



Coastal Dungeness Crab Tri-State Committee

Line Marking Coordination for the West Coast Dungeness Crab Commercial Fishery

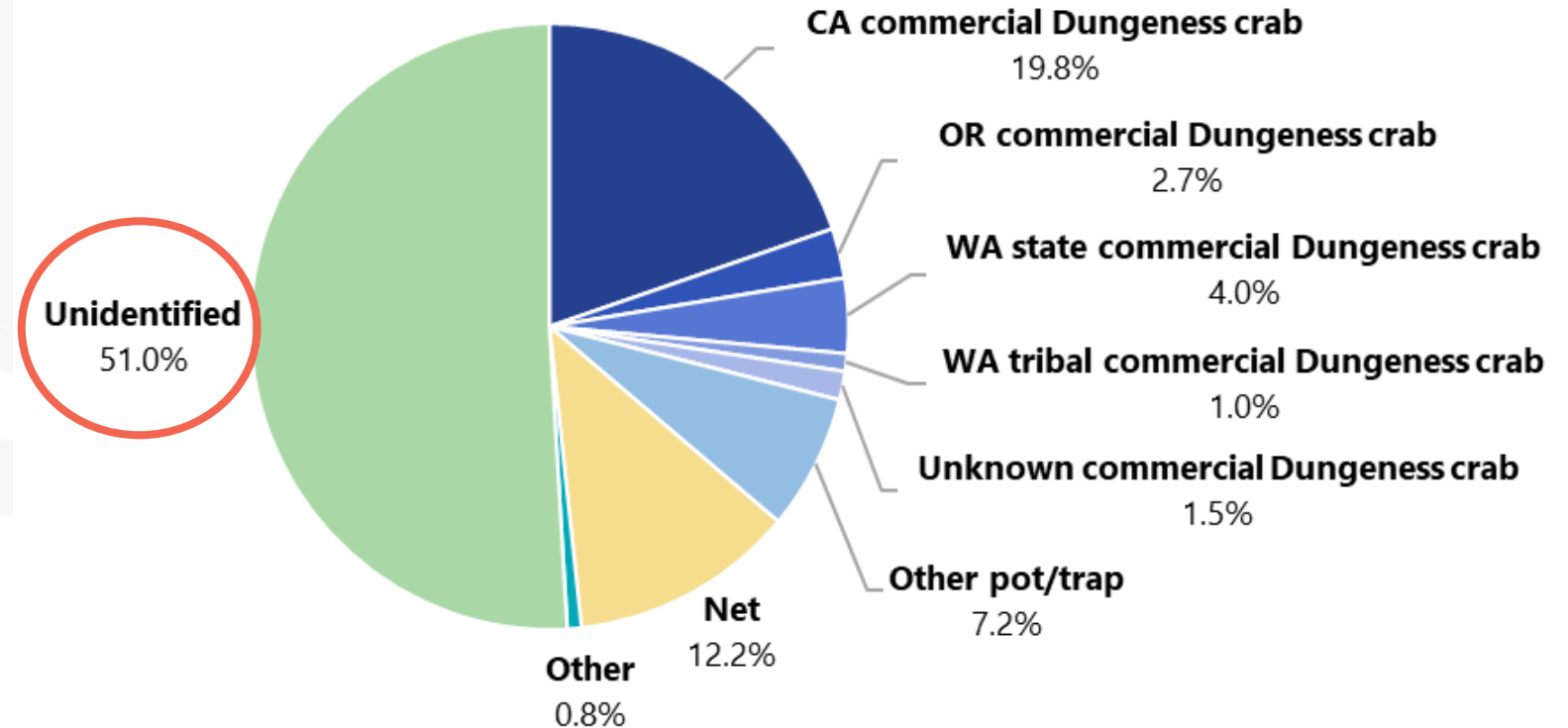
May 16, 2024

Why line marking?



- **Improve gear attribution rates**
 - Increase positive attributions
 - Enable negative attributions
- **Decrease % of unidentified**
- **Effective monitoring of the gear involved in future entanglements is essential to getting an ITP**

**West Coast entanglement record
2013 – 2020**
(n=263)



Goals for line marking



- May 2020 Tri-State line marking coordination discussion
- Agreed upon goals for current and future line marking regulations:
 - 1) Identifiable and accurate
 - 2) Visible (primarily in photographs)
 - 3) Reasonable and cost-effective
 - 4) Coordinated across West Coast Dungeness crab fisheries and potentially other fixed gear fisheries
 - 5) Environmentally friendly

NMFS line marking analysis: Summary conclusions (April 2022)



- With sufficiently marked gear including line marking in fixed fisheries, it could be possible to pursue **“negative attribution”** for those fisheries with at least some reported entanglements
- Line marking success will likely depend on having **multiple marks** present to increase the probability of detection
- **More (and probably much larger) marks** than currently required in WA Dungeness crab fishery would be necessary to provide a high likelihood for the detection of marks (or the potential for negative attributions)
- The **top and upper portion of the gear** is the most frequently documented part of the gear during entanglements (surface gear, including trailer buoy lines, up to 5 fm of vertical line)
 - However, when buoys are not present to assist with identification, **other portions of the gear** (line) may be more commonly documented and will likely be necessary to mark to create a high likelihood for the detection of marks
- Marking line **at least every few fathoms**, especially in the “top half” of the gear, would give you the best chance to detect a line marking and/or determine negative attribution for reported entanglements



California

RAMP 2.0 – Proposed Changes §132.8

- Gear Identification (h):

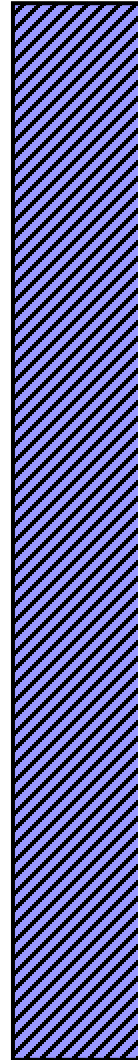
- **Line marking:** purple and black line requirement (manufactured or painted)
 - **By Nov. 1, 2025: Surface Gear**
 - Any portion of line that connects two buoys shall be continuously marked
 - **By Nov. 1, 2028: Depth-dependent line marking**
 - Greater than 20 fathoms: Upper 15 fathoms marked
 - Between 5 and 20 fathoms: Entire line, except for bottom 5 fathoms, marked
 - At 5 fathoms or shallower: Entire line marked





California Dungeness Crab Fishery Line Marking

Manufactured Line:
3 strands;
2 strands purple and
one strand black





Painted Line:
Alternating color;
Solid color marks of
6-12 inches in length
cover entirety
(circumference) of line



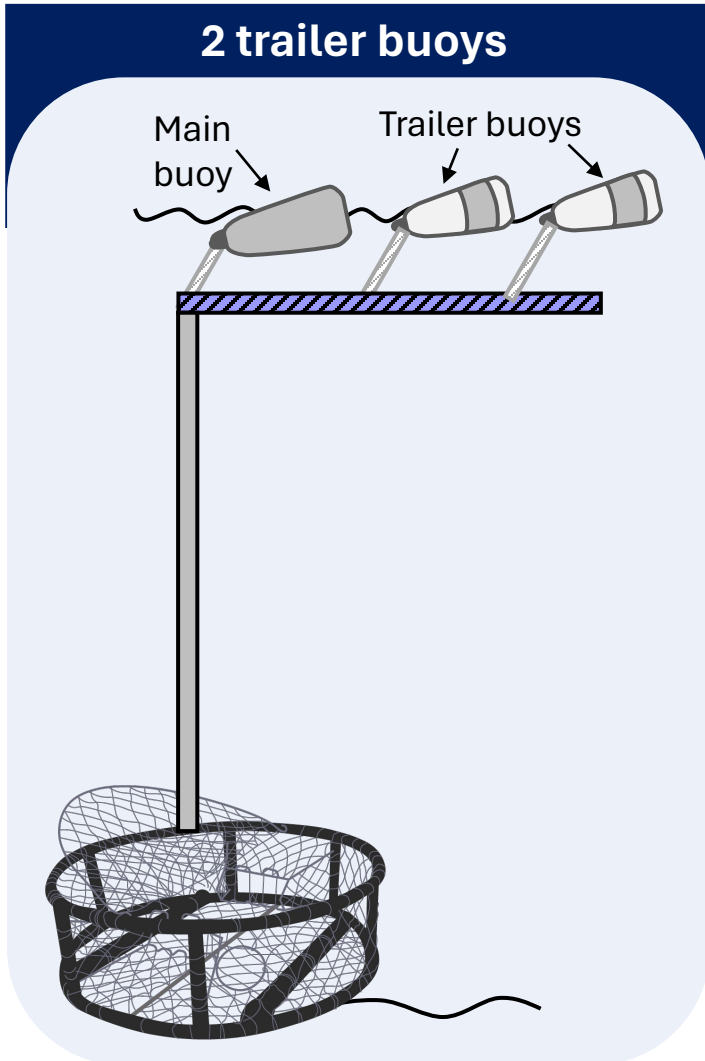


California Dungeness Crab Fishery Line Marking

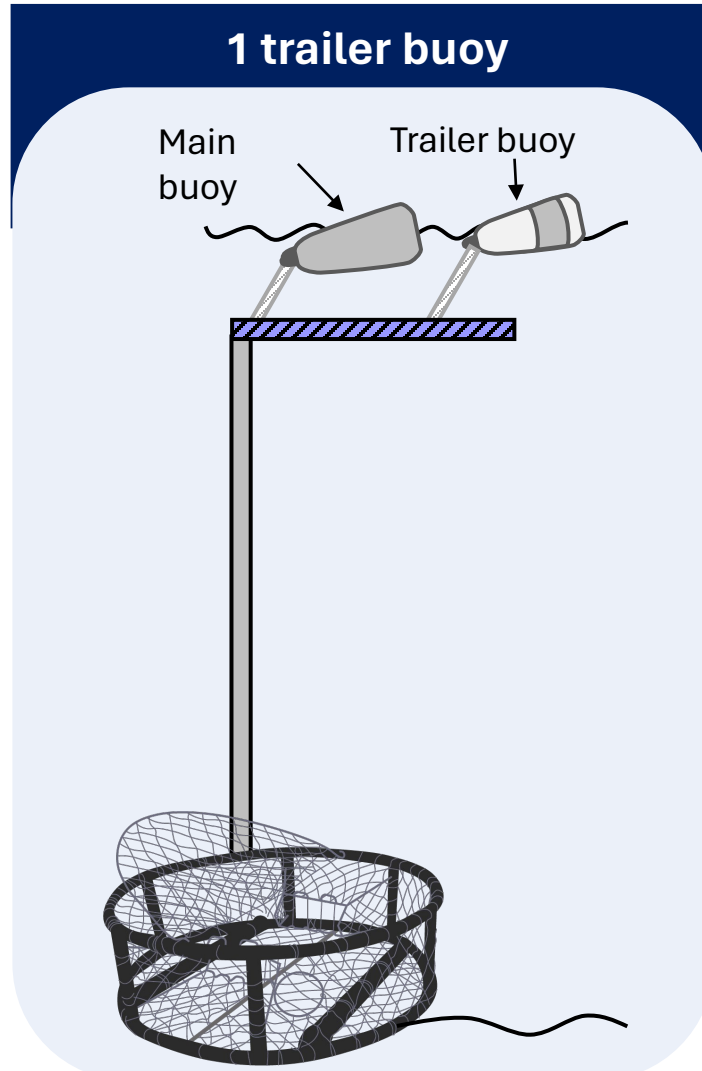
Effective Date: November 1, 2025

 = Purple CA & Black Commercial Dcrab  = unmarked line

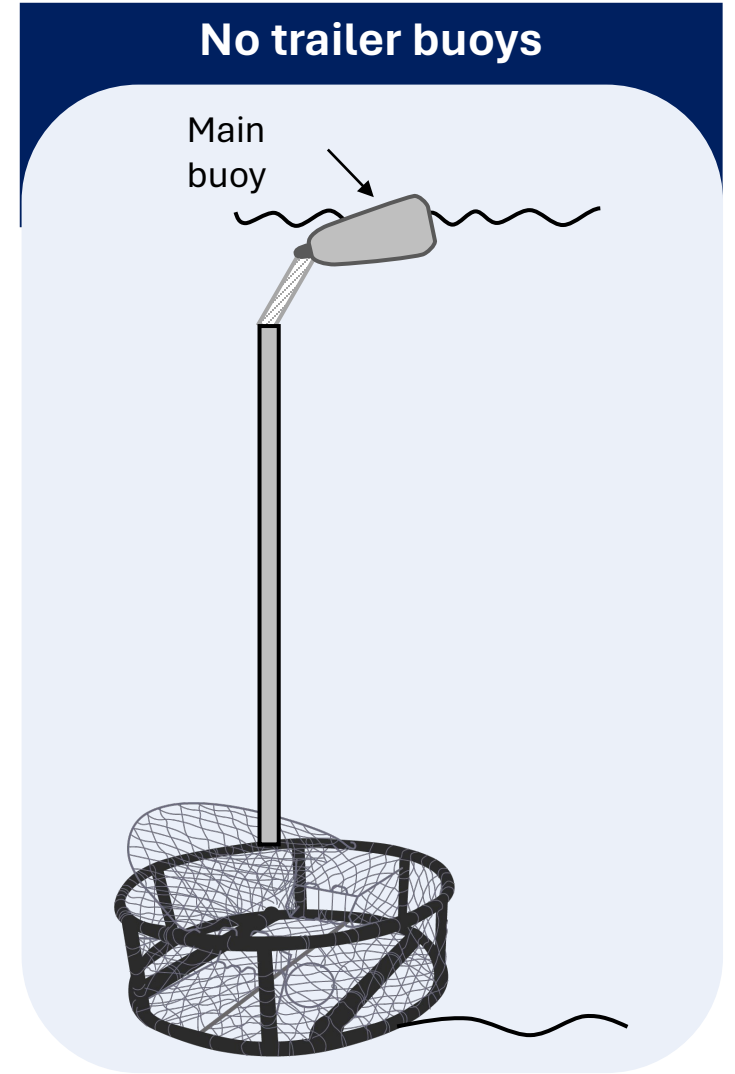
2 trailer buoys



1 trailer buoy





No trailer buoys

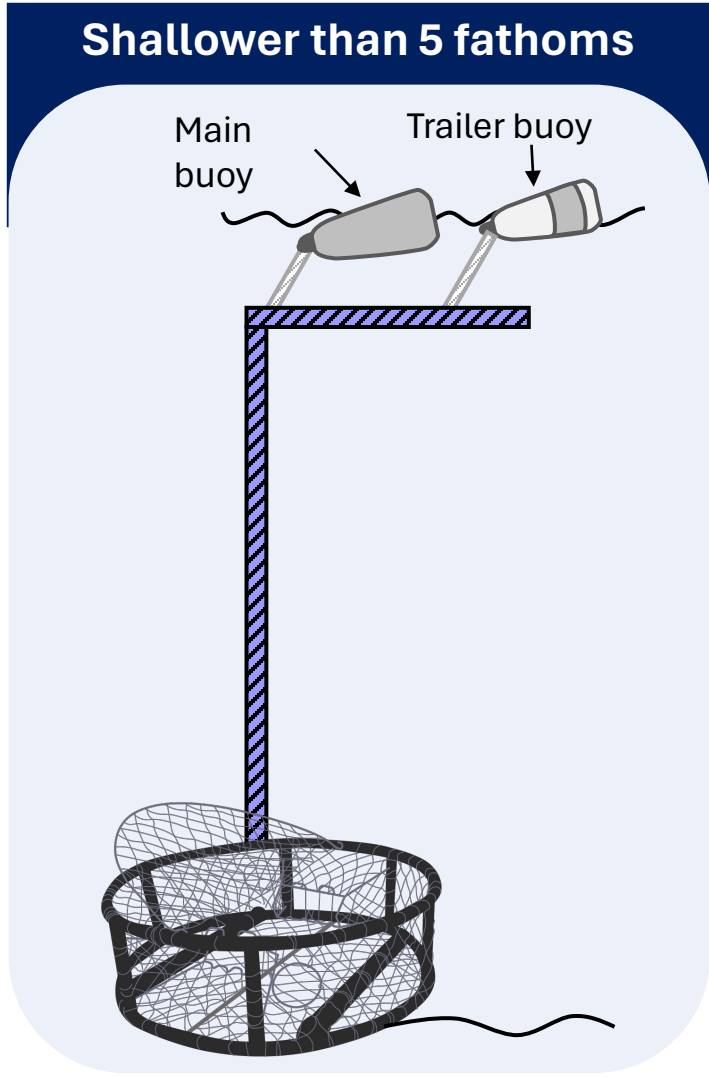
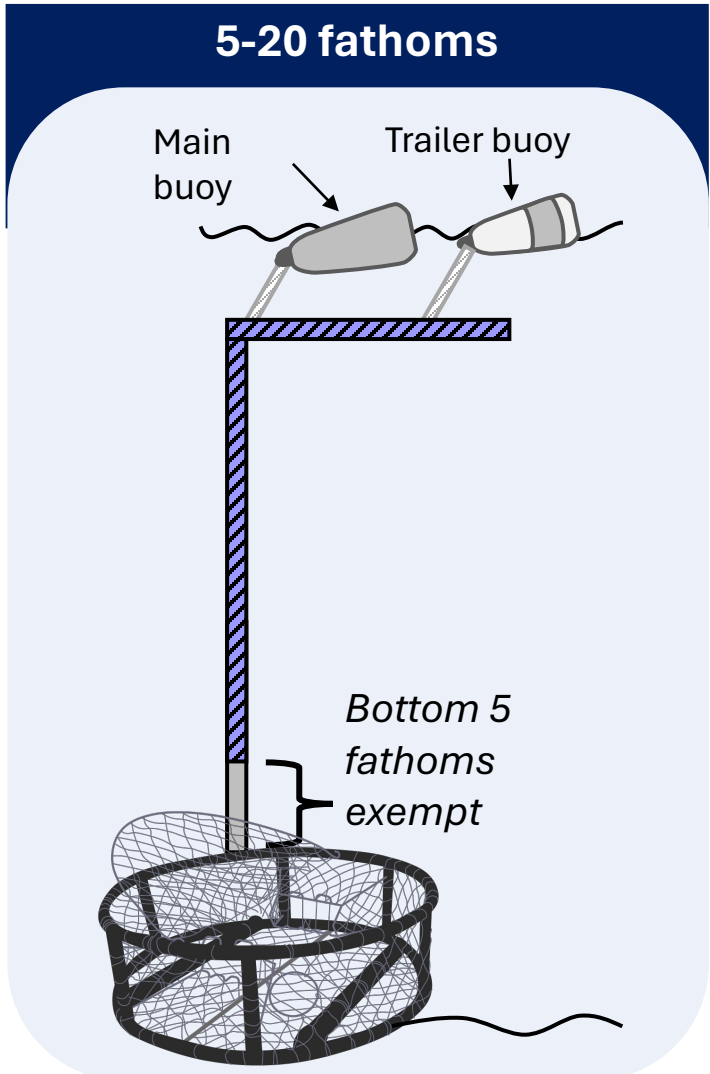
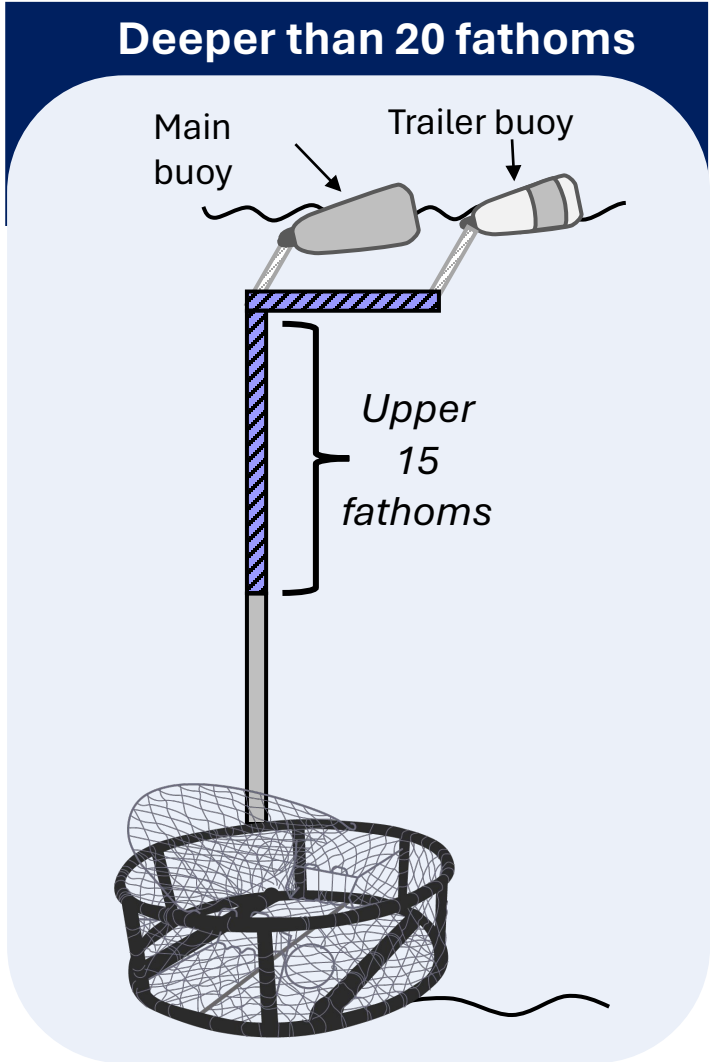




California Dungeness Crab Fishery Line Marking

Effective Date: November 1, 2028

 = Purple CA & Black Commercial Dcrab  = unmarked line





Marine
Resources

A large, light gray silhouette of a crab is centered on the page, serving as a background for the title. A horizontal blue line is positioned above the crab's shell.

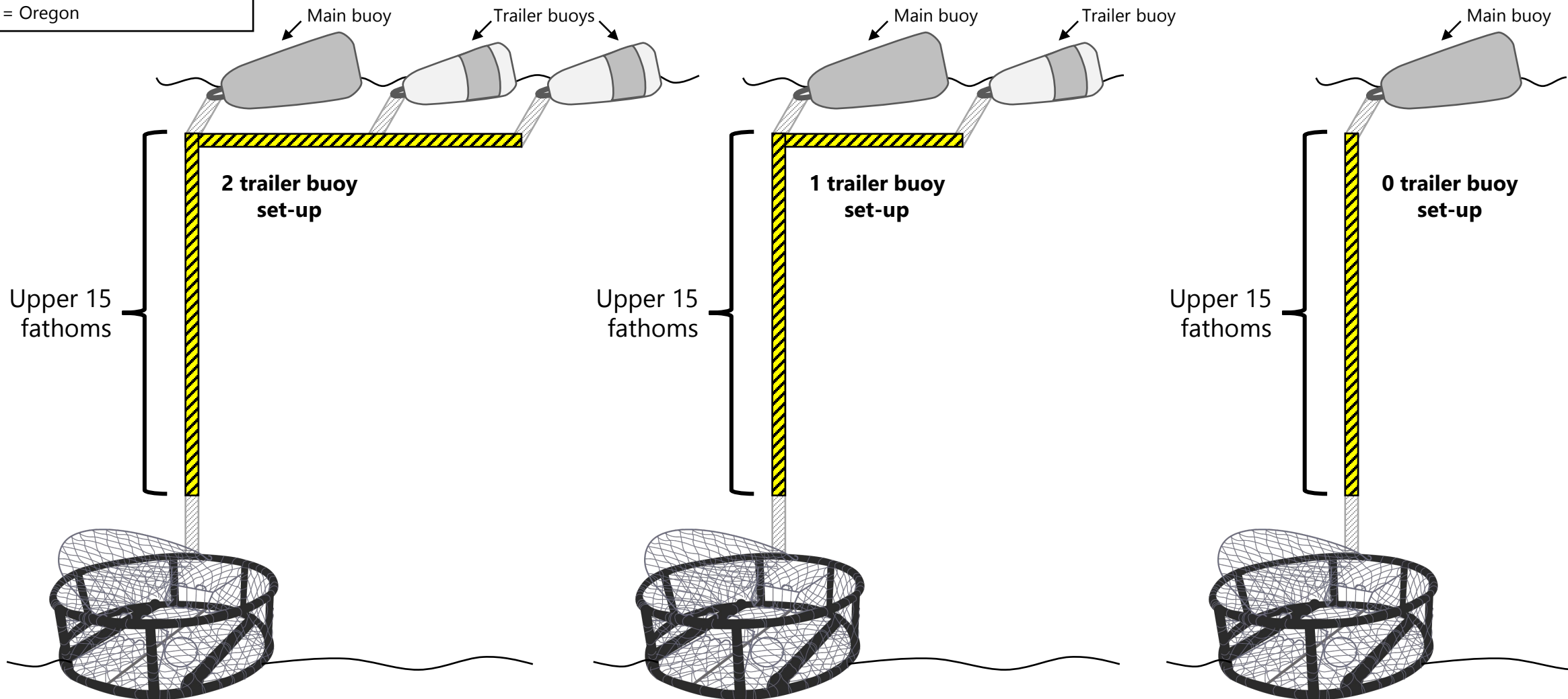
Oregon

Draft Oregon Commercial Dungeness Crab Line Marking Proposal

Phase 1: Surface Line; Required at start of 2025-26 season

Phase 2: Upper Main Line; Required at start of 2028-29 season

■ = Commercial Dungeness crab
■ = Oregon



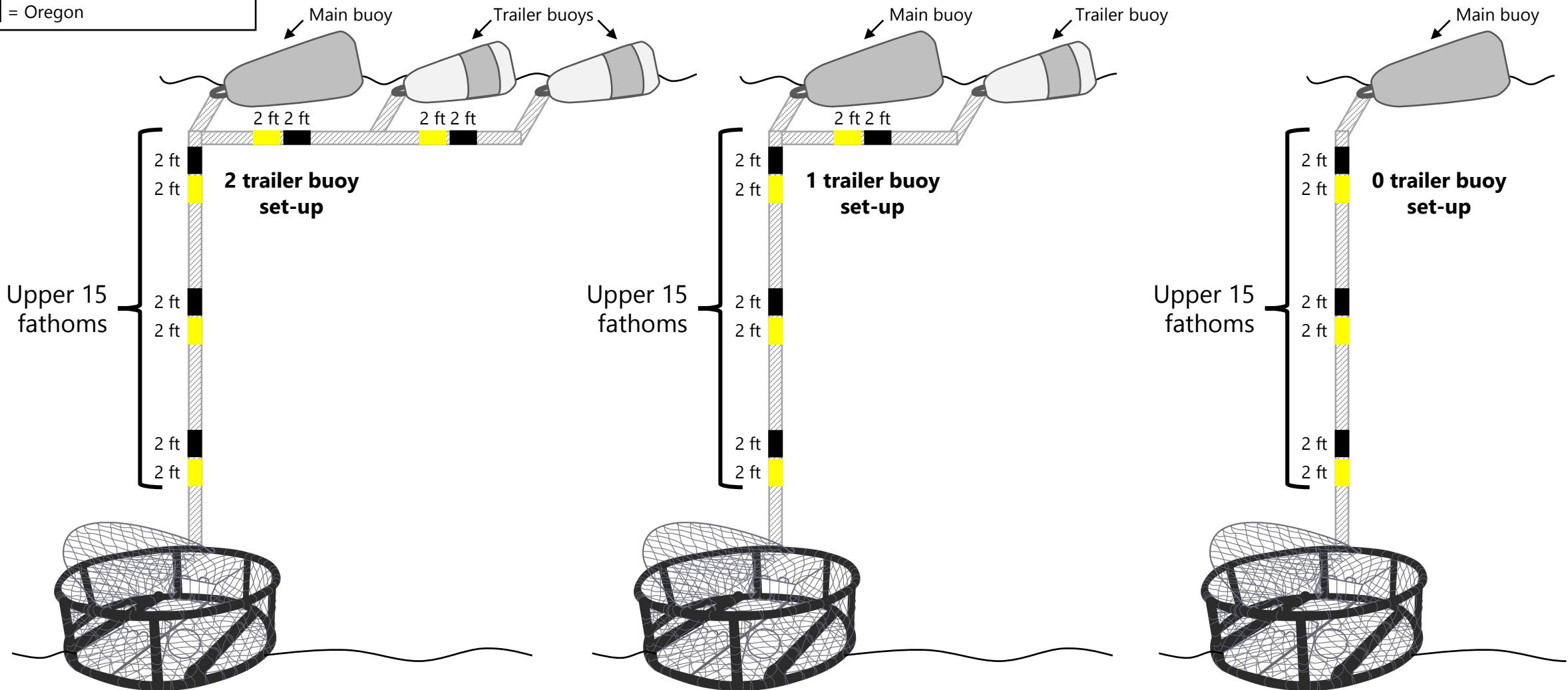
Manufactured yellow and black line used for any surface line (excl. buoy gangions) *and* the upper 15 fathoms of the main line

Draft Oregon Commercial Dungeness Crab Line Marking Proposal

Temporary solid mark option

Same phased implementation; Sunsets prior to the 2033-34 season

■ = Commercial Dungeness crab
■ = Oregon



One set of solid marks (2' black mark within 6" of 2' yellow mark) on surface line between any two buoys and three sets evenly distributed in upper 15 fathoms of the main line

Draft Oregon Commercial Dungeness Crab Line Marking Proposal

Additional considerations

- **If no surface line is used:** a set of marks or at least 1 fathom of manufactured line should be used at the top of the main line (within 1 fathom of the main buoy gangion) during Phase 1
- **Shallow depth provision** is under consideration. Priorities are:
 1. Make sure some line is marked in shallow water, while not incentivizing use of extra line (excess scope)
 2. Accommodate some ability to use a different color or marks on the bottom 5 fm by pot

OR line marking prohibition



- A prohibition on line marks from other fisheries being used on crab gear is in place

Dungeness Crab Buoy Tag and Gear Marking Requirements

"It is unlawful for commercial purposes to:

...(3) Use commercial Dungeness crab gear in the Columbia River or Pacific Ocean with a line mark that is required for any state or federal fishery, other than the Oregon Dungeness crab fishery, operating in the U.S. West Coast EEZ, or the state waters of Washington, Oregon, or California."

- A prohibition on crab line marks being used on other commercial fixed gear and/or recreational crab gear is under consideration

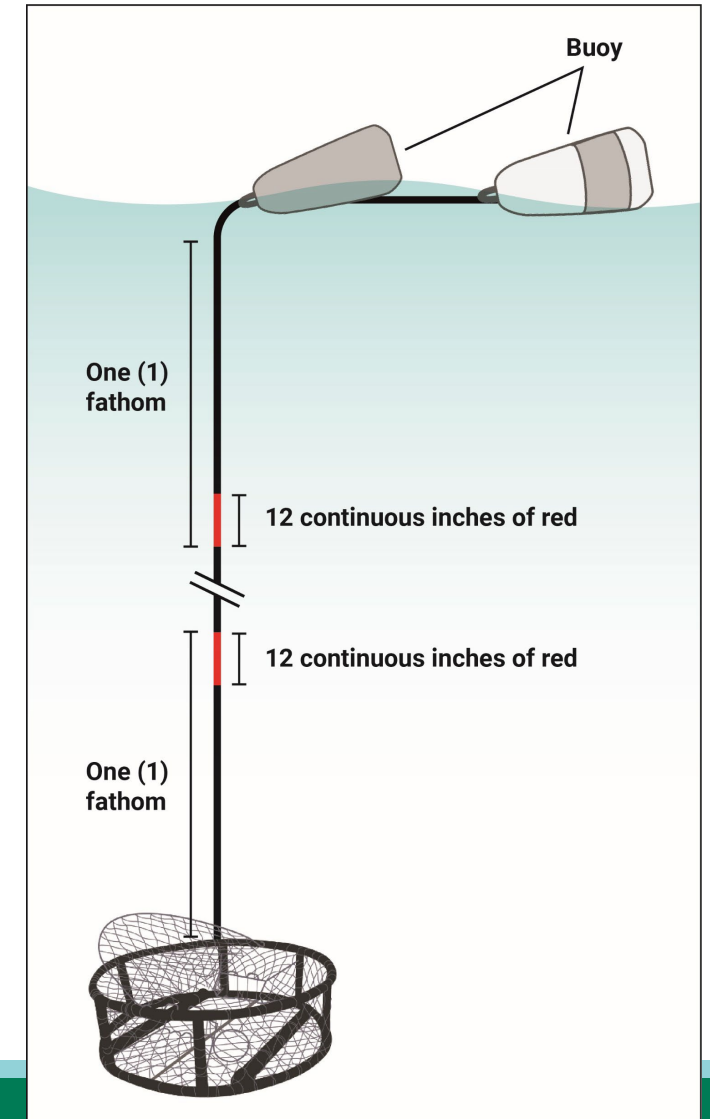


Washington

Current WA coastal Dungeness crab line marking

WAC 220-340-430

- “line must be marked with no less than 12 continuous inches of red in at least two places. At a minimum, 12 continuous inches of line must be marked in red, no more than one fathom from the main buoy and no more than one fathom from the pot”



Prohibition of line marking

Prohibited the use of line marks or color combinations in Washington fixed gear fisheries that are required for other state or federal fisheries

Rule Language:

- It is unlawful to use gear that has one or more line marks or to use multicolor line consistent with requirements for any other state or federally managed commercial fishery operating in the U.S. West Coast Exclusive Economic Zone, or in the state waters of Washington, Oregon, or California

Recreational crab, shrimp, crawfish (WAC 220-330-020), Commercial ocean spot shrimp pot fishery (WAC 220-340-510), Commercial shrimp pot fishery – Puget Sound (WAC 220-340-520), Hagfish pot trial fishery (WAC 220-360-220), Commercial crab (WAC 220-340-430)

Drafting new line marking regulations

Plan:

- **Red and black**
- Surface gear and top portion of vertical line
- Manufactured line (as an option)

Under consideration:

- Solid marks for transition or permeant alternative
- Length of main line required to marked
- Shallow fishing depth provisions
- Phased implementation



Red and black manufactured line

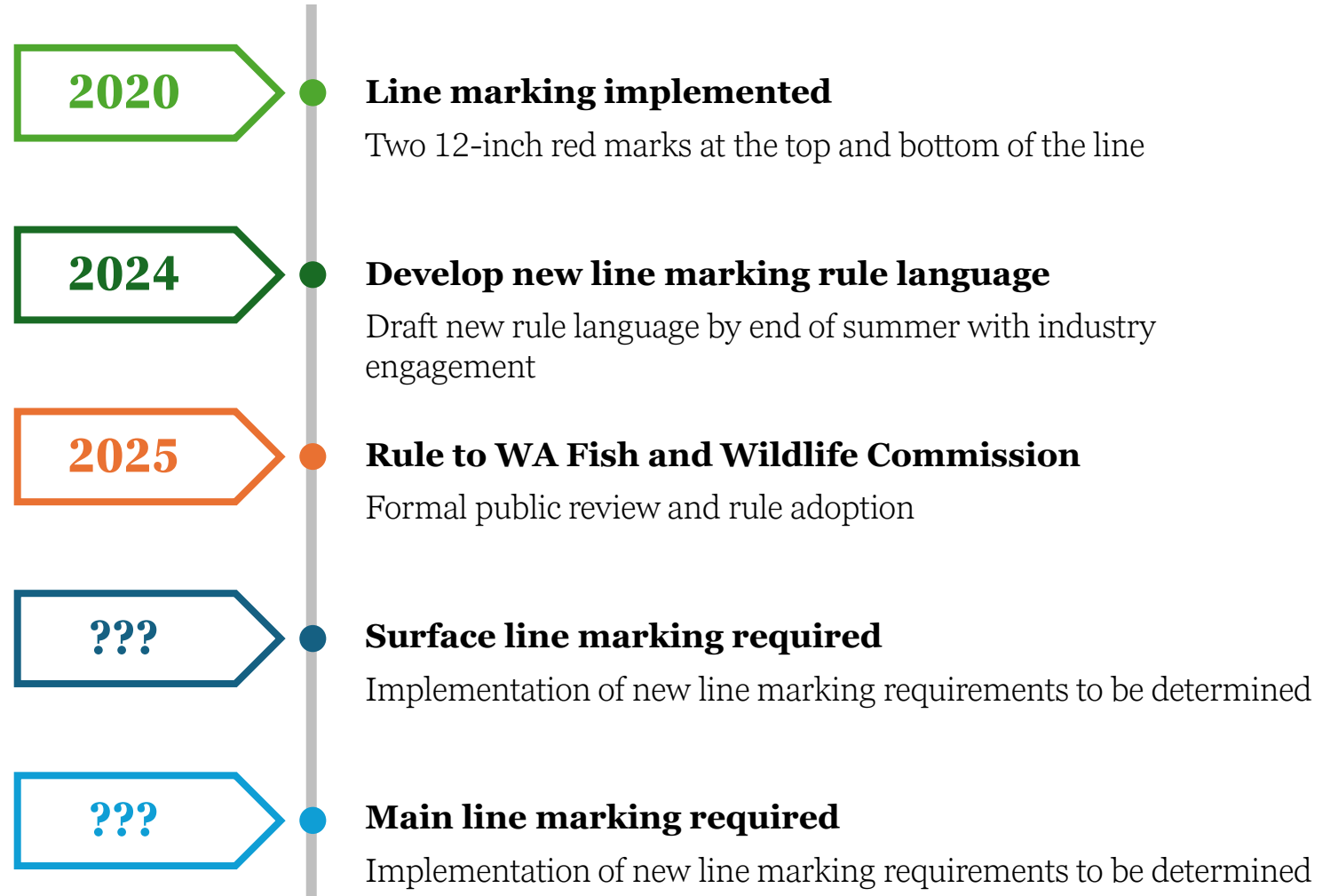
Next Steps

Engage with industry

- Hold small workshops
- Advisory board
- Public meeting

Draft rule language

Implement new line marking requirements



	California (Proposed RAMP 2.0)	Oregon	Washington
Line Marking			
Line colors (state/fishery):	Purple/Black	Yellow/Black	Red/Black
Manufactured line allowed? If so, how is it defined?	Yes , manufactured line shall be 3 strands w/2 purple strands and 1 black strand.	Yes , applied during the manufacturing process such that the majority of strands are colored yellow and at least 1/3 of strands colored black.	Yes , not defined.
Solid marking method allowed (temporarily or indefinitely)?	Yes , indefinitely.	Yes , temporarily (sunsets prior to 2033-34 season).	Considering options for temporary and indefinitely
Can solid colored line be used for part of marks?	Yes , solid colored line may be used for one color to satisfy solid marks.	Yes , solid colored line may be used for one color to satisfy solid marks.	
Prohibition of line marks from other fisheries being used on crab gear?	CA commercial crab line marking requirement dictates line marks for this fishery only.	Yes , regulation in place prohibiting line marks on OR commercial crab gear that are required for any state or federal fishery operating on West Coast, other than Dungeness crab.	Yes , it is unlawful to use line that is not marked sufficiently to identify it as gear used exclusively in WA coastal Dungeness crab fishery
Prohibition of crab line marks being used on other commercial fixed gear and/or rec crab gear?	Under development with new authority for commercial fisheries. Under development for recreational gear under authority of CA Fish and Game Commission.	Under consideration for all.	Yes , prohibits line marks or multicolored line required in other West Coast fisheries for WA fixed gear fisheries (commercial and recreational).

	California (Proposed RAMP 2.0)	Oregon	Washington
Surface Line			
Definition of the line at the surface that is required to be marked:	Any portion of the line that connects two buoys on all Dungeness crab fishing gear shall be continuously marked.	All rope or line used in surface gear above the attachment point of the main buoy, excluding buoy gangions (also known as buoy straps) that are less than five feet total length. A buoy gangion is defined as rope or line that passes through, and is affixed to, the buoy forming loops on each end of the buoy. The length of a buoy gangion is measured in a straight line between the opposing loop ends.	
Implementation date:	Effective Nov 1, 2025 (2025-26 season)	Effective 2025-26 season	
Placement and marking method(s):	Manufactured or painted in alternative solid color marks of 6-12 inches in length and cover circumference of line.	Manufactured or containing one set of solid marks (2' yellow within 6" of 2' black, each covering the entire circumference of the line) between any two buoys.	
Is there a provision for when no 'surface line' is used (e.g., single buoy, only daisy-chained buoy straps)?	No , only portion of line connecting two buoys is required to be marked.	Yes , when no surface line is used, manufactured line or one set of marks within top 1 fm of main line is required.	

	California (Proposed RAMP 2.0)	Oregon	Washington
Main Line			
Definition of upper portion of the main line that is required to be marked:	The top portion of the line connecting the main buoy to the crab trap shall be continuously marked. The length of this top portion of line is dependent on the depth that gear is deployed.	The main rope or line closest to the surface, measured from the attachment point of the buoy closest to the crab pot or ring extending toward the crab pot or ring.	
Implementation date:	Effective Nov 1, 2028 (2028-29 season)	Effective 2028-29 season	
Placement and marking method(s):	Manufactured or painted in alternative solid color marks of 6-12 inches in length and cover circumference of line.	The upper 15 fathoms of the main line is required to be manufactured or containing three sets of evenly distributed solid marks (first set within top 1 fathom)	
Shallow depth provision?	Depth/Top Portion of Line: Greater than 20 fathoms , top 15 fathoms of line connecting main buoy to crab traps is continuously marked. Between 20 fathoms and greater than 5 fathoms , entire length of line, except bottom 5 fathoms closest to trap, is continuously marked. At 5-fathom depth or shallower , entire length of line is continuously marked.	<i>Under consideration</i> – priorities are to ensure some line is marked on any gear in shallow water, while not incentivizing the use of extra line (excess scope) <i>and</i> to accommodate the ability for fishers to use a different color or mark at the bottom of the main line closest to the pot.	