We claim:

1. A disconnectable spread mooring assembly for a vessel floating at a water surface, the vessel having a bow and a stern, the disconnectable spread mooring assembly comprising:

a forward chain table assembly releasably connected to the vessel at the bow;

an aft chain table assembly releasably connected to the vessel at the stern;

a plurality of bow mooring legs having first ends attached to the forward chain table assembly and having second ends capable of being anchored at spaced locations on a seafloor;

a plurality of stern mooring legs having first ends attached to the aft chain table assembly and having second ends capable of being anchored at spaced locations on the seafloor;

a first connector assembly connecting the forward chain table assembly to the vessel at the bow; ~~and~~

a second connector assembly connecting the aft chain table assembly to the vessel at the stern,

wherein the first and second connector assemblies are arranged and designed to unlock and release the forward and aft chain table assemblies from the vessel;

a first pull-in assembly on the vessel at the bow; and

a second pull-in assembly on the vessel at the stern,

wherein the first pull-in assembly is arranged and designed to lower the forward chain table assembly and the first ends of the plurality of bow mooring legs from the vessel upon unlocking the first connector assembly, and

wherein the second pull-in assembly is arranged and designed to lower the aft chain table assembly and the first ends of the plurality of stern mooring legs from the vessel upon unlocking the second connector assembly.

2. The disconnectable spread mooring assembly of claim 1, wherein each of the forward and aft chain table assemblies comprises one or more buoyancy compartments and the forward and aft chain table assemblies are arranged and designed to float at or near the water surface when disconnected from the vessel.

~~3. The disconnectable spread mooring assembly of claim 2, further comprising:~~

3. A disconnectable spread mooring assembly for a vessel floating at a water surface, the vessel having a bow and a stern, the disconnectable spread mooring assembly comprising:

a forward chain table assembly releasably connected to the vessel at the bow;

an aft chain table assembly releasably connected to the vessel at the stern, wherein each of the forward and aft chain table assemblies comprises one or more buoyancy compartments and the forward and aft chain table assemblies are arranged and designed to float at or near the water surface when disconnected from the vessel;

a plurality of bow mooring legs having first ends attached to the forward chain table assembly and having second ends capable of being anchored at spaced locations on a seafloor;

a plurality of stern mooring legs having first ends attached to the aft chain table assembly and having second ends capable of being anchored at spaced locations on the seafloor;

a first connector assembly connecting the forward chain table assembly to the vessel at the bow;

a second connector assembly connecting the aft chain table assembly to the vessel at the stern, wherein the first and second connector assemblies are arranged and designed to unlock and release the forward and aft chain table assemblies from the vessel;

a first tie-back hawser or chain, or combination of hawser and chain, connected to the forward chain table assembly;

a second tie-back hawser or chain, or combination of hawser and chain, connected to the aft chain table assembly; and

one or more fixed jacket structures fixed to the seafloor,

wherein the first and second tie-back hawsers or chains, or combinations of hawser and chain, are arranged and designed to connect to the one or more fixed jacket structures when the forward and aft chain table assemblies float at or near the water surface.

4. The disconnectable spread mooring assembly of claim 2, further comprising:

a first tie-back hawser or chain, or combination of hawser and chain, connected to the forward chain table assembly;

a second tie-back hawser or chain, or combination of hawser and chain, connected to the aft chain table assembly; and

one or more buoys secured to the seafloor,

wherein the first and second tie-back hawsers or chains, or combinations of hawser and chain, are arranged and designed to connect to the one or more buoys when the forward and aft chain table assemblies float at or near the water surface.

5. The disconnectable spread mooring assembly of claim 1, wherein each of the forward and aft chain table assemblies comprises one or more buoyancy compartments and the forward and aft chain table assemblies are arranged and designed to float submerged below the water surface at neutral buoyancy when disconnected from the vessel.

6. The disconnectable spread mooring assembly of claim 5, further comprising:

a first tie-back hawser or chain, or combination of hawser and chain, connected to the forward chain table assembly; and

a second tie-back hawser or chain, or combination of hawser and chain, connected to the aft chain table assembly,

wherein the first and second tie-back hawsers or chains, or combinations of hawser and chain, are arranged and designed to connect to one another and be submerged when the forward and aft chain table assemblies float submerged below the water surface at neutral buoyancy.

7. The disconnectable spread mooring assembly of claim 5, further comprising:

a tie-back chain or wire or combination of chain and wire, connected to the forward chain table assembly and the aft chain table assembly when the vessel is in the moored condition with the forward and aft chain table assemblies connected to the vessel,

wherein the tie-back chain or wire or combination of chain and wire is arranged and designed to secure the forward and aft chain table assemblies when disconnected from the vessel and floating submerged below the water surface at neutral buoyancy.

8. The disconnectable spread mooring assembly of claim 7, wherein the tie-back chain or wire or combination of chain and wire, is positioned below the vessel when the vessel is in the moored condition.

~~9. The disconnectable spread mooring assembly of claim 1, further comprising:~~

~~a first pull-in assembly on the vessel at the bow; and~~

~~a second pull-in assembly on the vessel at the stern,~~

~~wherein the first pull-in assembly is arranged and designed to lower the forward chain table assembly and the first ends of the plurality of bow mooring legs from the vessel upon unlocking the first connector assembly, and~~

~~the second pull-in assembly is arranged and designed to lower the aft chain table assembly and the first ends of the plurality of stern mooring legs from the vessel upon unlocking the second connector assembly.~~

~~14.~~9. The disconnectable spread mooring assembly of claim ~~9~~ 1, wherein the first pull-in assembly is arranged and designed to lower the released forward chain table assembly and the first ends of the plurality of bow mooring legs to the seafloor, and

the second pull-in assembly is arranged and designed to lower the released aft chain table assembly and the first ends of the plurality of stern mooring legs to the seafloor.

~~15.~~10. The disconnectable spread mooring assembly of claim 1, ~~further comprising:~~

~~a first pull-in assembly on the vessel at the bow; and~~

~~a second pull-in assembly on the vessel at the stern,~~

wherein the first and second pull-in assemblies are arranged and designed to retrieve the forward and aft chain table assemblies, respectively, released from the vessel for reconnection to the first and second connector assemblies, respectively.

~~16.~~11. The disconnectable spread mooring assembly of claim 1, further comprising:

a forward chain table support structure housing the first connector assembly at the bow of the vessel; and

an aft chain table support structure housing the second connector assembly at the stern of the vessel.

~~17.~~12. The disconnectable spread mooring assembly of claim 1, wherein the forward and aft chain table assemblies are vertically oriented when connected to the first and second connector assemblies, respectively.

~~18.~~13. The disconnectable spread mooring assembly of claim 1, wherein the forward and aft chain table assemblies, when connected to the first and second connector assemblies, respectively, are above the water surface.

~~19.~~14. The disconnectable spread mooring assembly of claim 1, wherein the forward and aft chain table assemblies, when connected to the first and second connector

assemblies, respectively, are partially submerged or fully submerged below the water surface.

~~20.~~15. The disconnectable spread mooring assembly of claim ~~9~~ 1, wherein the first pull-in assembly comprises a winch assembly, ~~or~~ hydraulic cylinders, ~~or~~ a chain jack assembly, or ~~combinations of them~~ a combination thereof at the bow of the vessel, and

the second pull-in assembly comprises a winch assembly, ~~or~~ hydraulic cylinders, ~~or~~ chain jack assembly, or ~~combinations of them~~ a combination thereof at the stern of the vessel.

~~21.~~16. A disconnectable spread mooring and riser tower system for a vessel floating at a water surface, the vessel having a bow and a stern, the disconnectable spread mooring and riser tower system comprising:

a forward chain table assembly releasably connected to the vessel at the bow;

an aft chain table assembly releasably connected to the vessel at the stern;

a plurality of bow mooring legs having first ends attached to the forward chain table assembly and having second ends capable of being anchored at spaced locations on a seafloor;

a plurality of stern mooring legs having first ends attached to the aft chain table assembly and having second ends capable of being anchored at spaced locations on the seafloor;

a first connector assembly connecting the forward chain table assembly to the vessel at the bow;

a second connector assembly connecting the aft chain table assembly to the vessel at the stern,

wherein the first and second connector assemblies are arranged and designed to unlock and release the forward and aft chain table assemblies from the vessel;

a first pull-in assembly on the vessel at the bow;

a second pull-in assembly on the vessel at the stern,

wherein the first pull-in assembly is arranged and designed to lower the forward chain table assembly and the first ends of the plurality of bow mooring legs from the vessel upon unlocking the first connector assembly,

the second pull-in assembly is arranged and designed to lower the aft chain table assembly and the first ends of the plurality of stern mooring legs from the vessel upon unlocking the second connector assembly;

a riser tower system fixed to the seafloor and located near the moored vessel; and

one or more flexible jumper hoses extending between the riser tower system and the vessel to one or more of: transfer fluids, air, power and control signals.

~~22.~~17. A method for disconnecting a floating vessel having a bow and a stern from a spread mooring system at a moored location, the spread mooring system including a plurality of bow mooring legs anchored at spaced locations on a seafloor and connected to a forward chain table assembly connected to the vessel at the bow, and a plurality of stern mooring legs anchored at spaced locations on the seafloor and

connected to an aft chain table assembly connected to the vessel at the stern, the method comprising the steps of:

unlocking a first connector assembly securing the forward chain table assembly to the vessel;

releasing the forward chain table assembly from the first connector assembly and lowering the forward chain table assembly with a first pull-in assembly into the water;

unlocking a second connector assembly securing the aft chain table assembly to the vessel;

releasing the aft chain table assembly from the second connector assembly and lowering the aft chain table assembly with a second pull-in assembly into the water;

securing the positioning of the forward and aft chain table assemblies in the water; and

moving the vessel to another location with the forward and aft chain table assemblies and pluralities of bow and stern mooring legs remaining at the moored location.

~~23. The method for disconnecting a floating vessel of claim 18, wherein the step of releasing the forward chain table assembly from the first connector assembly comprises lowering the forward chain table assembly with a first pull-in assembly into the water, and~~

~~wherein the step of releasing the aft chain table assembly from the second connector assembly comprises lowering the aft chain table assembly with a second pull-in assembly into the water.~~

~~25.~~18. The method for disconnecting a floating vessel of claim ~~19~~ 17, wherein the step of securing the positioning of the forward and aft chain table assemblies in the water comprises lowering the forward chain table assembly with the first pull-in assembly to the seafloor and placing it on the seafloor and lowering the aft chain table assembly with the second pull-in assembly to the seafloor and placing it on the seafloor.

~~26.~~19. The method for disconnecting a floating vessel of claim ~~19~~ 17, wherein the forward and aft chain table assemblies are buoyant, the spread mooring system further comprising a first tie-back hawser or chain, or combination of hawser and chain having a first end connected to the forward chain table assembly and a second tie-back hawser or chain, or combination of hawser and chain having a first end connected to the aft chain table assembly, wherein the step of securing the positioning of the forward and aft chain table assemblies in the water comprises~~:~~

~~attaching a first tie-back hawser or chain, or combination of hawser and chain, to the forward chain table assembly;~~

~~attaching a second tie-back hawser or chain, or combination of hawser and chain, to the aft chain table assembly; and~~

connecting a second end of each of the first and second tie-back hawsers or chains, or combinations of hawser and chain, to one or more fixed jacket structures with the forward and aft chain table assemblies floating at or near the water surface.

~~27.~~20. The method for disconnecting a floating vessel of claim ~~19~~ 17, wherein the forward and aft chain table assemblies are buoyant, the spread mooring system further comprising a first tie-back hawser or chain, or combination of hawser and chain having a first end connected to the forward chain table assembly and a second tie-back hawser or chain, or combination of hawser and chain having a first end connected to the aft chain table assembly, wherein the step of securing the positioning of the forward and aft chain table assemblies in the water comprises~~:~~

~~attaching a first tie-back hawser or chain, or combination of hawser and chain, to the forward chain table assembly;~~

~~attaching a second tie-back hawser or chain, or combination of hawser and chain, to the aft chain table assembly; and~~

connecting a second end of each of the first and second tie-back hawsers or chains, or combinations of hawser and chain, to one or more buoys secured to the seafloor with the forward and aft chain table assemblies floating at or near the water surface.

~~28.~~21. The method for disconnecting a floating vessel of claim ~~18~~ 17, wherein the forward and aft chain table assemblies each comprises one or more buoyancy compartments, the spread mooring system further comprising a first tie-back hawser or chain, or combination of hawser and chain having a first end connected to the forward chain table assembly and a second tie-back hawser or chain, or combination of hawser and chain having a first end connected to the aft chain table assembly, and wherein the step of securing the positioning of the forward and aft chain table assemblies in the water comprises:

~~attaching a first tie-back hawser or chain, or combination of hawser and chain, to the forward chain table assembly;~~

~~attaching a second tie-back hawser or chain, or combination of hawser and chain, to the aft chain table assembly;~~

connecting a second end of each of the first and second tie-back hawsers or chains, or combinations of hawser and chain, to one another; and

allowing the forward and aft chain table assemblies to float submerged below the water surface at neutral buoyancy.

~~29.~~22. The method for disconnecting a floating vessel of claim ~~18~~ 11, wherein the forward and aft chain table assemblies each comprises one or more buoyancy compartments, the spread mooring system further comprising a tie-back chain, wire or combination of chain and wire connected at a first end to the forward chain table assembly and connected to the aft chain table assembly at a second end, and wherein the step of securing the positioning of the forward and aft chain table assemblies in the water comprises~~:~~

~~providing a tie-back chain or wire or combination of chain and wire, to the forward and aft chain table assemblies with the forward and aft chain table assemblies connected to the vessel; and~~

following the steps of releasing the forward and aft chain table assemblies from the first and second connector assemblies, allowing the forward and aft chain table assemblies to float submerged below the water surface at neutral buoyancy, while being connected to the tie-back chain or wire or combination of chain and wire.

23. The disconnectable spread mooring assembly of claim 3, further comprising:

a first pull-in assembly on the vessel at the bow; and

a second pull-in assembly on the vessel at the stern,

wherein the first and second pull-in assemblies are arranged and designed to retrieve the forward and aft chain table assemblies, respectively, released from the vessel for reconnection to the first and second connector assemblies, respectively.

24. The disconnectable spread mooring assembly of claim 3, further comprising:

a forward chain table support structure housing the first connector assembly at the bow of the vessel; and

an aft chain table support structure housing the second connector assembly at the stern of the vessel.