hour Operation Limit	21-14
2. Variables	21-14
a. Workhour Limits.....	21-14
b. Deckhands.....	21-14
c. Tankermen	21-14
G. Integrated Tug-Barges (ITBs) [Refer to NVIC 2-81]	21-14
1. Inspected Tugs And Dual-Mode Integrated Tug-Barges (ITBs).....	21-14
2. Push-Mode ITB.....	21-15
3. Variables	21-15
a. First Class Pilot.....	21-15

b. Mates.....	21-15
c. Engineers	21-15
d. Able Seamen (ABs).....	21-15
e. Radio Officers.....	21-15
H. Cargo And Miscellaneous Barges.....	21-15
1. Seagoing Barges.....	21-15
a. General	21-15
b. OCMI's Evaluation.....	21-16
(1) Voyages Of Less Than 600 NM	21-16
(2) Voyages Of 600 NM Or Greater	21-16
2. Dump Scows And Non-Self-Propelled Harbor Dredges, And Barges Changing Places Of Employment Beyond The Baseline	21-16
a. Required Manning.....	21-16
(1) Crewmembers	21-16
(2) Unlicensed Deck Crew.....	21-16
b. Permitted Manning.....	21-16
(1) Maintenance Persons.....	21-16
(2) Citizenship.....	21-16
(3) MMD Requirement.....	21-17
I. Public Vessels.....	21-17
1. Army Corps Of Engineers (USACE) Vessels	21-17
a. Lakes, Bays, Sounds, And Rivers	21-17
b. Great Lakes	21-17
2. Military Sealift Command (MSC) Vessels.....	21-17
J. School Ships Operated By The U.S. Merchant Marine/State Maritime Academies	21-18
1. Mechanically-Propelled Vessels Of 100 And More GT	21-18
a. Licensed Officers	21-18
b. Unlicensed Deck Crew	21-18
c. Unlicensed Engine Room Personnel	21-18
d. Lookouts	21-18

e. Lifeboatmen	21-18
2. School Vessels Under 100 GT	21-18
K. Sailing School Vessels.....	21-18
1. OCMI Considerations.....	21-18
2. Deck Crew	21-19
L. Offshore Supply Vessels (OSVs).....	21-19
1. Voyages Of 600 Miles And More	21-20
2. Voyages Of Less Than 600 Miles.....	21-19
3. Variables	21-19
a. Engineers	21-19
b. Tankermen	21-19
M. Oil Spill Response Vessels (OSRVs)	21-20
1. General.....	21-20
2. Sample Scales.....	21-20
a. Oil Spill Recovery Vessels Of More Than 500 Gross Tons	21-20
b. Oil Spill Recovery Vessels Between 100 And 500 Gross Tons.....	21-20
c. Oil Spill Recovery Vessels Of 100 Gross Tons And Less	21-20
3. Variables	21-20
a. Mates.....	21-20
b. Able Seamen (ABs).....	21-21
c. Engineers	21-21
d. Tankermen.....	21-21
N. Oil Spill Response Barges (OSRBs).....	21-22
1. Manning.....	21-22
a. AB's and Ordinary Seaman.....	21-22
b. Watchmen	21-22
c. Certificated LifeBoatmen.....	21-22
d. Tankermen/Persons-In-Charge.....	21-22
2. Crew Quarters and Shelters	21-22
3. Persons in Addition to the Crew (PACs).....	21-22
4. Attending Vessel.....	21-23

5. Lightering and Discharges to Shoresidce Reception Facility	21-23
O. Mobile Offshore Drilling Units (MODUs)	21-24
1. Sample Scales.....	21-24
a. Drillships On Location	21-24
b. Drillships Underway-Voyage Of More Than 72 Hours	21-24
c. Drillships Underway-Voyage Of More Than 16 But Not More Than 72 Hours.....	21-24
d. Drillships Underway-Voyage Of Not More Than 16 Hours	21-24
e. Self-Propelled Surface Units (Other Than Drillships) Underway-Voyage Of More Than 72 Hours.....	21-24
f. Self-Propelled Surface Units (Other Than Drillships) Underway-Voyage Of More Than 16 Hours But Not More Than 72 Hours.....	21-25
g. Self-Propelled Surface Units (Other Than Drillships) Underway-Voyage Of Not More Than 16 Hours.....	21-25
h. Self-Propelled Surface Units (Other Than Drillships) On Location Or Under Tow	21-25
i. Non-Self-Propelled MODUs (Excluding Bottom Bearing Units) On Location Or Under Tow.....	21-25
j. Non-Self-Propelled Bottom Bearing Units On Location Or Under Tow.....	21-25
2. Variables	21-25
a. Offshore Installation Manager (OIM), Barge Supervisor (BS), And Ballast Control Operator (BCO).....	21-25
b. ABs And Ordinary Seamen.....	21-25
c. Engineers	21-26
P. Dredges.....	21-26
Q. Nuclear-Powered Vessels	21-26
R. Motor-Propelled Oceangoing Yachts	21-26
1. Required Manning.....	21-26
S. Hydrofoils And Air Cushion Vehicles (ACVs) Under 100 GT.....	21-27
1. Introduction	21-27
a. Required License.....	21-27

b. Required Course.....	21-27
c. Operating Experience	21-27
2. Training Courses	21-27
3. Manning Standards	21-27
T. Hydrofoils And ACVs Over 100 GT	21-28
U. Submersible Vessels.....	21-28
1. General.....	21-28
2. Sample Scale	21-28
a. Crew General Operation.....	21-28
3. Variables	21-28

MARINE SAFETY MANUAL

CHAPTER 21: SAMPLE VESSEL MANNING SCALES

A. Introduction.

This chapter is intended to assist the Officer In Charge, Marine Inspection (OCMI) in the translation of the various statutes, regulations, court decisions, and practices into minimum manning requirements on a vessel's Certificate of Inspection (COI). Sample manning scales are presented below for both general and specific classes of vessels. It must be clearly understood that these scales are stated for conventional (NON-AUTOMATED) vessels, and do not invalidate the basic legal requirements outlined in chapter 20 of this volume. The OCMI is not compelled to assign manning levels according to the sample scales presented below, as they are neither mandatory, nor all inclusive. They are representative of specific classes of certificate vessels. The OCMI should consider the manning level recommended by the appropriate table as a starting point, and then determine whether fewer or more personnel are required for the safe operation of the vessel based on local circumstances and other relevant considerations which are spelled out in section 20.C. Guidance regarding the proper entry of COI manning data is provided in chapter 3 section H of the Marine Safety Manual, Volume II. Where manning reductions are requested or contemplated by virtue of vessel automation considerations, the OCMI should also follow the guidance in chapter 25 of this volume. Inquiries and correspondence concerning manning requirements should be directed to Commandant (G-MOC).

B. Mechanically-Propelled Passenger Vessels Of 100 And More Gross Tons (GT).

1. Sample Scales.

a. Ocean Or Coastwise.

1-Master	* -Patrolman or Watchman
*1-Chief Mate	*1-Chief Engineer
*1-2nd Mate	*1-1st Assistant Engineer
*1-3rd Mate	*1-2nd Assistant Engineer
*6-Able Seamen	*1-3rd Assistant Engineer
*3-Ordinary Seamen	*3-Firemen/Watertenders
*3-Radio Officers	*3-Oilers
* -Certificated Lifeboatmen	

b. Great Lakes.

1-Master/1st Class Pilot	*1-Chief Engineer
3-Mates/1st Class Pilots	*1-1st Assistant Engineer
*6-Able Seamen	*1-2nd Assistant Engineer
*3-Ordinary Seamen	*1-3rd Assistant Engineer
*1-Patrolman or Watchman	*3-Firemen/Watertenders
* -Certificated Lifeboatmen	*3-Oilers

c. Lakes, Bays, And Sounds (Except Great Lakes).

(1) Crew (General Operations).

1-Master/1st Class Pilot Pilot	*1-Patrolman or Watchman
*1-Mate/1st Class Pilot	*1-Chief Engineer
*4-Able Seamen	*1-1st Assistant Engineer
*2-Ordinary Seamen	*2-Fireman/Watertenders
* -Certificated Lifeboatmen	*2-Oilers

(2) Crew (12-Hour Operation).

1-Master/1st Class Pilot	*1-Patrolman or Watchman
*1-Inland Mate	*1-Chief Engineer
*2-Able Seamen	*1-Fireman/Watertender
*1-Ordinary Seaman	*1-Oiler
* -Certificated Lifeboatmen	

d. Rivers.

1-Master/1st Class Pilot	*1-Chief Engineer
*1-1st Class Pilot	*1-1st Assistant Engineer
*1-Mate	*2-Firemen/Watertenders (NC)
*1-Patrolman or Watchman	*2-Oilers (NC)
*8-Deckhands	
* Denotes Variables	

2. Variables.

a. Mates.

The number of licensed mates required on inspected oceangoing or coastwise vessels depends on the gross tonnage of the vessel (see 46 U.S.C. 8301 and 46 CFR 15.810). Mates on Great Lakes Vessels must also possess First Class Pilot endorsements, (46 CFR 15.812).

b. Mate/First Class Pilots.

On inland vessels a sufficient number of Mates/First Class Pilots should be provided to divide watchkeeping duties into at least two watches when the vessel operates more than 12 hours in a 24 hour period.

c. Able Seamen (ABs).

Depending on the size of the vessel and its needs for safe navigation, this number may vary. Except for vessels on rivers or lakes (other than the Great Lakes), at least 65 percent of the deck crew must be ABs (see 46 U.S.C. 8702 and 46 CFR 15.840).

d. Ordinary Seamen.

This number will vary in proportion to total deck crew.

- e. ABs And Ordinary Seamen.

On ocean or coastwise routes, the number of ABs and ordinary seamen carried must be sufficient for the watch system provisions of 46 U.S.C. 8104 and 46 CFR 15.840. Deckhands may be permitted in lieu of ABs and ordinary seamen on river routes. A specially trained ordinary seaman may be substituted for able seaman in certain situations. If an ordinary seaman receives additional lookout procedure training, it is within the discretion of the local OCMI to allow the substitution of an able seaman with a specially trained ordinary seaman and to amend the COI to reflect the situation. But under no circumstances is the OCMI to amend a COI to reflect a manning scale which contradicts 46 U.S.C. 8702(b), which mandates that 65% of the deck crew shall be an able seaman.
- f. Certificated Lifeboatmen.

The number of certificated lifeboatmen must be separately stated on the COI. This number will vary depending on the lifeboat and life raft requirements for each vessel, in accordance with the regulations.
- g. Patrolmen.

The number of patrolmen is determined by the number of patrol routes required to cover all parts of the vessel accessible to passengers or crew, so that each space will be covered at least once every hour from 10 p.m. to 6 a.m. (46 CFR 78.30-10).
- h. Watchmen.

The number of watchmen is determined by the need to provide a suitable watch to be stationed in the passenger accommodation areas on each deck during the night (46 CFR 78.30-15).
- i. Licensed Engineers.

See chapter 22 of this volume.
- j. Firemen/Watertenders And Oilers.

The number and specific ratings will vary based on the number and location of boilers, type of fuel, number of furnaces, arrangement of machinery spaces, type and degree of automation, and (for oceangoing, coastwise, and Great Lakes vessels) the watch provisions of 46 U.S.C. 8104. In the case of motor vessels, no firemen/watertenders are normally required. Vessels operating exclusively on river routes are not required to carry certificated personnel by 46 U.S.C. 8701 and 8702, but in such cases it is appropriate to include the ratings by name on the COI, followed by "NC" (Not Certificated).
- k. Radio Officers.

With the advent of Global Maritime Distress and Safety System (GMDSS), additional crewmembers designated as full time radio officers may no longer be required. A vessel with an FCC approved GMDSS will normally be required to have onboard two crewmembers that hold appropriate qualification as GMDSS operators. One of the operators must be designated by the vessel's master as assigned to communicate during a distress situation. Vessels voluntarily relying on the at-sea maintenance provision of the GMDSS must have onboard a trained person designated to perform at-sea maintenance of GMDSS installations. Vessels without GMDSS will still require radio officers as determined by the FCC..

C. Small Passenger Vessels (SPVs) (Under 100 GT).

The types, sizes, and operating conditions of small passenger vessels are so varied among the OCMI zones, and within each OCMI zone it would be difficult, if not impossible, to develop a uniform national manning standard for the entire class of vessels. The following manning scales and guidance are provided to assist the OCMI in determining the manning requirements for small passenger vessels. The variations within this vessel class demand the OCMI evaluate each vessel and exercise good judgment in establishing the minimum safe manning. It is emphasized that the OCMI is not compelled to assign manning according to the sample scales in this section as they are neither mandatory, nor all inclusive. The OCMI should consider the manning levels presented as a starting point then determine whether fewer or more personnel are required for the safe operation of the vessel based on local conditions and other considerations noted in section 20.C. The scales are considered a valid reference that could be quoted to a prospective builder or Small Passenger Vessel (SPV) buyer as a conceptual manning level.

1. Sample Scales.

a. Crew (General Operations).

1 Master

1 crewmember for each
passenger deck

*1 Mate

*Additional deckhands based on
number of passengers on board
(See table in section B below)

* **Denotes Variables**

Crewmember. A crewmember includes licensed and unlicensed persons required by the Certificate of Inspection. Navigating bridge configuration and other local conditions should be considered by the OCMI in determining whether the licensed officer in charge of the navigating watch is capable of adequately observing and directing passengers on the bridge deck without assistance.

Passenger Deck. A passenger deck is a level accessible to and used by passengers when the vessel is underway. A portion of a deck used only for passage between levels such as a stairway landing, lobby or vestibule is not a passenger accessible deck for manning purposes. In addition, partial decks may be monitored by a crewmember assigned to a full passenger deck provided the crewmember makes regular rounds of the partial deck.

b. Table Of Additional Deckhands.

PASSENGERS ON BOARD	NOT MORE THAN 12 HOUR OPERATION	MORE THAN 12 HOUR OPERATION
0-149	0	1
150-299	1	2
300-499	2	4
500-799	3	6
800 & Up	4	8

c. COI Endorsements.

For vessels that carry varying numbers of passengers the OCMI should provide a sliding scale of the total number of deckhands required indicating the number of passengers carried. When preparing the manning section of the COI, the vessel's regular operating hours should be considered. If the operation is more than 12 hours, a determination should be made as to whether there are adequate facilities for the off watch crew to rest. If the vessel's general operation is 12 hours or less, or there are not adequate facilities for the off watch crew to rest during operations of more than 12 hours, the COI should be prepared with a 12 hour crew compliment in the manning blocks and the following endorsement under the Route Permitted and Conditions of Operations section of the COI:

"If the vessel is away from the dock, or passengers are on board or have access to the vessel for a period exceeding 12 hours in a 24 hour period an alternate crew shall be provided."

The vessel that routinely operates in excess of 12 hours in a 24 hour period and has adequate facilities for the off watch crew to rest, should be issued a COI with a 24 hour crew in the manning blocks. If the vessel owner uses an alternate crew arrangement then the alternate crew endorsement should be used.

d. High Capacity Small Passenger Vessels.

The increased size of small passenger vessels has resulted in the carriage of great numbers of passengers and will require manning above the scales listed above. This determination can best be made by the OCMI certificating the vessel based on the vessel's characteristics, route, number of passengers and crew required to successfully respond to all operational and emergency situations. The operation of these large, high capacity, small passenger vessels on certain routes may call for inclusion of a radar observer endorsement on master and mates licenses.

2. Variables.

a. Mates.

The requirement for licensed mates on vessels of less than 100 GT is found in 46 CFR 15.810. At least one mate is required on vessels engaged in voyages exceeding 12 hours in duration.

(1) Ocean And Coastwise Routes.

If operational safety is unaffected the OCMI may choose not to require a mate on vessels operating not more than 12 hours in a 24 hour period provided; (1) the number of passengers on board is less than 400, or (2) the vessel accommodates less than 50 overnight passengers.

(2) Great Lakes And Inland Service, And Restricted Routes.

The OCMI may delete the mate on vessels operating not more than 12 hours in a 24 hour period under the same conditions as noted under ocean and coastwise vessels. Additionally, the OCMI having considered all safety issues (e.g., the uniqueness of the operation, crew qualifications, the restrictiveness of the route) may choose not to require a mate regardless of the number of passengers carried.

(3) Less Than 12 Hours.

A licensed mate on vessels having voyages of less than 12 hours may be engaged to serve as the senior deckhand. He or she would be available to take over navigational responsibilities and also be present to supervise other operational and emergency concerns.

The above considerations notwithstanding, the mate should be required on all vessels carrying more than 150 passengers and/or having overnight accommodations for more than 49 passengers. A designated senior deckhand may replace the mate provided he or she is qualified under NVIC 1-91 guidelines. Crewmembers qualified as senior deckhand should be designated in writing by the master with a copy retained on board the vessel. A senior deckhand shall be capable of directing the emergency response actions of the vessel's crew. In the event the master becomes incapacitated, a senior deckhand must be capable of maneuvering the vessel and returning it to a position of safety.

b. Deckhands.

The authority to determine the complement (number) of deckhands required on small passenger vessels is 46 U.S.C. 8101. The Coast Guard does not prescribe deckhand qualifications. NVIC 1-91 provides guidance on recommended qualifications and training for deckhands on small passenger vessels.

There should normally be a deckhand assigned for each deck to which passengers have access, except when the master and/or mate of a vessel can adequately observe and direct the passengers on one deck. The OCMI is not compelled to require a deckhand assigned to that same deck to assist the master. The OCMI is not bound to the requirements of table 21.C.1.b but retains the discretionary authority to assign fewer deckhands, provided that a satisfactory level of operational safety is maintained.

When determining the minimum number of deckhands required the OCMI must consider the following; (1) local circumstances, (2) route, (3) proximity to shore, (4) assistance availability, (5) voyage length, (6) vessel design and construction, (7) crew capabilities, and (8), any other related factors. When applicable, a company's safety record and its training and qualification programs should also be considered in establishing deckhand requirements.

The OCMI must be satisfied that the unlicensed crew is properly trained to perform vessel operations. In general this should be accomplished during the vessel inspection process including the witnessing of performance of emergency drills, the questioning of the crew on duties assigned and/or the review of the company training program. A smaller well trained and qualified crew may be much more capable than a larger number of less qualified deckhands.

The OCMI should consider all variables which are a result of the vessel's design and function, in addition to taking into account an organization's operational structure and policies. For instance, a sailing vessel with extensive rigging or a passenger/cargo vessel using its crew for stevedoring may require additional deckhands. Conversely, certain vessels such as high capacity passenger vessels or vessels operating on restricted routes may require fewer deckhands. If safety remains unaffected, the OCMI may allow a portion or all of the deckhands to perform other duties, such as concessionaire or waiter. These persons must at all times be capable of responding readily to their assigned emergency duties and other deck department related functions. For public health reasons cooks and food handlers should not normally perform or be assigned to deckhand duties.

c. Machinery Operation.

When determining the manning levels for Small Passenger Vessels the OCMI should consider what levels of engineering skills are necessary to operate the vessel safely on its intended route. The OCMI must ensure that owners/operators of Small Passenger Vessels employ someone having a good working operational knowledge of the following: (1) main and auxiliary machinery, (2) steering systems, (3) alarms and monitoring systems, (4) fueling techniques, and (5), emergency procedures. Based on vessel size and engineering complexity, the following levels of engineering expertise should be considered:

(1) Simple Systems.

On vessels with simple engineering systems, it may be necessary that only the master and/or deckhand have these skills.

(2) Complex Systems.

On vessels with more complex engineering systems or vessels that do not carry a mate, deckhands may need special training in routine and emergency engineering tasks.

(3) Main And Auxiliary Systems.

On vessels with large main and auxiliary engineering systems, multiple decks, extended routes, or other similar conditions, it may be necessary that the OCMI place a requirement on the COI for one or more licensed engineers. Chapter 22 of this volume discusses Coast Guard policy for licensed engineers on vessels of less than 300 Gross Tons.

3. Drills.

The use of drills is suggested to ensure that manning levels on vessels are for emergency situations. Drills should be conducted as noted in volume II, chapter 13, of the Marine Safety Manual. The vessel master or mate directs the drills; Coast Guard marine inspectors witness and evaluate the drills. In addition, drills should not place the vessel or any crewmembers in jeopardy. Crewmembers should not be allowed to enter the water. Unlicensed crewmembers should not maneuver the vessel without direct supervision of the master or a licensed mate.

4. Launches And Water-Taxi Vessels.

Many unusual hazards exist in launch service or water-taxi operations that are not normally encountered by excursion passenger vessels. These hazards are more pronounced on vessels where the master is the only crew member. Casualty analysis has revealed the following potential hazards of "solo" operation:

a. Debarking Alongside.

The operator is unable to control or assist debarking passengers when alongside an anchored vessel, as he/she must remain at the controls;

b. Intoxicated Passengers.

Persons returning from shore who are under the influence of alcohol may require supervision and assistance. A single operator cannot provide this aid while underway or maneuvering alongside;

c. Language Difficulties.

A foreign passenger may not understand English well and may not be able to alert the operator of an emergency situation or fully understand verbal instructions. A deckhand would be able to assist passengers and visually demonstrate emergency procedures if necessary; and

d. Man Overboard.

It may be extremely difficult for a single operator to maneuver a vessel alongside a person in the water and to recover a person from the water.

The OCMI should consider the above hazards when prescribing manning levels for these vessels. The need for a deckhand should be closely evaluated. Commuter type launches and water taxis operating on dedicated runs may not experience all of the above hazards. In certain situations, one-person operation may be acceptable.

D. Passenger Barges Under Tow.

1. General.

Inspected passenger barges shall be required to carry a licensed master, mate and number of able seamen, ordinary seamen, or deckhands. Documented seamen are not required on inland passenger barges (46 U.S.C. 8701).

2. Dual-Mode Tug/Passenger Barge Combination (Inland Waters).

Dual-Mode tug/barge combinations are those where the tug and barge are coupled by conventional means and where the operator of the tug navigates the combined units from the tug. Except for navigation, barge operations will be considered as independent of the towing vessels systems and equipment. Manning will be considered separately for each vessel; the tug will be manned as an inspected towing vessel and the barge will be manned as an inspected passenger vessel under Subchapter H or T.

Barge.

1 Master

*1 Deckhand for each passenger deck

*1 Mate

* Additional deckhands based on number of passengers on board - (See table in section 3 below)

[NOTE: The towing vessel must be operated by at least one appropriately licensed individual for each 12 hours of operation.]

3. Table Of Additional Deckhands.

PASSENGERS ON BOARD	NOT MORE THAN 12 HOUR OPERATION	MORE THAN 12 HOUR OPERATION
0-149	0	1
150-299	1	2
300-499	2	4
500-799*	3	6
800 & Up*	4	8

* **Denotes Variables**

4. Variables.

a. Master.

On Subchapter T or Subchapter H inspected passenger barges there must be at least one barge master licensed under 46 CFR 10.202(h). Any required mates will be licensed under the same section. The license must be endorsed for the gross tonnage of the barge. Any license of comparable tonnage authorizing service on a self-propelled inspected vessel would also satisfy the requirement.

(1) Master In Charge Of Towing Vessel And Passenger Barge.

A barge master may not be required in situations where the OCMI considers that the responsibilities for both the towing vessel and the barge can be safely vested in one individual on the towing vessel. The barge's COI must be endorsed to indicate the conditions when a barge captain is not required. The COI will also require the master of the combined unit to hold a license as master of inspected,

self-propelled vessels of sufficient scope authorizing service on both vessels. The unlicensed towboat crew members may not be used to satisfy the crew requirements on the barge.

b. Mates.

The OCMI may not require a mate on barges operating not more than 12 hours in a 24 hour period when the passengers on board do not exceed 399, and/or there are overnight accommodations for not more than 49 passengers; or regardless of the number of passengers in any case where, because of the nature of the route, operating conditions, crew qualifications, or other factors the OCMI considers it safe to do so. In determining whether not to require the mate for the 12-hour or less operation, the OCMI should consider whether there is an assigned senior deckhand as described in the NVIC 1-91, "Recommended Qualifications For Small Passenger Vessel Deckhands." The senior deckhand should be designated in writing by the master with a copy retained aboard the barge. The senior deckhand shall be capable of directing the crew in an emergency and assuming the master's responsibilities, if the master becomes incapacitated.

c. Deckhands.

The criteria in section 21.D.2 should be used as a guide in determining the number of deckhands required. Barges of unique design or restricted operations may require different manning scales. In addition, the method of towing may indicate a different requirement for the number of deckhands.

The OCMI will provide on the COI a sliding scale detailing the deckhand requirements for barges that carry varying numbers of passengers. The number of deckhands required will be based on the number of decks and passengers carried.

d. Multiple Barge Combinations.

For multiple barge combinations an OCMI may assign manning scales based on the separate units or as a single scale for the combined unit. In some cases it may not be necessary or practical to have a separate crew for each barge. When assigning one crew to a multiple barge combination, the OCMI should ensure that there is at least one crewmember for each barge when the tow is underway, and sufficient crew members for a roving patrol whenever the tow is docked with passengers on board.

e. Machinery Operation.

Passenger barges under tow should not be operated unless some member of the crew has a good working knowledge of the operation and use of the auxiliary machinery, alarms, electrical systems, and emergency procedures. The OCMI must ensure that the owners/operators crew the vessels with individuals having these qualifications. In most cases the barge master or a properly trained deckhand would meet this requirement.

5. Push Mode - Integrated Tug/Passenger Barge Combinations (ITB) (Inland Waters).

Integrated tug/barge combinations are those in which a specially designed propulsion unit (tug) is mated to the passenger barge. The navigation and operation of the combined unit can be accomplished from a control station located on the passenger barge. The barge cannot operate independently of the tug which provides its power and other passenger services. These ITB combinations are designed, outfitted and intended

to operate as a single unit and therefore will be manned as a single vessel. The master and mates must hold inspected vessel licenses with tonnage limitations appropriate to the combined tonnages of the tug and barge.

1 Master

1 Deckhand for each passenger deck

*1 Mate

* Additional deckhands based on the number of passengers on board (See table in section 21.D.3)

* **Variables described in section 21.D.4 above may be generally applied to these integrated tug/barge combinations**

6. COI Endorsements.

In preparing the manning section of the COI, the regular operation of the barge should be reviewed to determine whether the operation is more than 12 hours. If the operation is more than 12 hours, a determination should be made as to whether there are adequate facilities for the off watch crew to rest. On vessels where there are no adequate facilities for the off watch crew to rest, and on vessels that generally operate less than 12 hours, the COI should be prepared with a 12 hour crew in the manning blocks and the following endorsements:

"If the vessel is away from the dock, or passengers are on board or have access to the vessel for a period exceeding 12 hours in a 24 hour period an alternate crew shall be provided."

The COI on barges that routinely operate in excess of 12 hours in a 24 hour period, and have adequate facilities for the off watch crew to rest, should be prepared with a 24 hour crew in the manning blocks unless the barge owner requests to use an alternate crew arrangement. In this case the 12 hour alternate crew endorsement above should be used. (Note: If these vessels exceed 100 gross tons and are on a voyage of over 600 nautical miles, they must comply with the requirements of 46 U.S.C. 8104(c))

7. Seagoing Passenger Barges.

The manning and qualifications requirements for seagoing passenger barges will be handled on an individual basis. The OCMI will submit proposed manning for these vessels to Commandant (G-MOC) for review. Insofar as practical, the required manning for these vessels should parallel that of inland vessels of similar tonnage, passenger capacity, and configuration. Special emphasis must be placed on ability of the crew to handle emergencies, control and care for passengers, and use all required lifesaving equipment.

E. Mechanically-Propelled Cargo/Tank Vessels Of 100 And More GT.

1. General.

Tank vessel manning standards are required by 46 U.S.C. 9102 to take into account a number of factors relating to the duties, qualifications, and training of officers and crew. These factors include standards related to vessel navigation, cargo handling, size and type of vessel, qualification by virtue of simulator training, maintenance functions,

physical fitness criteria, as well as retraining and special training requirements. Section 20.C also addresses specific factors to be considered in manning determinations.

2. Sample Scales.

a. Ocean And Coastwise.

1-Master	1-Chief Engineer
*1-Chief Mate	*1-1st Assistant Engineer
*1-2nd Mate	*1-2nd Assistant Engineer
*1-3rd Mate	*1-3rd Assistant Engineer
*6-Able Seamen	*3-Firemen/Watertenders
*3-Ordinary Seamen	*3-Oilers
*1-Radio Officer	*3-Tankermen
* -Certificated Lifeboatmen	

b. Great Lakes.

1-Master/1st Class Pilot	1-Chief Engineer
1-Chief Mate/1st Class Pilot	*1-1st Assistant Engineer
2-Mates/1st Class Pilots	*1-2nd Assistant Engineer
*6-Able Seamen	*1-3rd Assistant Engineer
*3-Ordinary Seamen	*3-Firemen/Watertenders
* - Certificated Lifeboatmen	*3-Oilers
	*3-Tankermen

c. Lakes, Bays, And Sounds.

(1) Crew (General Operations).

1-Master/1st Class Pilot	1-Chief Engineer
1-1st Class Pilot	*1-1st Assistant Engineer
*4-Able Seamen	*2-Firemen/Watertenders
*2-Ordinary Seamen	*2-Oilers
* -Certificated Lifeboatmen	*2-Tankermen

(2) Crew (12-Hour Operation).

1-Master/1st Class Pilot	1-Chief Engineer
*2-Able Seamen	*1-Fireman/Watertender
*1-Ordinary Seaman	*1-Oiler
* -Certificated Lifeboatmen	1-Tankerman
* Denotes Variables	

3. Variables.

a. Workhour Limits.

46 U.S.C. 8104(n) imposes maximum workhour limits for licensed individuals and seamen on tankers. All tankers must ensure compliance with this provision.

- b. Mates.

The number of licensed mates required specifically by statute or regulation on oceangoing or coastwise vessels generally depends on the gross tonnage of the vessel (see 46 U.S.C. 8301 and 46 CFR 15.810). The workhour limitations may necessitate an additional mate be assigned to prevent the chief mate from exceeding limits due to cargo handling responsibilities.
- c. ABs.

Depending on the size and operation of a vessel and its needs for safe navigation, this number may vary. On certain vessels, sixty-five percent of unlicensed deck crew must be ABs (see 46 U.S.C. 8702 and 46 CFR 15.840).
- d. Ordinary Seamen.

his number will vary in proportion to the total deck crew.
- e. ABs And Ordinary Seamen.

On oceangoing and coastwise vessels over 100 gross tons, the number of ABs and ordinary seamen carried must be sufficient for the watch provisions of 46 U.S.C. 8104 and 46 CFR 15.705. Deckhands may be permitted on vessels restricted to inland routes.
- f. Certificated Lifeboatmen And Tankermen.

The number of certificated lifeboatmen and tankermen must be separately stated on the COI. The number will vary depending on the lifesaving equipment requirements for each vessel, and cargo handling workload.
- g. Licensed Engineers.

See chapter 22 of this volume.
- h. Firemen/Watertenders And Oilers.

The number and specific ratings will vary based on the number and location of boilers, type of fuel, number of furnaces, arrangement of machinery spaces, type and amount of automation, and, for oceangoing, coastwise, and Great Lakes vessels, the watch provisions of 46 U.S.C. 8104. In the case of motor vessels, no firemen/watertenders are normally required. Vessels operating exclusively on river routes are not required to carry documented personnel (see 46 U.S.C. 8701 and 8702), but it is appropriate to include the ratings by name on the COI followed by "NC" (Not Certificated). Refer to chapter 23 also.
- i. Radio Officers.

With the advent of Global Maritime Distress and Safety System (GMDSS), additional crewmembers designated as full time radio officers may no longer be required. A vessel with an FCC approved GMDSS will normally be required to have onboard two crewmembers that hold appropriate qualification as GMDSS operators. One of the operators must be designated by the vessel's master as

assigned to communicate during a distress situation. Vessels voluntarily relying on the at-sea maintenance provision of the GMDSS must have onboard a trained person designated to perform at-sea maintenance of GMDSS installations. Vessels without GMDSS will still require radio officers as determined by the FCC.

F. Mechanically-Propelled Cargo/Tank Vessels Under 100 GT.

1. Sample Scales.

a. General Operations.

1 Master, 1 Mate, *2 Deckhands, *2 Tankermen.

b. With 12-hour Operation Limit.

1 Master, *1 Deckhand, *1 Tankerman.

* **Denotes Variables**

2. Variables.

a. Workhour Limits.

46 U.S.C. 8104(n) imposes maximum workhour limits for licensed individuals and seamen on tankers. The person in charge of transfer operations on tank vessels with a cargo capacity of 250 barrels or more must be a licensed engineer, pilot, or master/mate authorized for service on vessels of more than 200 gross tons (33 CFR 155.710(a)). The number of licensed officers required must account for this additional responsibility. The workhour limits prevail over another statute which may allow a specific number of designated crew.

b. Deckhands.

Due to the number of variables in the operation of this type of vessel, the specific deckhand requirements are left to the discretion of the certificating OCMI.

c. Tankermen.

Tankermen are required aboard all vessels that carry oil or hazardous materials in bulk as cargo or residue (see 46 U.S.C. 8703).

G. Integrated Tug-Barges (ITBs) [Refer to NVIC 2-81].

1. Inspected Tugs And Dual-Mode Integrated Tug-Barges (ITBs).

Inspected tugs are subject to the provisions of 46 U.S.C. 8101, 8104, 8301 (and, depending upon the size or route, 46 U.S.C. 8304, 8701, and 8702). It should be noted that the number of mates required for oceangoing or coastwise tugs by 46 U.S.C. 8301 must be read as complementary to the watch provisions of 46 U.S.C. 8104. Should the voyage equal or exceed 600 miles, the master must also be in a watchstanding status.

1-Master

*2-Licensed Mates

4-Able Seamen

2-Ordinary Seamen

1-Chief Engineer

*2-Assistant Engineer

*3-Oilers

2. Push-Mode ITBs.

Inspected push-mode ITBs are subject to the provisions of 46 U.S.C. Chapter 37 (if applicable), 8101, 8104, 8301, 8303, 8304, 8701, and 8702. As statutory and regulatory requirements for push-mode ITBs are based on the aggregate tonnage of the combination, virtually all vessels of this class will equal or exceed 1600 GT.

1-Master	1-Chief Engineer
1-Chief Mate	*2-Assistant Engineers
2-Mates	*3-Oilers
*6-Able Seamen	*3-Tankermen (if subject to 46
*1-Radio Officer	U.S.C. 3702)
(as req. by FCC)	

* **Denotes Variables**

3. Variables.

a. First Class Pilot.

Master and mates must have FCP endorsements when navigating exclusively on the Great Lakes. In addition, when navigating on designated waters, the vessel must have a United States or Canadian registered pilot for the route being navigated. (46 U.S.C. 9302)

b. Mates.

If the gross tonnage of the tug in a Dual-Mode ITB or the combined tonnage of the Push-Type ITB exceed 1000 GT then three mates are required (46 U.S.C. 8301).

c. Engineers.

Most of these vessels are highly automated and the manning levels indicated may be reduced. Refer to chapter 25.

d. Able Seamen (ABs).

On oceangoing and Great Lakes vessels, the number of ABs and ordinary seamen carried must be sufficient for the watch provisions of 46 U.S.C. 8104 and 46 CFR 15.705. Two specially trained ordinary seaman may be substituted for a maximum of two able seamen.

e. Radio Officers.

With the advent of Global Maritime Distress and Safety System (GMDSS), additional crewmembers designated as full time radio officers may no longer be required. A vessel with an FCC approved GMDSS will normally be required to have onboard two crewmembers that hold appropriate qualification as GMDSS operators. One of the operators must be designated by the vessel's master as assigned to communicate during a distress situation. Vessels voluntarily relying on the at-sea maintenance provision of the GMDSS must have onboard a trained person designated to perform at-sea maintenance of GMDSS installations. Vessels without GMDSS will still require radio officers as determined by the FCC.

H. Cargo And Miscellaneous Barges.

1. Seagoing Barges.

a. General.

The determination as to whether or not a seagoing barge must be manned shall be made by the OCMI (see 46 CFR 15.801). These vessels must comply with the watch provisions of 46 U.S.C. 8104 when the manning levels prescribed are based on safety considerations. In this regard, the duties of riding personnel should include periodic checks of the towing gear, security of cargo, navigation lights, etc. These are safety-oriented functions amenable to a watch routine, as opposed to maintenance functions such as painting.

b. OCMI's Evaluation.

Should the OCMI decide that safety is the primary task of the riding crew, the number of personnel in the deck department shall be sufficient to meet the watch system requirements of 46 U.S.C. 8104 (two watches for voyages of less than 600 nautical miles, three watches for voyages of 600 nautical miles or more). In all such cases, the deck crew must be composed of at least 65 percent ABs, as required by 46 U.S.C. 8702.

(1) Voyages Of Less Than 600 NM.

*2 Able seamen, **other persons;

(2) Voyages Of 600 NM Or Greater.

*2 Able seamen, 1 ordinary seaman, **other persons.

* One of the crew must hold an appropriate tankerman certificate (aboard tank barges only).

** Other persons may be permitted, depending on the berthing accommodations and lifesaving devices available aboard the barge.

2. Dump Scows And Non-Self-Propelled Harbor Dredges, And Barges Changing Places Of Employment Beyond The Baseline.

a. Required Manning.

Certain barges may be unmanned if so authorized by the OCMI. However, if a crew is required by the OCMI:

(1) Crewmembers.

All crewmembers must possess a merchant mariner's document (MMD) and be divided among required watches.

(2) Unlicensed Deck Crew.

Sixty-five percent of the deck department, exclusive of licensed personnel, must be ABs.

b. Permitted Manning.

When the OCMI does not deem it necessary to require a crew on subject barges, a crew may still be permitted, and in such cases:

(1) Maintenance Persons.

Barges may carry a person or persons as maintenance men with no duties connected with the navigation of the vessel. A sample endorsement that may be used on the COI: "Certificated without a navigating crew. The vessel may carry one person as maintenance man and operator of the dumping mechanism, with no duties connected with the navigation of the vessel."

(2) Citizenship.

Seventy-five percent of the personnel of this "permitted" crew must be U.S. citizens;
and

(3) MMD Requirement.

All crewmembers must be in possession of MMDs.

I. Public Vessels.

1. Army Corps Of Engineers (USACE) Vessels.

The manning requirements for inspected USACE vessels are stated on the COI, in the same manner as for other inspected vessels. Inspected USACE dredges are certificated for service on various routes and manned accordingly. Hopper dredges often operate for extended periods in protected waters, entering exposed waters only to change operating sites or to dump spoil. It is the USACE's policy to allow as many crewmembers on liberty as feasible when the vessel is engaged in dredging operations of this type. Accordingly, the COI should be endorsed to provide for a minimal crew while the vessel is dredging or dumping. This endorsement will permit the vessel to make short voyages, less than two watch rotations, for dumping purposes with a reduced crew aboard. The endorsement should read as follows, as appropriate.

a. Lakes, Bays, Sounds, And Rivers.

While dredging in lakes, bays, sounds, rivers, or on short coastwise voyages for the purpose of dumping, at least the following persons shall be on board the vessel:

1-Master	1-Chief Engineer
1-Mate	*1-Assistant Engineer
2-Able Seamen	*1-Fireman/Watertender
1-Ordinary Seaman	1-Oiler

b. Great Lakes.

while operating in the Great Lakes, or their connecting and tributary waters, for the purpose of dredging or dumping, the minimum manning shall be:

1-Master and First Class Pilot	1-Chief Engineer
1-Mate/First Class Pilot	*1-Assistant Engineer
1-Ordinary Seaman	*1-Oiler
	2-Able Seamen

* **Denotes variable depending upon mode of propulsion and/or level of automation.**

2. Military Sealift Command (MSC) Vessels.

These vessels are typically civilian-manned. Manning should be established using section 21.E as a guide. In addition, the OCMI should consult volume II, chapter 12 of this manual and any MOU in force between the USCG and MSC.

J. School Ships Operated By The U.S. Merchant Marine/State Maritime Academies.

1. Mechanically-Propelled Vessels Of 100 And More GT.

Under 46 CFR 167.60-15, the COI shall specify the minimum complement of officers and crew necessary for the safe navigation of a school ship. The following guidelines are offered to promote uniform manning levels for school ships. However, the OCMI shall exercise discretion, within the minimum requirements of the law, in this regard, particularly for smaller vessels operating on limited routes.

a. Licensed Officers.

One master, three licensed mates, one chief engineer, three assistant engineers, and one radio officer (see 46 CFR 310.5 concerning state training vessels). For vessels operated exclusively in Great Lakes service, a master/first class pilot and first class pilots shall be employed in lieu of mates.

b. Unlicensed Deck Crew.

Three ABs (one per watch), to act as supervisors of cadets and to fulfill the requirement of 46 U.S.C. 8702 for an AB at the helm in congested waters, periods of reduced visibility and adverse weather, and other hazardous circumstances.

c. Unlicensed Engine Room Personnel.

Three firemen/watertenders or oilers (one per watch), to act as supervisors of cadets and to assist the engineer of the watch.

d. Lookouts.

If the master deems them competent, cadets may be used as lookouts.

e. Lifeboatmen.

The requirements of 46 CFR 78.14-10 shall be fully met. Cadets may fill the billets for lifeboatmen, provided they are qualified and endorsements to this effect are included on their MMDs.

2. School Vessels Under 100 GT.

See chapter 22 of this volume.

K. Sailing School Vessels.

Sailing school vessels must operate with properly licensed and certificated individuals, as required by statutes and regulations. These individuals provide the necessary base of experience to fulfill leadership roles during emergencies, and to otherwise assure the vessel's safe handling.

1. OCMI Considerations.

In determining the manning needed to safely operate the vessel, the OCMI shall take into consideration the vessel's route and specific characteristics, including the number of masts, type of sails, and number of persons needed for evolutions. Vessels equipped with more than one mast must carry a seaman (AB or deckhand, as appropriate) for each mast, and an additional AB for each square-rigged mast. On ketches and yawls where the second mast is used for balancing purposes, the OCMI may waive the additional seaman, if it is believed that the vessel can be operated with a smaller crew.

2. Deck Crew.

The maximum number of people needed in the deck crew will be figured as noted above, or as required by watchkeeping requirements, whichever is greater. On vessels 100 GT and above, except those navigating exclusively on rivers or lakes (except the Great Lakes), the unlicensed crew must hold MMDs and at least 65 percent must be ABs. If propelling machinery is installed aboard seagoing sailing school vessels of 300 GT or more, a licensed engineer must be carried. On ocean or coastwise or Great Lakes vessels of 100 GT or more, the 3-watch standard applies.

L. Offshore Supply Vessels (OSVs).

1. Voyages Of Less Than 600 Miles And More.

1-Master	*3-Designated Duty Engineers
2-Mates	*3-Oilers
2-Able Seamen	*1-Tankerman
1-Ordinary Seaman	

2. Voyages Of Less Than 600 Miles.

1-Master	*2-Designated Duty Engineers
1-Mate	*2-Oilers
1-Able Seaman	*1-Tankerman
1-Ordinary Seaman	

***Denotes Variables**

3. Variables.

a. Engineers.

Number of engineering personnel dependent on level of automation. Refer to chapter 25 and NVIC 1-78 for specific guidance.

b. Tankermen.

Tankermen are required aboard all vessels that carry oil or hazardous materials in bulk as cargo or residue, and the number required shall be noted on the COI. OSVs with a capacity of at least 250 barrels oil or hazardous material in bulk (e.g., oil based drilling mud) within cargo tanks or portable tanks must have a licensed master, mate, engineer, or pilot as the person in charge of transfer operations. OSVs which do not carry oil or hazardous materials in bulk as cargo, but carry fuel within the fuel supply tanks for transfer to an offshore facility may have either a certified tankerman or a licensed master, mate, pilot or engineer as the person in charge of transfer operations. OSVs with a cargo capacity exceeding 20 percent of its deadweight tonnage are considered tankers and must meet the more stringent manning scales in section 21.E or 21.F.

M. Oil Spill Response Vessels (OSRVs).

1. General.

It is expected that many OSRVs will be converted Offshore Supply Vessels (OSVs). OSVs manning scales are not considered appropriate for this new class of vessels. OSRVs will require a 24-hour day capability when engaged in spill response. OSRVs are technically tankers, as defined by 46 U.S.C. 2101(38), and therefore are subject to the workhour limitations imposed by 46 U.S.C. 8104(n). Existing automated OSVs being converted to OSRVs shall be reevaluated for a determination of appropriate manning levels. Manning reductions based on automation shall be handled according to existing regulations and policies. The sample scales below are stated for conventional (non-automated) Oil Spill Recovery Vessels in restricted ocean service; vessels limited to inland routes could have reduced manning levels provided workhour limitations are not exceeded.

2. Sample Scales.

a. Oil Spill Recovery Vessels Of More Than 500 Gross Tons.

These vessels should be manned similarly to a tank vessel (see section 21.E.1).

b. Oil Spill Recovery Vessels Between 100 And 500 Gross Tons.

1-Master	*1-Chief Engineer
*2-Mates	*2-Assistant Engineers
*3-Able Seamen	*3-Oilers
*2-Tankermen	

c. Oil Spill Recovery Vessels Of 100 Gross Tons And Less.

1-Master
*1-Mate
2-Deckhands
*2-Tankermen
* **Denotes Variables**

3. Variables.

a. Mates.

At least two mates must be assigned on a seagoing inspected OSRV vessel when engaged in an operation over 12 hours in duration. One mate is required when engaged in an operation of less than 12 hours. The watches may be divided into at least two watches when engaged in an operation less than 12 hours in duration. The above scales presume that the master will also stand watches; if the overall responsibilities of the master preclude watchstanding, then an additional mate is required for vessels operating in excess of 12 hours.

b. Able Seamen (ABs).

At least 65 percent of the unlicensed deck crew on seagoing vessels over 100 gross tons must hold endorsements for AB. Endorsement as AB-Special is the minimum AB qualification allowed by 46 U.S.C. 7312. The OCMI may consider allowing specially trained ordinary seaman (OS) meeting the requirements of NVIC 3-83 as substitutes for up to 35 percent of the required ABs. On vessels engaged on voyages of less than 12 hours, 2 ABs may be permitted since the vessel may operate on a two watch schedule. However, the OCMI must consider the ability of the reduced crew to remain within the workhour limits of 46 U.S.C. 8104(n). The OCMI should assess the need for an additional number of ABs to be included in the required manning level. This may be required for vessels operating in an area routinely subject to inclement weather which requires additional lookouts to maintain an adequate watch, or on vessels requiring dedicated helmsmen to be assigned.

c. Engineers.

All OSRVs propelled by machinery of at least 300 gross tons, regardless of route, require a licensed engineer. Seagoing self-propelled inspected vessels of at least 200 gross tons require a licensed chief engineer, and other licensed engineers as may be necessary to stand watches. Manning requirements for licensed engineers are found in 46 CFR 15.820 and 15.825. The scales represent a three-watch manning schedule for non-automated engineering propulsion plants. Depending on the level of sophistication of installed engineering automated control and monitoring systems, the licensed and unlicensed engineering manning may be reduced based on the system's review and approval in accordance with 46 CFR Part 62 and other existing policy.

d. Tankermen.

Tankermen are required aboard these vessels whenever any transfer operations are conducted. At least two additional tankermen separate from the navigating crew are considered necessary for these operations to comply with the workhour limitations addressed in paragraph 1 of this section. These additional tankermen might be provided as part of the incident response crew, or the owner may opt to have the additional qualified tankermen as part of the permanent crew. An individual holding an endorsement as restricted tankerman under 46 CFR 13.111 may be utilized to satisfy the tankerman requirement.

N. Oil Spill Response Barges (OSRBs).

1. Manning.

Title 46, United States Code, Chapter 87 allows the Secretary to prescribe the individuals serving on board an OSRV, (including an OSRB) who must hold a merchant mariner's document (MMD). Some OSRBs have been outfitted with skimming equipment having the capability to recover and store recovered oily liquids in bulk. This necessitates placing persons onboard the vessel for the safe operation of the barge and its machinery/equipment. Those persons who are assigned to the vessel, engage in the business of the vessel, and are part of the routine underway operations of the vessel are required to hold a valid merchant mariner's document. The number of persons required is determined by the cognizant Officer-in-Charge, Marine Inspection using the policy found in this section. When the vessel is in operation for training exercises and drills, and the evolution is less than 12 hours in duration the persons associated with the safe operation of the vessel may be reduced.

a. ABs and Ordinary Seaman.

At least 65 percent of the unlicensed deck crew on seagoing vessels over 100 gross tons must hold endorsements for AB. The alternatives for ABs as found in the provision of 21.M.3.b. may be employed by the OCMI. The OCMI must consider the vessel's operation, work hour considerations and prevailing weather conditions when determining the proper number of deck crew.

b. Watchmen.

When the OSRB is outfitted with crew shelters/quarters and industrial workers have access to the vessel, a suitable number of watchmen shall be provided but will not be less than two.

c. Certificated Lifeboatmen

The number of certificated lifeboatmen must be separately stated on the COI. This number will vary depending on the lifeboat and life raft requirements for each vessel, in accordance with the regulations

d. Tankermen/Persons-In-Charge.

When required, these crewmembers shall be separate from the deck crew in order to comply with the workhour limitations. The vessel's COI should reflect this condition of operation.

2. Crew Quarters and Shelters.

The construction and structural fire protection standards for accommodations should meet the requirements found in 46 CFR, Subchapter D.

3. Persons in Addition to the Crew (PACs).

To sustain operations during oil spill response, workers will be present aboard the OSRB to recover oil, but will necessarily be part of the underway operating crew assigned to the vessel. These workers are deemed industrial workers and are not required to hold an MMD as are on board the vessel for the sole purpose of carrying out the industrial business or function of the vessel. These personnel will need to have access to the vessel as a work and training platform. For response operations, training purposes, and drills 21.M.4.c. the total persons carried shall be determined by the OCMI but may not exceed

a total capacity of primary lifesaving equipment on board the vessel, nor shall they adversely impact the vessel's stability. Unless the barge is specifically designed and constructed for the carriage of personnel, the following applies: On all voyages beyond the boundary line, all persons shall be transported on the attending vessel and transferred to the OSRB from the attending vessel upon arrival at the training/response site. All personnel transfers shall be conducted when the attending vessel master deems conditions safe for transfers. Adequate primary lifesaving equipment shall be on board the vessel for all persons carried. The OSRB will provide no overnight accommodations for the PACs, unless the provisions in paragraph 19.M.4.b. are met.

4. Attending Vessel.

When the OSRB is underway with persons onboard, engaged in oil spill operations, drills, or training exercises, a vessel must be in attendance at all times. The attending vessel must be capable of receiving all persons aboard in the event of an emergency evacuation, and shall be equipped as a standby vessel in accordance with 33 CFR 143.405. The attending vessel does not have to meet the multiple propellers or propulsion devices requirement of 33 CFR 143.405 provided the vessel can demonstrate it has adequate maneuvering capabilities.

5. Lightering and Discharges to Shoreside Reception Facility.

The OSRB is generally a tank barge that changed service to Oil Spill Recovery Barge. During an oil response, it is likely that these barges may be employed as lightering barges receiving recovered oil from other oil recovery vessels and then discharging their cargo to a shore facility. The person-in-charge of all oily liquid transfers shall have a tankerman endorsement for the grade(s) of cargo transferred that is appropriate for the vessel. A restricted tankerman endorsement in accordance with 46 CFR 13.111 is acceptable for these vessels. When engaged in lightering or oily liquid transfers, a minimum of two (2) persons-in-charge shall be on board the vessel. When lightering/transfer operations are less than 12 hours in duration only one person-in-charge is required. The persons-in-charge are only required during transfer operations and not for recovering oil. This requirement is an operational restriction and should be placed in the operating details of the COI. The following verbiage shall be used on the OSRB COI:

“WHEN TRANSFERRING RECOVERED OILY LIQUIDS OR OIL TO OR FROM ANOTHER VESSEL OR FACILITY, A TANKERMAN-PERSON-IN-CHARGE SHALL BE PROVIDED.”

O. Mobile Offshore Drilling Units (MODUs).

1. Sample Scales.

a. Drillships On Location.

1-Master (With OIM Endorsement)	1-Chief Engineer
1-Mate	*1-Assistant Engineer
2-Able Seamen	*2-Oilers
1-Radio Officer (If required by the FCC)	1-Ordinary Seaman

b. Drillships Underway-Voyage Of More Than 72 Hours.

1-Master	1-Chief Engineer
1-Chief Mate	*3-Assistant Engineers
1-Second Mate	*3-Oilers
1-Third Mate	*6-Able Seamen
1-Radio Officer (If required by the FCC)	*3-Ordinary Seamen

* **Denotes Variables**

c. Drillships Underway-Voyage Of More Than 16 But Not More Than 72 Hours.

1-Master	1-Chief Engineer
2-Mates	*2-Assistant Engineers
4-Able Seamen	*3-Oilers
1-Radio Officer (If required by the FCC)	*2-Ordinary Seamen

d. Drillships Underway-Voyage Of Not More Than 16 Hours.

1-Master	1-Chief Engineer
1-Mate	*1-Assistant Engineer
4-Able Seamen	*2-Oilers
*2-Ordinary Seamen	
1-Radio Officer (If required by the FCC)	

[NOTE: When engaged on a voyage of not more than 8 hours, the crew may be reduced by 2 able seamen, 1 ordinary seaman, and 1 oiler.]

e. Self-Propelled Surface Units (Other Than Drillships) Underway-Voyage Of More Than 72 Hours.

1-Master (With OIM Endorsement)	1-Chief Engineer
1-Chief Mate (With BS or BCO Endorsement)	*3-Assistant Engineers
2-Mates (With BCO Endorsement)	*3-Oilers
1-Radio Officer (If required by the FCC)	*6-Able Seamen
	*3-Ordinary Seamen

f. Self-Propelled Surface Units (Other Than Drillships) Underway-Voyage Of More Than 16 Hours But Not More Than 72 Hours.

1-Master (With OIM Endorsement)	*1-Chief Engineer
2-Mates (With BCO Endorsement)	*2-Assistant Engineers
	*2-Oilers
	4-Able Seamen
*2-Ordinary Seamen	
1-Radio Officer (If required by the FCC)	

g. Self-Propelled Surface Units (Other Than Drillships) Underway-Voyage Of Not More Than 16 Hours.

1-Master (With OIM Endorsement)	*1-Chief Engineer
2-Mates (With BCO Endorsement)	*1-Assistant Engineer
	*2-Oilers
	4-Able Seamen
*2-Ordinary Seamen	
1-Radio Officer (If required by the FCC)	

[Note: When engaged on a voyage of not more than 8 hours, the crew may be reduced by 2 able seamen, 1 ordinary seaman, and 1 oiler.]

h. Self-Propelled Surface Units (Other Than Drillships) On Location Or Under Tow.

1-Master (With OIM Endorsement)	1-Chief Engineer
1-Mate (With BCO Endorsement)	*1-Assistant Engineer
1-Ballast Control Operator	*2-Oilers
1-Radio Officer (If required by the FCC)	2-Able Seamen
	1-Ordinary Seamen

* **Denotes Variables**

i. Non-Self-Propelled MODUs (Excluding Bottom Bearing Units) On Location Or Under Tow.

1-Offshore Installation Manager
1-Barge Supervisor
2-Ballast Control Operators
2-Able Seamen
1-Ordinary Seaman

j. Non-Self-Propelled Bottom Bearing Units On Location Or Under Tow.

1-Offshore Installation Manager
2-Able Seamen
1-Ordinary Seaman

2. Variables.

- a. Offshore Installation Manager (OIM), Barge Supervisor (BS), And Ballast Control Operator (BCO).
Special MODU manning requirements may be found in 46 CFR 15.520 and 15.810.
- b. ABs And Ordinary Seamen.

On ocean or coastwise routes, the number of ABs and ordinary seamen carried must be sufficient for the watch system provisions of 46 U.S.C. 8104 and 46 CFR 15.840. In addition, the OCMI must ensure sufficient lifeboatmen will be provided through manning levels established.

c. Engineers.

Individuals holding MODU engineer licenses may be substituted for the required licensed engineers at the discretion of the OCMI.

P. Dredges.

Commercial dredges are subject to inspection and manning requirements either because they are propelled by steam or they are seagoing motor vessels. As such vessels are generally of 300 or more GT, the standards in section 21.E of this volume should be used to establish manning scales for such vessels. The following endorsement may be used when appropriate: "When dredging in lakes, bays, sounds, or rivers exclusively, or engaged on a coastwise voyage of less than 400 miles for the purpose of dumping dredge spoil, the minimum manning shall be as follows:

1-Master	1-Chief Engineer
1-Mate	1-Assistant Engineer
2-Able Seamen	2-Firemen/Watertenders
1-Ordinary Seaman	2-Oilers

[NOTE: Vessels operating exclusively on river routes are not required to carry certificated personnel (see 46 U.S.C. 8701 and 8702). In such cases, it is appropriate to include the ratings by name on the COI followed by "NC" (Not Certificated).]

Q. Nuclear-Powered Vessels.

Any request for a manning scale for a nuclear-powered vessel shall be forwarded to Commandant (G-MOC).

R. Motor-Propelled Oceangoing Yachts.

1. Required Manning.

The statutory authority regarding the manning of seagoing motor-propelled yachts of 300 or more GT is based on a combined reading of 46 U.S.C. 8101, 8301, and 8304. When certificating the vessel, consideration shall be given to manning, which includes the following:

1-Master	*1-Chief Engineer
*1-Licensed Mates	*1-Assistant Engineers
* -Able Seamen	* -Oilers
* -Deckhands	

* **Denotes Variables**

S. Hydrofoils And Air Cushion Vehicles (ACVs) Under 100 GT.

1. Introduction.

The use of hydrofoils and ACVs in the U.S. has been limited to date. There are no regulations specifically addressing these vessels, and the Coast Guard's involvement has been only with those craft used as small passenger vessels. Until these vessels become more widely used, specific standards for operators cannot be established. The ultimate decision as to whether an applicant has adequate training and possesses sufficient knowledge and skill to operate a hydrofoil or ACV must rest with the OCMI. However, the following minimal requirements shall be applied:

a. Required License.

Possession of a master's license for conventional passenger vessels of commensurate tonnage;

b. Required Course.

Successful completion of a course conducted by either the manufacturer or owner of the vessel, acceptable to the OCMI; and

c. Operating Experience.

Completion of a period of operating experience, as required by the OCMI. For the first vessel of a particular type, the OCMI may make special arrangements for the initial operator to obtain operating experience.

2. Training Courses.

The Coast Guard does not currently provide formal approval of training courses for hydrofoil and ACV operators. The OCMI's prior review and acceptance of a training course's level of proficiency is appropriate; an inspector may be assigned to participate in or monitor such a course to evaluate its effectiveness. The following instruction schedule has been found acceptable (although the OCMI's discretion in this regard is not limited):

- a. Classroom Instruction. 40 hours;
- b. Supervised Vessel Operation. 15 hours;
- c. Unsupervised Vessel Operation. 5 hours; and
- d. Route Training. 5 hours.

3. Manning Standards.

A hydrofoil or ACV shall carry two licensed individuals having radar observer endorsements on their licenses; this arrangement will allow one operator to monitor the radar while the other "cons" the vessel. The number of required deckhands shall be determined by the OCMI according to the size and arrangement of the vessel, its route(s), and its operation; a minimum of four deckhands is envisioned.

[NOTE: This manning scale applies only to vessels under 100 GT, operating up to 12 consecutive hours. Vessels operating for more than 12 hours at a time shall be required to carry another full crew for relief purposes.]

T. Hydrofoils And ACVs Over 100 GT.

Requests relative to personnel qualifications and manning scales for large hydrofoils and ACVs, other than those subject to inspection under 46 U.S.C. 3301, shall be forwarded with full background information to the Commandant (G-MOC), via the district commander. Insofar as practical, the manning scales for such vessels shall parallel those of conventional vessels of similar trades, routes, and tonnages. Requirements for special training, radar observer endorsements, and two licensed individuals per deck watch shall apply; unique machinery installations may require special training or engineering personnel.

U. Submersible Vessels.

1. General.

Currently, submersibles have only been inspected for service as passenger vessels. However, there are a number of uninspected vessels of this type, including uninspected passenger submersibles (carrying 6 or less passengers), oceanographic research and underwater survey submersibles. Eventually, there may be an expansion of services for this class of vessel which would necessitate inspection, such as its use as an industrial vessel. Coast Guard regulations do not currently address licensing and manning requirements for submersibles. A manning and licensing proposal should be submitted to Coast Guard Headquarters (G-MOC) via the Officer-in-Charge, Marine Inspection (OCMI). This proposal should address the levels of personnel training and qualifications including certifications held, as well as the number of personnel considered necessary for the safe operation of the vessel. The licensed individuals as well as any unlicensed crew would be required to complete a comprehensive course prescribed by the vessel manufacturer. It is expected the course schedule should be similar to that noted in section 21.R.2.

2. Sample Scale.

a. Crew General Operation.

1-Master

*1-Mate

*Additional Deckhands based on the number of passengers aboard or service requirements

* **Denotes Variables**

3. Variables.

At least two licensed individuals should be provided to ensure the vessel can be safely operated under all conditions. This ensures that at least one other person is capable of taking control of the vessel's navigation should the pilot become incapacitated, and also provides another individual for assisting and directing the passengers and required crew in the event of an emergency.