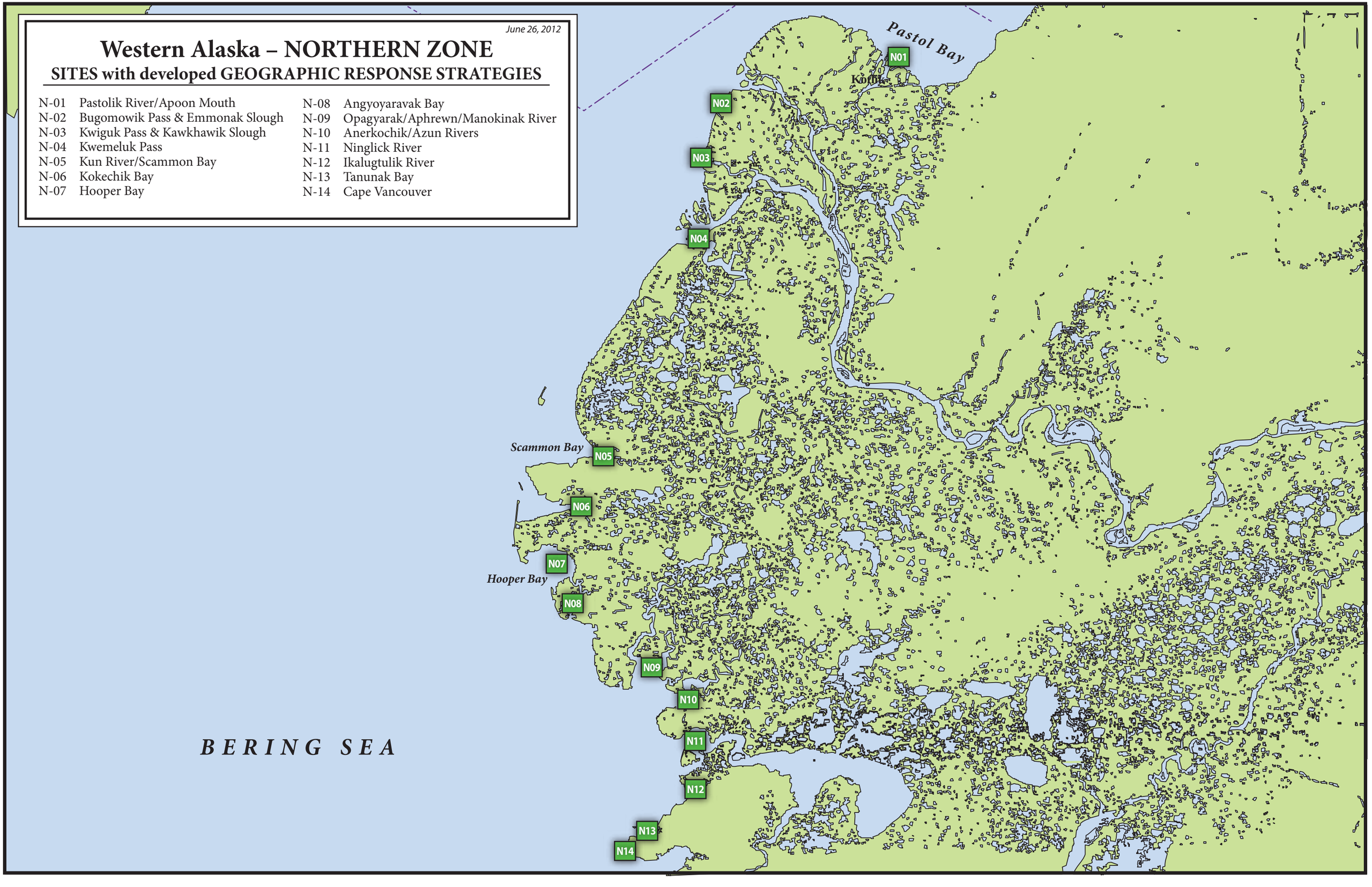
June 26, 2012

Western Alaska – NORTHERN ZONE

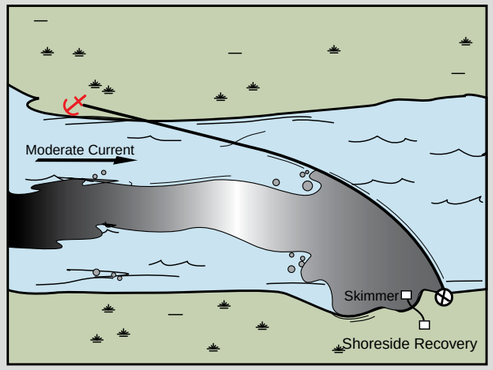
SITES with developed GEOGRAPHIC RESPONSE STRATEGIES

N-01	Pastolik River/Apoon Mouth	N-08	Angyoyaravak Bay
N-02	Bugomowik Pass & Emmonak Slough	N-09	Opagyarak/Aphrewn/Manokinak River
N-03	Kwiguk Pass & Kawkhawik Slough	N-10	Anerkochik/Azun Rivers
N-04	Kwemeluk Pass	N-11	Ninglick River
N-05	Kun River/Scammon Bay	N-12	Ikalugtulik River
N-06	Kokechik Bay	N-13	Tanunak Bay
N-07	Hooper Bay	N-14	Cape Vancouver

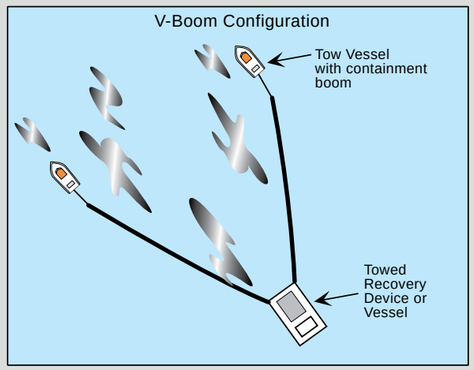


Pastolik River/Apoon Mouth, WAK-N01

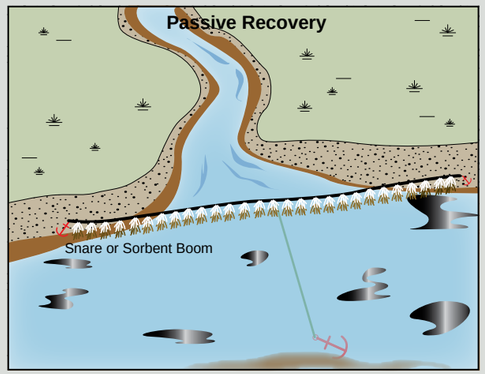
Center of map at 63˚ 02.36' N Lat., 163˚ 21.33' W Lon.



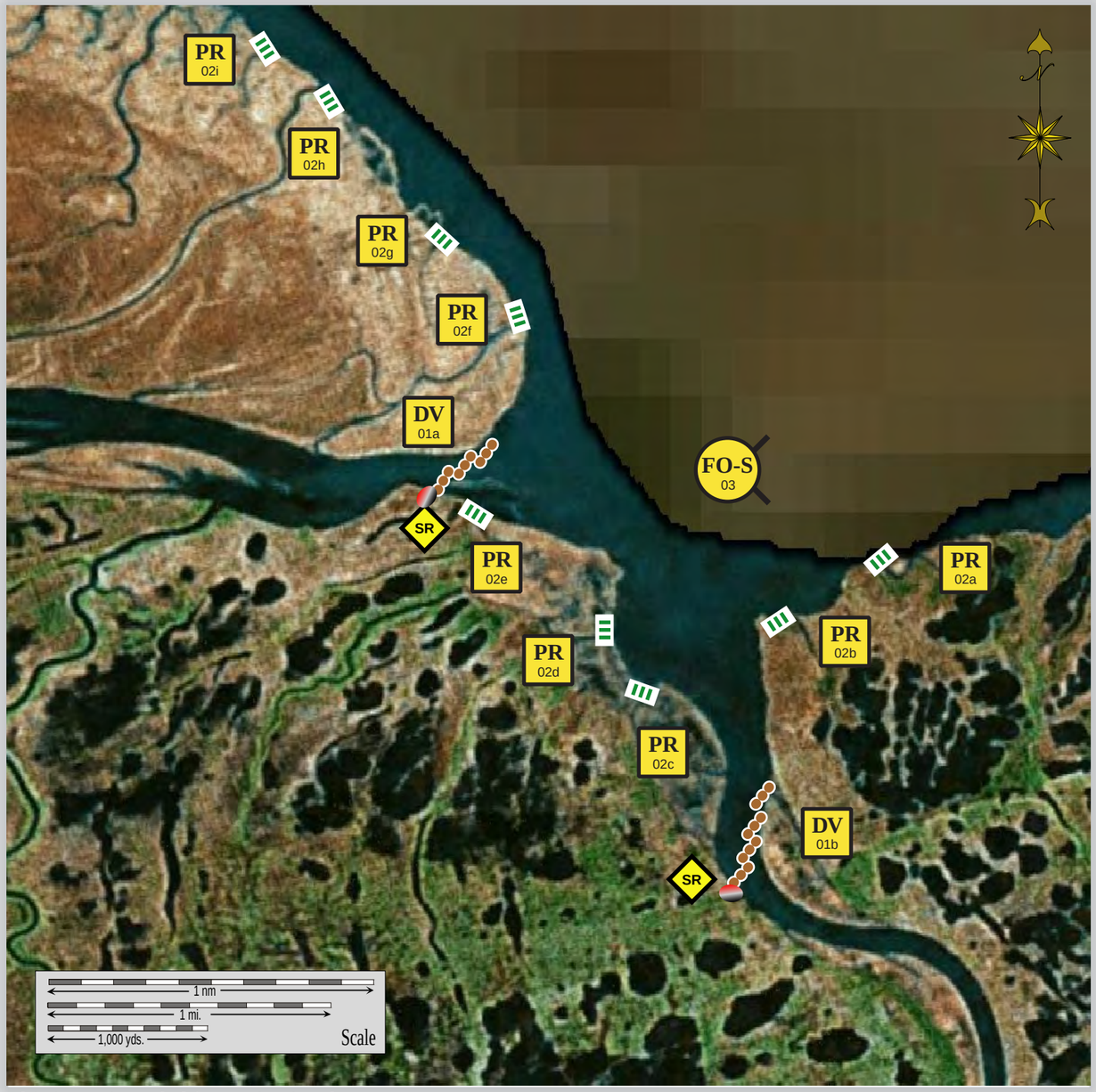
An example of the ***Diversion Booming Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Passive Recovery Tactic***. Actual deployment should be adjusted for local conditions.



This is not intended for navigational use.

Map Legend

- FO-S — Free-oil Recovery
- DV — Diversion Booming
- PR — Passive Recovery
- SR — Shoreside Recovery
- Fast-water Boom
- Snare or Sorbent Boom
- Tidal-seal Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

Geographic Response Strategies for *Western Alaska Subarea, Northern Zone*

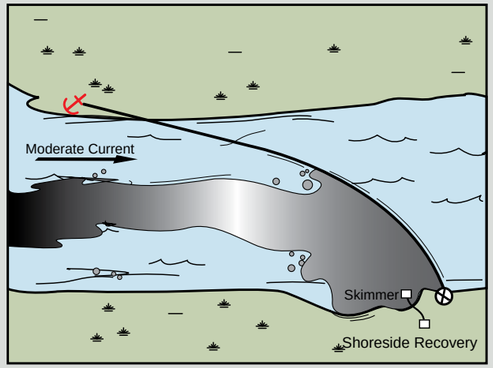
ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-01-01 DV	**Pastolik River** a. Lat. 63º 02.48'N Lon. 163º22.83'W **Apoon Mouth** b. Lat. 63º 01.11'N Lon. 163º20.49'W	**Divert and Collect** Divert oil to shore side collection location on the shore of the Pastolik River & Apoon Mouth.	Deploy anchors and boom with skiffs (class 6). Cascade each array in 300 ft sections of fast-water boom at the proper angle to divert incoming oil to the collection site. Complete the arrays with 60-ft sections of tidal seal boom. Set up shore-side recovery and tend throughout the tide. Boom Lengths: a. 900 ft b. 1200 ft.	**Deployment** **Equipment** 2100 ft. fast-water boom 120 ft. tidal seal boom 14 ea. anchor systems 8 ea. anchor stakes 2 ea. shore-side recovery systems **Vessels** 3 ea. class 6 **Personnel/Shift** 6 ea. vessel crew/general techs 4 ea. response techs **Tending** **Vessels** 2 ea. class 6 **Personnel/Shift** 4 ea. vessel crew/general techs 2 ea. skilled tech	Kotlik	Via marine waters Chart 16240-1	Fish- intertidal spawning- salmon (June-Sept.), arctic char, sheefish,white fish Birds-waterfowl and shorebird concentration Marine mammals-seals Habitat- exposed tidal flats, peat shoreline, marsh Human use-subsistence	Vessel master should have local knowledge. Use appropriate measures as outlined in the STAR manual to protect the shoreline. Title 41 permitting required from ADNR. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations. Surveyed: not yet Tested: not yet
N-01-02 PR	**Pastolik River & Apoon Mouth** **Main Channels:** a. Lat. 63º 02.18'N Lon. 163º19.25'W b. Lat. 63º 01.97'N Lon. 163º20.01'W c. Lat. 63º 01.69'N Lon. 163º20.99'W **d.** Lat. 63º 01.94'N Lon. 163º21.27'W	**Passive Recovery** Survey and identify the additional drainages into the tundra prior to deployment. Place passive recovery across the channels of the streams and drainages in the area near Pastolik River & Apoon Mouth.	Place and anchor 100 ft. sections of snare line or sorbent boom across the channels of streams in Pastolik River & Apoon Mouth. Replace as necessary to maximize the recovery.	**Deployment** **Equipment** 900 ft. snare line or sorbent boom 9 ea. small anchor systems 18 ea. anchor stakes (Adjust equipment to reflect survey findings) **Vessels/Personnel/Shift** Same as N-01-01 **Tending** **Vessels/Personnel/Shift** Same as N-01-01	Kotlik	Via marine waters Chart 16240-1	Same as N-01-01	Vessel master should have local knowledge.
N-01-03 FO-S	**Pastolik River & Apoon Mouth** Nearshore waters in the general area of: Lat. 63° 02.36'N Lon. 163°21.33'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Pastolik River & Apoon Mouth depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Pastolik River & Apoon Mouth. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Kotlik	Via marine waters Chart 16240-1	Same as N-01-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

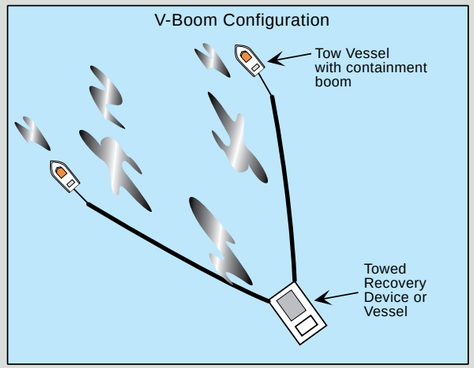
Geographic Response Strategies for Western Alaska Subarea, Northern Zone

Bugomowik Pass & Emmonak Slough, WAK-N02

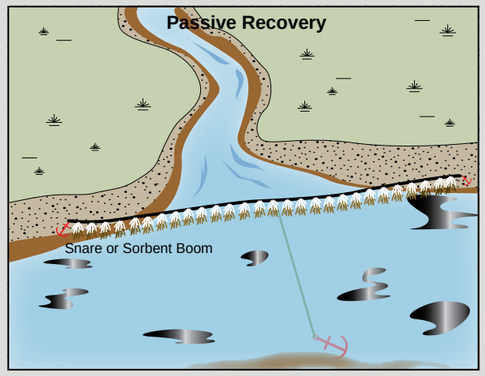
Center of map at 62˚ 57.09' N Lat., 164˚ 47.37' W Lon.



An example of the ***Diversion Booming Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Passive Recovery Tactic***. Actual deployment should be adjusted for local conditions.

This is not intended for navigational use.

Map Legend

- FO-S — Free-oil Recovery
- DV — Diversion Booming
- PR — Passive Recovery
- SR — Shoreside Recovery
- Fast-water Boom
- Snare or Sorbent Boom
- Tidal-seal Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

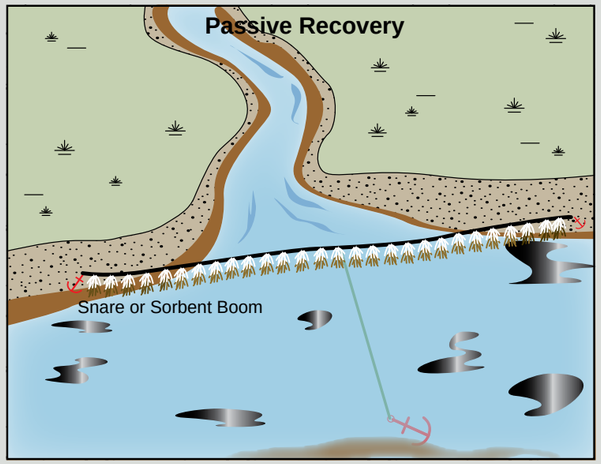
ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-02-01 **DV**	**Bugomowik Pass** Lat. 62º 56.41'N Lon. 164º44.40'W	**Divert and Collect** Divert oil to shore side collection location on the shore of Bugomowik Pass.	Deploy anchors and boom with skiffs (class 6). Cascade in 300 ft sections of fast-water boom at the proper angle to divert incoming oil to the collection site. Complete the array with 60 ft. of tidal seal boom. Set up shore-side recovery and tend throughout the tide.	**Deployment** **Equipment** 600 ft. fast-water boom 60 ft. tidal seal boom 3 ea. anchor systems 4 ea. anchor stakes 1 ea. shore-side recovery systems **Vessels** 2 ea. class 6 **Personnel/Shift** 4 ea. vessel crew/general techs 2 ea. response techs **Tending** **Vessels** 1 ea. class 6 **Personnel/Shift** 2 ea. vessel crew/general techs 2 ea. skilled tech	Emmonak	Via marine waters Chart 16240-1	Fish- intertidal spawning-salmon (June-Sept.), arctic char, sheefish, white fish Birds-waterfowl and shorebird concentration Habitat- exposed tidal flats, peat shoreline, marsh Human use-subsistence	Vessel master should have local knowledge. Use appropriate measures as outlined in the STAR manual to protect the shoreline. Title 41 permitting required from ADNR. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations. Surveyed: not yet Tested: not yet
N-02-02 **PR**	**Bugomowik Pass & Emmonak Slough** a. Lat. 62º 59.33'N Lon. 164º43.80'W b. Lat. 62º 59.33'N Lon. 164º43.80'W c. Lat. 62º 57.85'N Lon. 164º45.77'W d. Lat. 62º 57.05'N Lon. 164º45.92'W e. Lat. 62º 56.32'N Lon. 164º47.42'W **f.** Lat. 62º 55.70'N Lon. 164º47.86'W	**Passive Recovery** Survey and identify the drainages from the tundra prior to deployment. Place passive recovery across the channels of the streams and drainages in the area near Bugomowik Pass & Emmonak Slough.	Place and anchor snare line or sorbent boom across the channels of streams in Bugomowik Pass & Emmonak Slough. Replace as necessary to maximize the recovery.	**Deployment** **Equipment** 1100 ft. snare line or sorbent boom 6 ea. small anchor systems 12 ea. anchor stakes (Adjust equipment to reflect survey findings) **Vessels/Personnel/Shift** Same as N-02-01 **Tending** **Vessels/Personnel/Shift** Same as N-02-01	Emmonak	Via marine waters Chart 16240-1	Same as N-02-01	Vessel master should have local knowledge.
N-02-03 **FO-S**	**Bugomowik Pass & Emmonak Slough** Nearshore waters in the general area of: Lat. 62° 57.09'N Lon. 164°47.37'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Bugomowik Pass & Emmonak Slough depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Bugomowik Pass & Emmonak Slough. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Emmonak	Via marine waters Chart 16240-1	Same as N-02-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

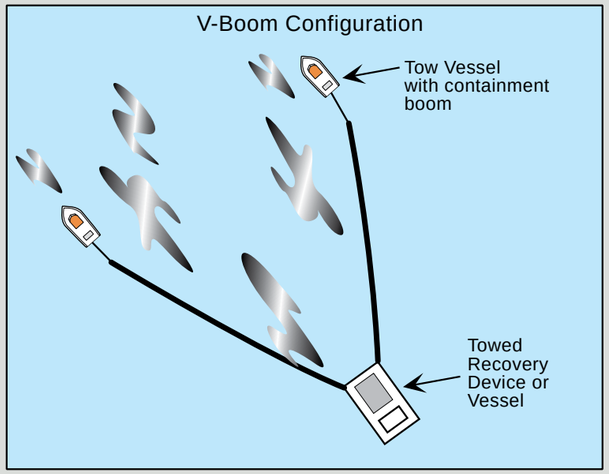
Geographic Response Strategies for Western Alaska Subarea, Northern Zone

Kwiguk Pass & Kawkhawik Slough, WAK-N03

Center of map at 62˚ 47.35' N Lat., 164˚ 53.51' W Lon.



An example of the ***Passive Recovery Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.

This is not intended for navigational use.

Map Legend

- FO-S — Free-oil Recovery
- PR — Passive Recovery
- Snare or Sorbent Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

DRAFT This tactic map is a working draft being used to develop a Geographic Response Strategy at this location. The tactics represented here have not been approved by the Subarea Committee and should not be considered final. If you have questions or comments please contact us by email at contact@nukaresearch.com.

NUKA Research & Planning Group, LLC.

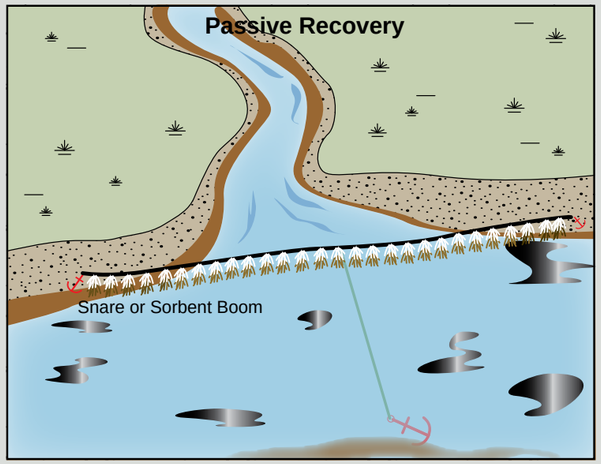
ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-03-01 **PR**	**Kwiguk Pass & Kawkhawik Slough** a. Lat. 62º 51.17'N Lon. 164º50.18'W b. Lat. 62º 50.92'N Lon. 164º50.36'W c. Lat. 62º 49.62'N Lon. 164º51.13'W d. Lat. 62º 49.43'N Lon. 164º51.26'W e. Lat. 62º 48.77'N Lon. 164º50.78'W f. Lat. 62º 48.19'N Lon. 164º48.58'W g. Lat. 62º 47.40'N Lon. 164º48.58'W h. Lat. 62º 46.61'N Lon. 164º52.17'W **i.** Lat. 62º 46.25'N Lon. 164º51.23'W	**Passive Recovery** Survey and identify the drainages from the tundra prior to deployment. Place passive recovery across the channels of the streams and drainages in the area near Kwiguk Pass & Kawkhawik Slough. a. 300 ft b. 500 ft c. 400 ft d. 200 ft e. 150 ft f. 200 ft g. 250 ft h. 200 ft i. 600 ft	Place and anchor snare line or sorbent boom across the channels of streams in Kwiguk Pass & Kawkhawik Slough. Replace as necessary to maximize the recovery.	**Deployment** **Equipment** 2800 ft. snare line or sorbent boom 14 ea. small anchor systems 18 ea. anchor stakes (Adjust equipment to reflect survey findings) **Vessels** 2 ea. class 6 **Personnel/Shift** 6 ea. vessel crew/general techs **Tending** **Vessels** 2 ea. class 6 **Personnel/Shift** 3 ea. vessel crew/general techs	Alakanuk/Emmonak	Via marine waters Chart 16240-1	Fish- intertidal spawning- salmon (June-Sept.), arctic char, sheefish,white fish Birds-waterfowl and shorebird concentration Marine mammals- seals Habitat- exposed tidal flats, peat shoreline, marsh, sheltered scarps in mud and clay Human use-subsistence	Vessel master should have local knowledge. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations.
N-03-02 **FO-S**	**Kwiguk Pass & Kawkhawik Slough** Nearshore waters in the general area of: Lat. 62° 47.35'N Lon. 164°53.51'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Kwiguk Pass & Kawkhawik Slough depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Kwiguk Pass & Kawkhawik Slough. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Alakanuk/Emmonak	Via marine waters Chart 16240-1	Same as N-03-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

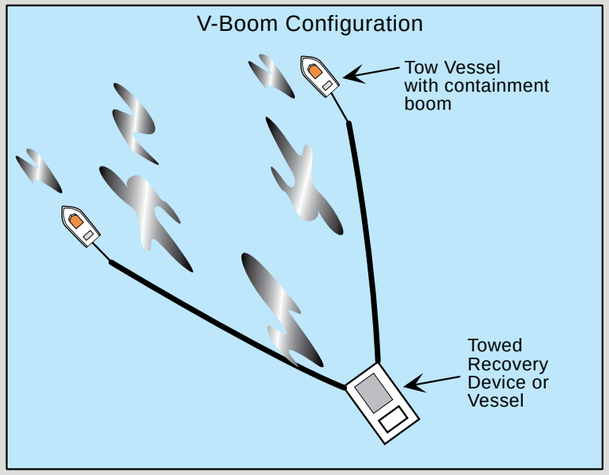
Kwemeluk Pass, WAK-N04

Center of map at 62˚ 32.60' N Lat., 165˚ 02.36' W Lon.

Geographic Response Strategies for Western Alaska Subarea, Northern Zone



An example of the ***Passive Recovery Tactic***. Actual deployment should be adjusted for local conditions.

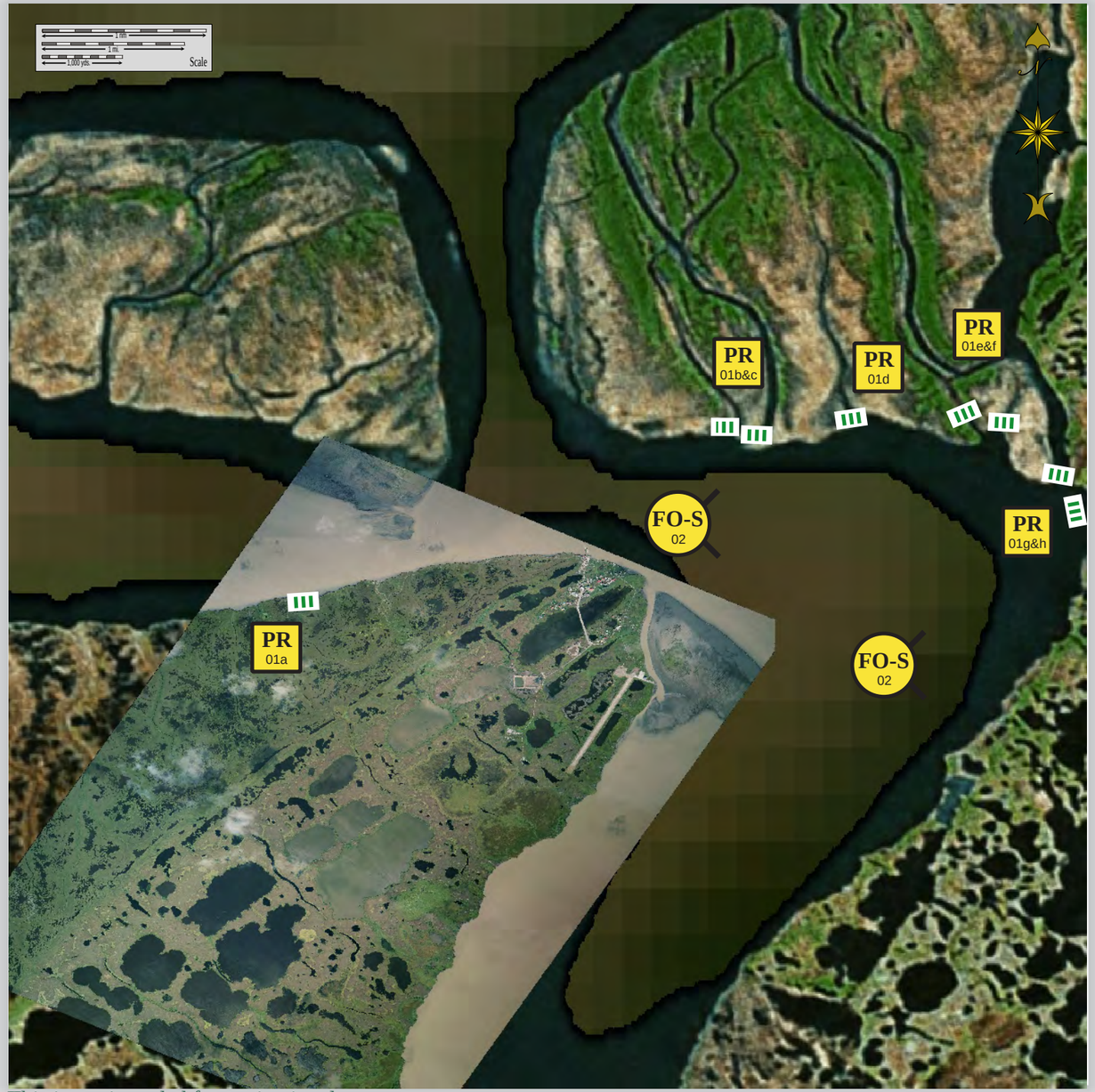


An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.

Map Legend

- FO-S — Free-oil Recovery
- PR — Passive Recovery
- Snare or Sorbent Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.



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NUKA Research & Planning Group, LLC.

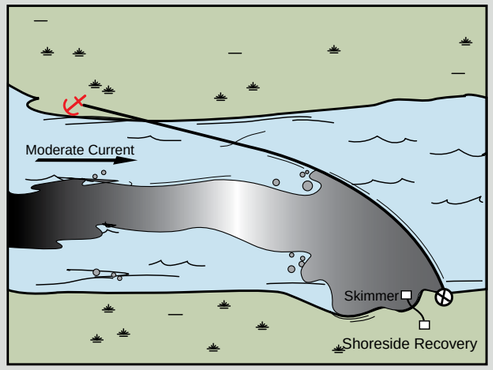
ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-04-01 **PR**	**Kwemeluk Pass** a. Lat. 62º31.90'N Lon. 164º52.66'W b. Lat. 62º32.67'N Lon. 164º49.93'W c. Lat. 62º32.61'N Lon. 164º49.68'W d. Lat. 62º32.79'N Lon. 164º48.91'W e. Lat. 62º32.65'N Lon. 164º47.87'W f. Lat. 62º32.68'N Lon. 164º47.70'W g. Lat. 62º32.51'N Lon. 164º47.24'W h. Lat. 62º32.29'N Lon. 164º46.86'W	**Passive Recovery** Survey and identify the drainages from the tundra prior to deployment. Place passive recovery across the channels of the streams and drainages in the area near Kwemeluk Pass. a. 50 ft b. 200 ft c. 300 ft d. 100 ft e. 100 ft f. 150 ft g. 350 ft h. 200 ft	Place and anchor snare line or sorbent boom across the channels of streams in Kwemeluk Pass. Replace as necessary to maximize the recovery.	**Deployment** **Equipment** 1450 ft. snare line or sorbent boom 8 ea. small anchor systems 14 ea. anchor stakes (Adjust equipment to reflect survey findings) **Vessels** 2 ea. class 6 **Personnel/Shift** 6 ea. vessel crew/general techs **Tending** **Vessels** 2 ea. class 6 **Personnel/Shift** 3 ea. vessel crew/general techs	Alakanuk/Emmonak	Via marine waters Chart 16240-1	Fish- intertidal spawning-salmon (June-Sept.), arctic char, sheefish,white fish Birds-waterfowl and shorebird concentration Marine mammals- seals Habitat- exposed tidal flats, peat shoreline, marsh, sheltered scarps in mud and clay Human use-subsistence	Vessel master should have local knowledge. Title 41 permitting required from ADNR. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations.
N-04-02 **FO-S**	**Kwemeluk Pass** Nearshore waters in the general area of: Lat. 62° 32.60'N Lon. 164°02.36'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Kwemeluk Pass depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Kwemeluk Pass. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Alakanuk/Emmonak	Via marine waters Chart 16240-1	Same as N-04-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

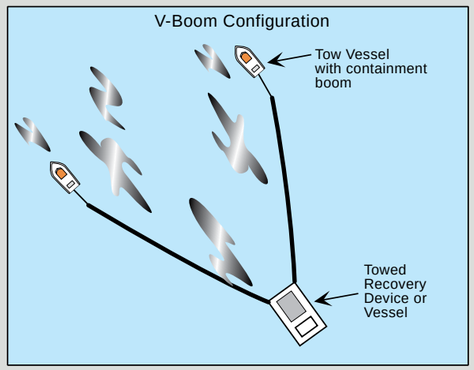
Geographic Response Strategies for Western Alaska Subarea, Northern Zone

Kun River, WAK-N05

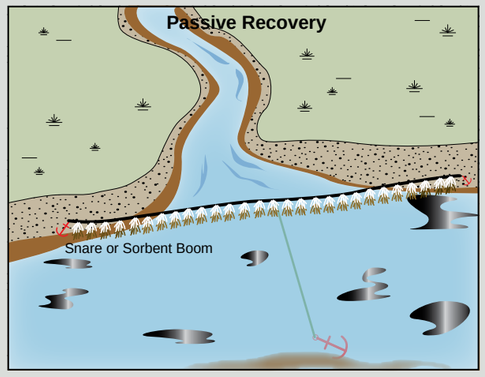
Center of map at 61˚ 50.90' N Lat., 165˚ 37.97' W Lon.



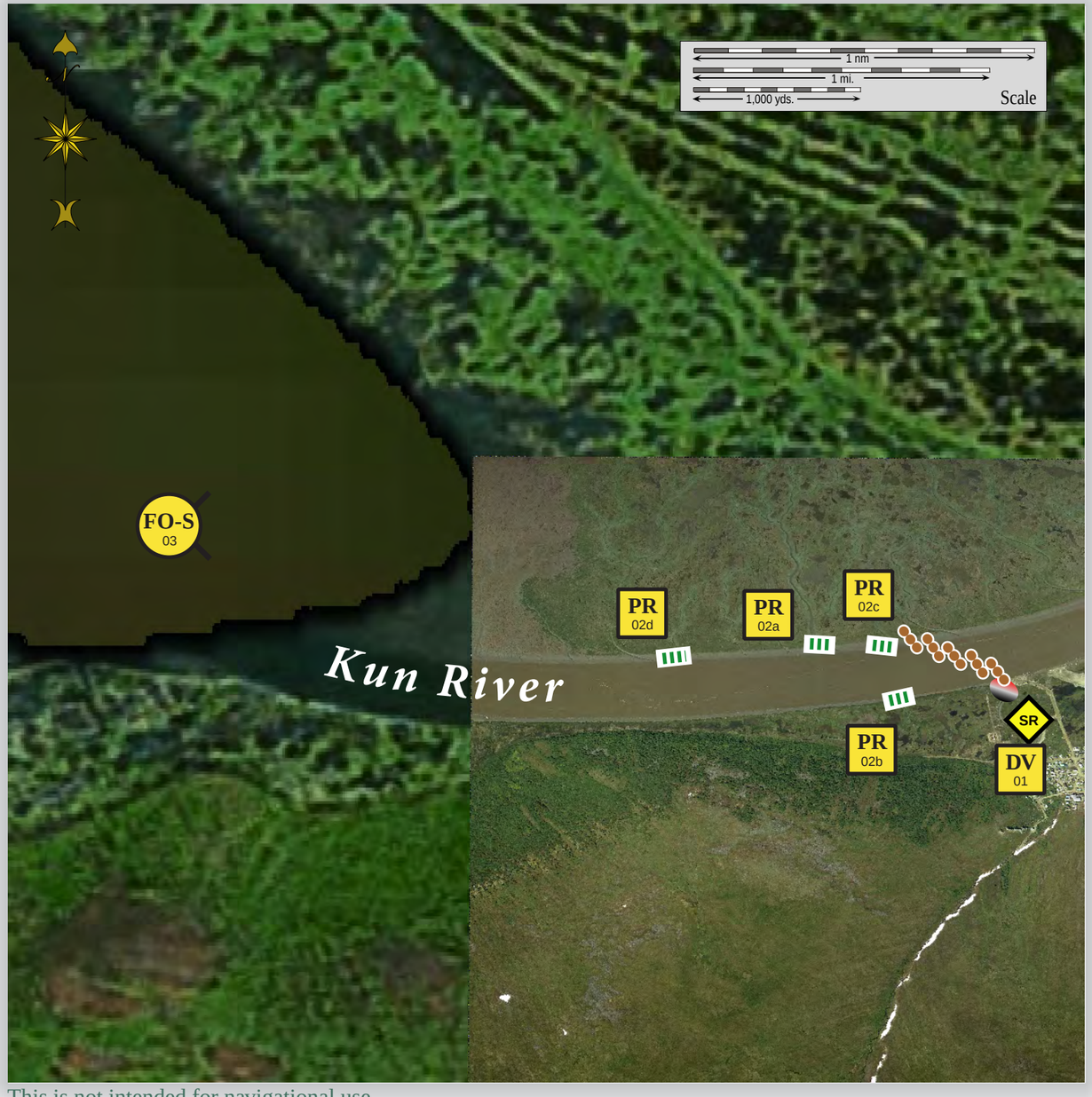
An example of the ***Diversion Booming Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Passive Recovery Tactic***. Actual deployment should be adjusted for local conditions.



Map Legend

- FO-S — Free-oil Recovery
- DV — Diversion Booming
- PR — Passive Recovery
- SR — Shoreside Recovery
- Fast-water Boom
- Snare or Sorbent Boom
- Tidal-seal Boom

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NUKA Research & Planning Group, LLC.

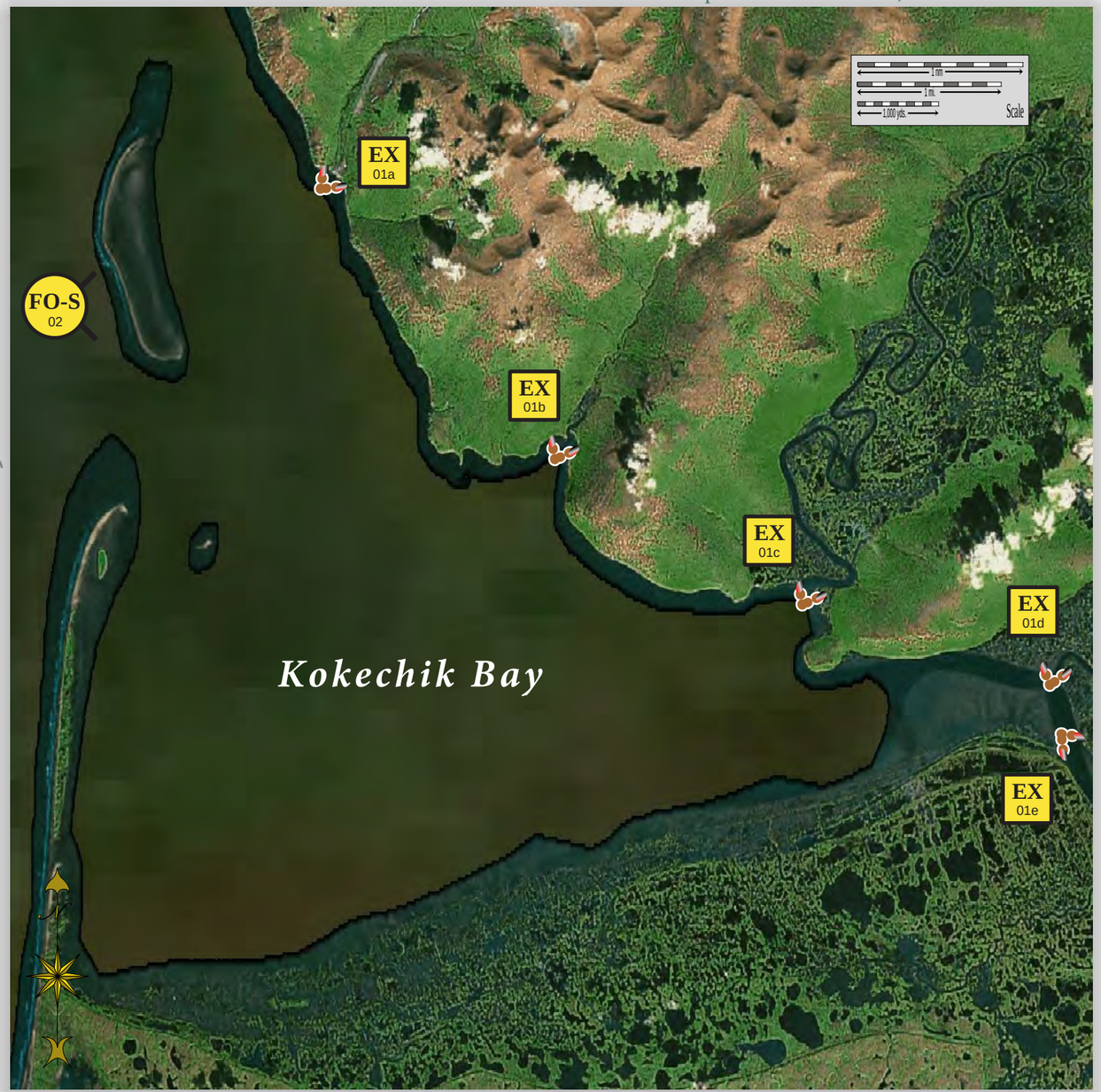
ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-05-01 **DV**	**Kun River** Lat. 61º 50.73'N Lon. 165º35.20'W	**Divert and Collect** Divert oil to shore side collection location on the shore of the Kun River.	Deploy anchors and boom with skiffs (class 6). Cascade the array in 300 ft sections of fast-water boom at the proper angle to divert incoming oil to the collection site. Complete the arrays with a 60-foot section of tidal seal boom. The tidal slough before the airport may be used as a recovery area. Set up shore-side recovery and tend throughout the tide.	**Deployment** **Equipment** 1500 ft. fast-water boom 60 ft. tidal seal boom 7 ea. anchor systems 4 ea. anchor stakes 1 ea. shore-side recovery systems **Vessels** 2 ea. class 6 **Personnel/Shift** 4 ea. vessel crew/general techs 2 ea. response techs **Tending** **Vessels** 1 ea. class 6 **Personnel/Shift** 2 ea. vessel crew/general techs 2 ea. skilled tech	Scammon Bay	Via marine waters Chart 16240-1	Fish- intertidal spawning-salmon (June-Sept.), herring, sheefish, white fish Birds-waterfowl and shorebird concentration Marine mammals- seals Habitat- exposed tidal flats, peat shoreline, marsh, Human use-subsistence	Vessel master should have local knowledge. Title 41 permitting required from ADNR. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations. Use appropriate measures as outlined in the STAR manual to protect the shoreline. Surveyed: not yet Tested: not yet
N-05-02 **PR**	**Scammon Bay & Kun River** a. Lat. 61º 50.86'N Lon. 165º35.94'W b. Lat. 61º 50.74'N Lon. 165º35.39'W c. Lat. 61º 50.88'N Lon. 165º35.64'W d. Lat. 61º 50.83'N Lon. 165º36.71'W	**Passive Recovery** Survey and identify the drainages from the tundra prior to deployment. Place passive recovery across the channels of the streams and drainages in the area near Scammon Bay & Kun River.	Place and anchor snare line or sorbent boom across the channels of streams in Scammon Bay & Kun River. Replace as necessary to maximize the recovery. <u>Boom Lengths:</u> a. 100 ft b. 50 ft c. 50 ft d. 50 ft	**Deployment** **Equipment** 250 ft. snare line or sorbent boom 1 ea. small anchor systems 7 ea. anchor stakes (Adjust equipment to reflect survey findings) **Vessels/Personnel/Shift** Same as N-05-01 **Tending** **Vessels/Personnel/Shift** Same as N-05-01	Scammon Bay	Via marine waters Chart 16240-1	Same as N-05-01	Vessel master should have local knowledge.
N-05-03 **FO-S**	**Scammon Bay & Kun River** Nearshore waters in the general area of: Lat. 61° 50.90'N Lon. 165°37.97'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Scammon Bay & Kun River depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Scammon Bay & Kun River. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Scammon Bay	Via marine waters Chart 16240-1	Same as N-05-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

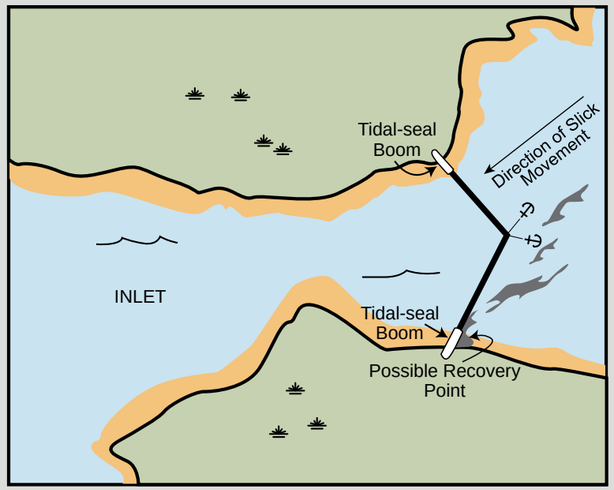
Kokechik Bay, WAK-N06

Center of map at 61˚ 43.83' N Lat., 166˚ 08.89' W Lon.

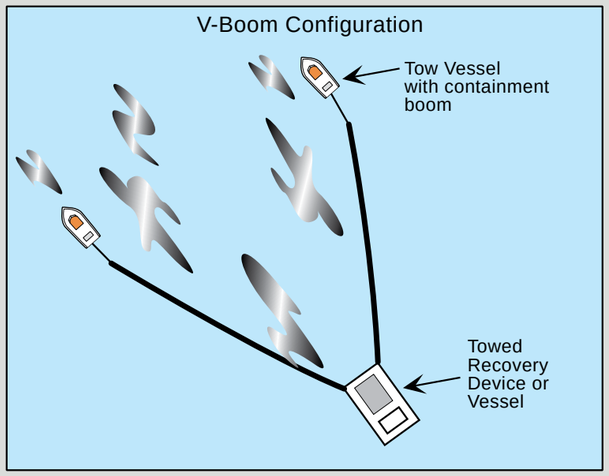
Geographic Response Strategies for Western Alaska Subarea, Northern Zone



This is not intended for navigational use.



An example of the ***Exclusion Booming Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.

Map Legend

- FO-S — Free-oil Recovery
- EX — Exclusion Booming
- Fast-water Boom
- Tidal-seal Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

DRAFT This tactic map is a working draft being used to develop a Geographic Response Strategy at this location. The tactics represented here have not been approved by the Subarea Committee and should not be considered final. If you have questions or comments please contact us by email at contact@nukaresearch.com.

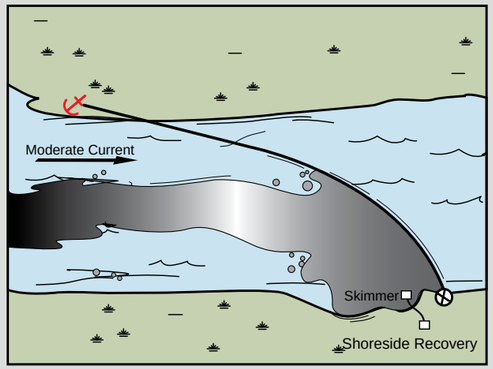
NUKA Research & Planning Group, LLC.

ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-06-01 **EX**	**Kokechik Bay** **Nilumat Creek** a. Lat. 61º 46.01'N Lon. 166º03.20'W Ekasluktuli River b. Lat. 61º 43.31'N Lon. 165º57.35'W Lithkealik River c. Lat. 61º 41.94'N Lon. 165º51.54'W Kokechik River d. Lat. 61º 41.07'N Lon. 165º45.83'W e. Lat. 61º 39.70'N Lon. 165º44.27'W	**Exclusion** Exclude oil from impacting the identified streams and intertidal area in Kokechik Bay.	Deploy anchors and boom with skiffs (class 6) at high tide. Place fast-water boom in a chevron pattern across the mouths of the identified streams. Complete the array with 60 ft. of tidal seal boom on each leg. Tend throughout the tide. Boom Lengths: a. 200 ft b. 600 ft. c. 1300 ft. d. 1200 ft. e. 1000 ft.	**Deployment** **Equipment** 4300 ft. fast-water boom 600 ft. tidal seal boom 19 ea. anchor systems 16 ea. anchor stakes **Vessels** 1 ea. class 3 3 ea. class 6 **Personnel/Shift** 9 ea. vessel crew/general techs **Tending** **Vessels** 1 ea. class 3 2 ea. class 6 **Personnel/Shift** 5 ea. vessel crew/general techs	Scammon Bay	Via marine waters Chart 16240-1	Fish- intertidal spawning-salmon (June-Sept.), herring, sheefish, white fish Birds-waterfowl and shorebird concentration Marine mammals- seals Habitat- exposed tidal flats, peat shoreline, marsh, Human use-subsistence	Vessel master should have local knowledge. Title 41 permitting required from ADNR. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations. Surveyed: not yet Tested: not yet
N-06-02 **FO-S**	**Kokechik Bay** Nearshore waters in the general area of: Lat. 61° 43.83'N Lon. 166°08.89'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Kokechik Bay depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Kokechik Bay. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Scammon Bay	Via marine waters Chart 16240-1	Same as N-06-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

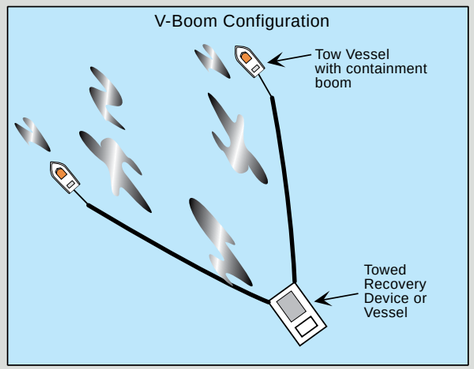
NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

Hooper Bay, WAK-N07

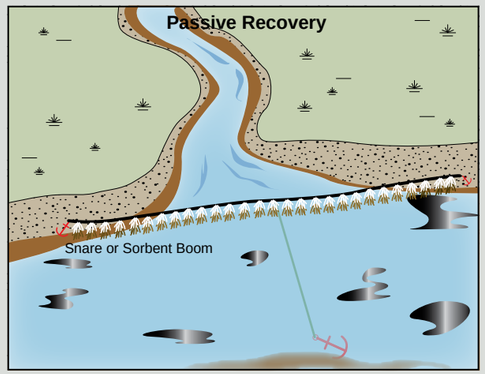
Center of map at 61˚ 32.17' N Lat., 165˚ 50.92' W Lon.



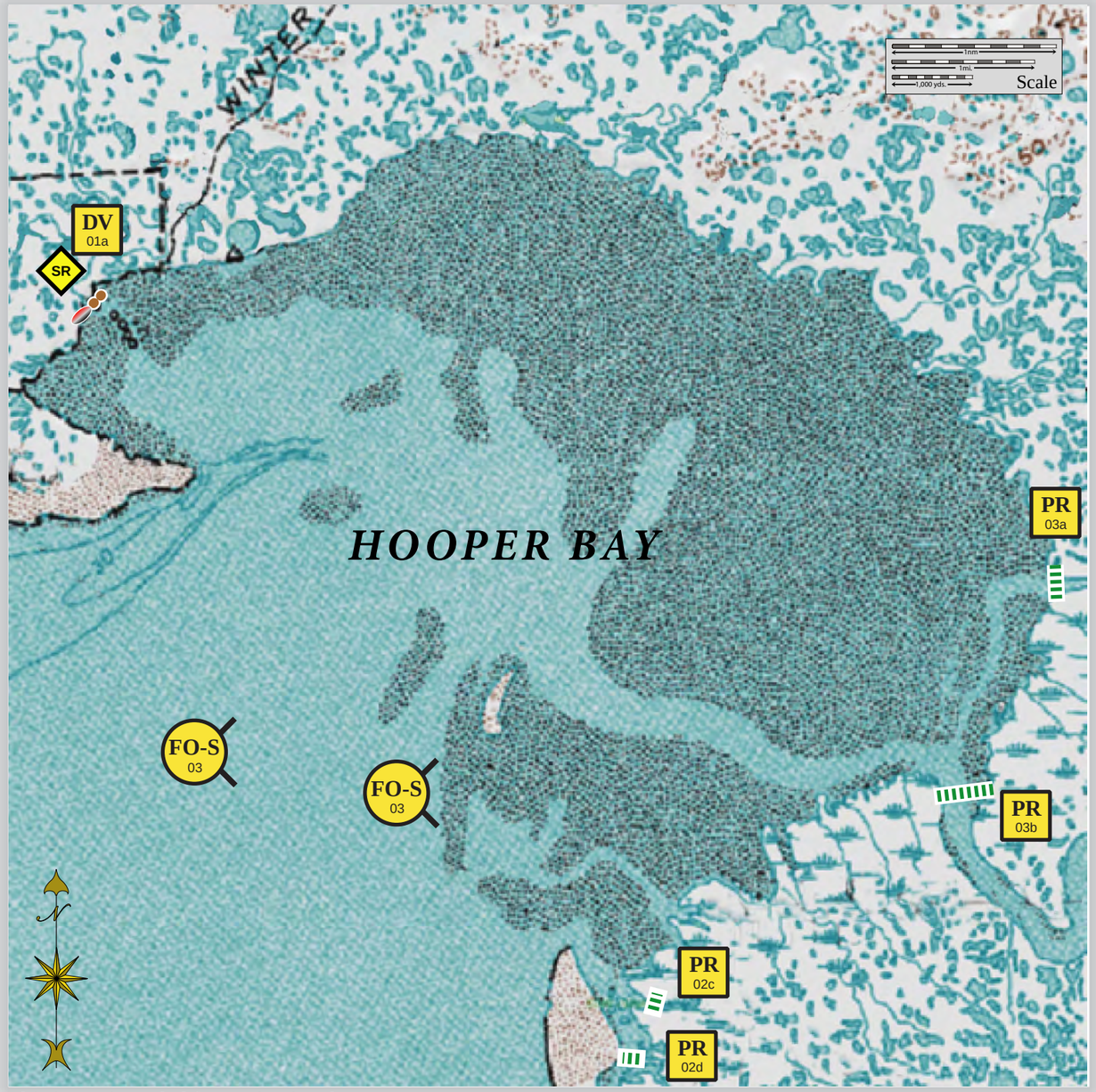
An example of the ***Diversion Booming Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Passive Recovery Tactic***. Actual deployment should be adjusted for local conditions.



This is not intended for navigational use.

Map Legend

- FO-S — Free-oil Recovery
- DV — Diversion Booming
- PR — Passive Recovery
- SR — Shoreside Recovery
- Fast-water Boom
- Snare or Sorbent Boom
- Tidal-seal Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

Geographic Response Strategies for *Western Alaska Subarea, Northern Zone*

June 26, 2012

DRAFT This tactic map is a working draft being used to develop a Geographic Response Strategy at this location. The tactics represented here have not been approved by the Subarea Committee and should not be considered final. If you have questions or comments please contact us by email at contact@nukaresearch.com.

NUKA Research & Planning Group, LLC.

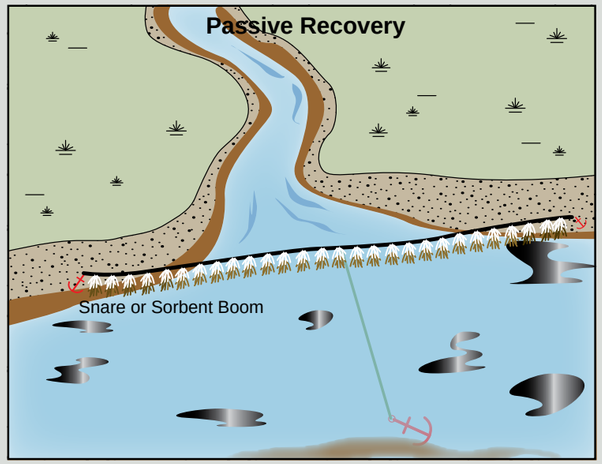
ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-07-01 **DV**	Hooper Bay Napareayak Slough Lat. 61º 31.63'N Lon. 166º05.27'W	**Divert and Collect** Divert oil to shore side collection location on the shore of the identified streams and sloughs in Hooper Bay.	Deploy anchors and boom with skiffs (class 6). Cascade 2x300 ft sections of fast-water boom at the proper angle to divert incoming oil to the collection site. Complete the arrays with a 60-foot section of tidal seal boom. Set up shore-side recovery and tend throughout the tide.	**Deployment** **Equipment** 600 ft. fast -water boom 60 ft. tidal seal boom 3 ea. anchor systems 4 ea. anchor stakes 1 ea. shore-side recovery systems **Vessels** 2 ea. class 6 **Personnel/Shift** 4 ea. vessel crew/general techs 2 ea. response techs **Tending** **Vessels** 2 ea. class 6 **Personnel/Shift** 4 ea. vessel crew/general techs 2 ea. skilled tech	Hooper Bay	Via marine waters Chart 16606	Fish- intertidal spawning-salmon (June-Sept.), sheefish, white fish Birds-waterfowl and shorebird concentration Marine mammals- seals Habitat- exposed tidal flats, peat shoreline, marsh, Human use-subsistence	Vessel master should have local knowledge. Use appropriate measures as outlined in the STAR manual to protect the shoreline. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations. Surveyed: not yet Tested: not yet
N-07-02 **PR**	**Hooper Bay** **Ninglikfak River** a. Lat. 61º 28.78'N Lon. 165º45.15'W **Ninglikfak River** b. Lat. 61º 28.78'N Lon. 165º45.15'W **Painorouyon Slough** c. Lat. 61° 24.61'N Lon. 165°53.48'W **Issortulik Slough** d. Lat. 61° 24.06'N Lon. 165°54.18'W	**Passive Recovery** Place passive recovery across entrances to the identified sloughs in Hooper Bay.	Place and anchor snare line or sorbent boom across the channels of streams in Hooper Bay. Replace as necessary to maximize the recovery. <u>Boom Lengths:</u> a. 1600 ft b. 350 ft c. 350 ft. d. 350 ft.	**Deployment** **Equipment** 2650 ft. snare line or sorbent boom 4 ea. small anchor systems 8 ea. anchor stakes (Adjust equipment to reflect survey findings) **Vessels/Personnel/Shift** Same as N-07-01 **Tending** **Vessels/Personnel/Shift** Same as N-07-01	Hooper Bay	Via marine waters Chart 16606	Same as N-07-01	Vessel master should have local knowledge. Title 41 permitting required from ADNR.
N-07-03 **FO-S**	**Hooper Bay** Nearshore waters in the general area of: Lat. 61° 32.17'N Lon. 165°50.92'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Hooper Bay depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Hooper Bay. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Hooper Bay	Via marine waters Chart 16606	Same as N-07-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

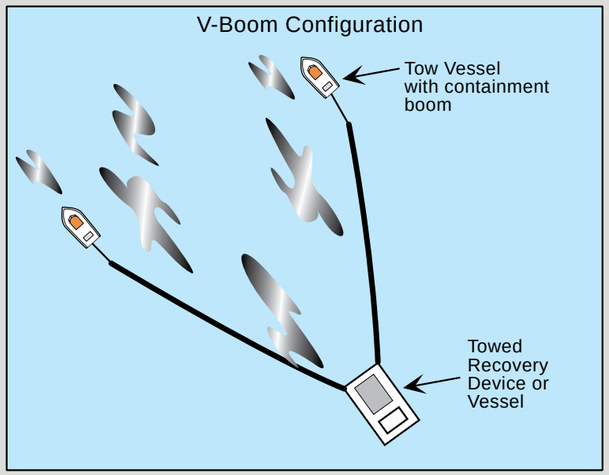
Angyoyaravak Bay, WAK-N08

Center of map at 61˚ 17.13' N Lat., 165˚ 44.47' W Lon.

Geographic Response Strategies for Western Alaska Subarea, Northern Zone



An example of the ***Passive Recovery Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.

Map Legend

- FO-S — Free-oil Recovery
- PR — Passive Recovery
- Snare or Sorbent Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

This is not intended for navigational use.

DRAFT This tactic map is a working draft being used to develop a Geographic Response Strategy at this location. The tactics represented here have not been approved by the Subarea Committee and should not be considered final. If you have questions or comments please contact us by email at contact@nukaresearch.com.

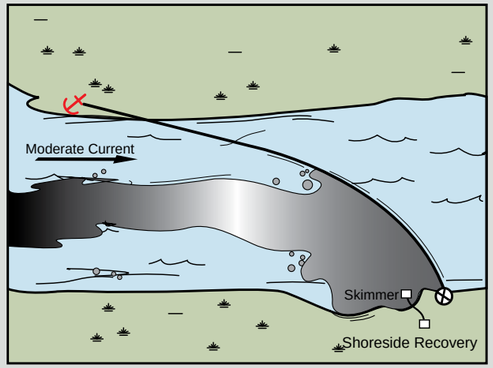
ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-08-01 PR	**Angyoyaravak Bay** a. Lat. 61º16.58'N Lon. 165°35.53'W b. Lat. 61º14.83'N Lon. 165°36.79'W Kashunuk River c. Lat. 61º 17.68'N Lon. 165º37.15'W Tutakoke River d. Lat. 61º 14.83'N Lon. 165º36.79'W	**Passive Recovery** Place passive recovery across entrances to the identified sloughs in Kashunuk River.	Place and anchor snare line or sorbent boom across the channels of streams in Kashunuk River. Replace as necessary to maximize the recovery. Boom Lengths: a. 300 ft. b. 650 ft. c. 1200 ft. d. 600 ft.	**Deployment** **Equipment** 2750 ft. snare line or sorbent boom 10 ea. small anchor systems 16 ea. anchor stakes (Adjust equipment to reflect survey findings) **Vessels** 3 ea. class 6 **Personnel/Shift** 6 ea. vessel crew/general techs **Tending** **Vessels** 2 ea. class 6 **Personnel/Shift** 4 ea. vessel crew/general techs	Hooper Bay	Via marine waters Chart 16606	Fish- intertidal spawning-salmon(June-Sept.),sheefish, arctic char, white fish Birds-waterfowl and shorebird concentration Habitat- exposed tidal flats, peat shoreline, marsh Human use-subsistence	Vessel master should have local knowledge. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations.
N-08-02 FO-S	**Angyoyaravak Bay** Nearshore waters in the general area of: Lat. 61° 17.13'N Lon. 165°44.47'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Angyoyaravak Bay depending on spill location and trajectory. Due to extremely shallow waters, move recovery operation offshore.	Deploy free-oil recovery strike teams upwind and up current of the Angyoyaravak Bay. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Hooper Bay	Via marine waters Chart 16606	Same as N-08-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

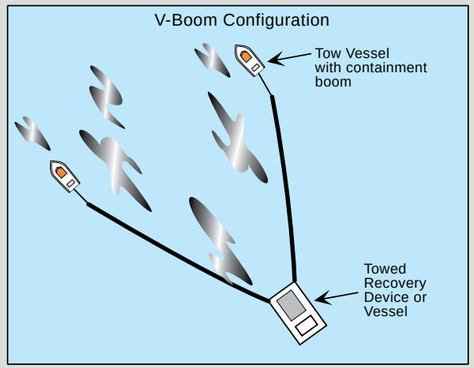
Geographic Response Strategies for Western Alaska Subarea, Northern Zone

Northern Hazen Bay, WAK-N09

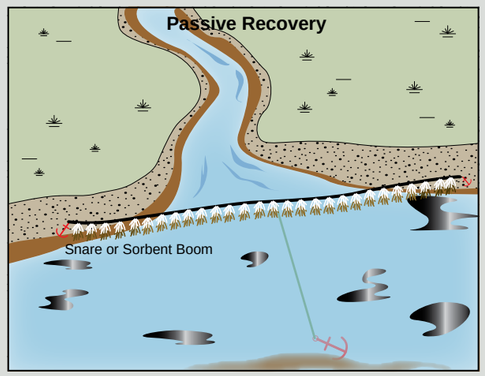
Center of map at 61˚ 06.93' N Lat., 165˚ 20.02' W Lon.



An example of the ***Diversion Booming Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Passive Recovery Tactic***. Actual deployment should be adjusted for local conditions.

This is not intended for navigational use.

Map Legend

- FO-S — Free-oil Recovery
- DV — Diversion Booming
- PR — Passive Recovery
- SR — Shoreside Recovery
- Fast-water Boom
- Snare or Sorbent Boom
- Tidal-seal Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

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NUKA Research & Planning Group, LLC.

ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-09-01 **DV**	**Northern Hazen Bay** Tutakoke River Lat. 61º 05.23'N Lon. 165º26.52'W	**Divert and Collect** Divert oil to shore side collection location on the shore of the identified streams and sloughs in Northern Hazen Bay.	Deploy anchors and boom with skiffs (class 6). Cascade 1200 ft. of fast-water boom in 300 ft sections at the proper angle to divert incoming oil to the collection site. Complete the array with a 60-foot section of tidal seal boom on shore. Set up shore-side recovery and tend throughout the tide.	**Deployment** **Equipment** 1200 ft. fast-water boom 60 ft. tidal seal boom 22 ea. anchor systems 8 ea. anchor stakes 2 ea. shore-side recovery systems **Vessels** 1 ea. class 3 2 ea. class 6 **Personnel/Shift** 7 ea. vessel crew/general techs 2 ea. response techs **Tending** **Vessels** 1 ea. class 3 1 ea. class 6 **Personnel/Shift** 5 ea. vessel crew/general techs 1 ea. skilled tech	Hooper Bay	Via marine waters Chart 16606	Fish- intertidal spawning-salmon (June-Sept.), sheefish, white fish Birds-waterfowl and shorebird concentration Marine mammals- seals Habitat- exposed tidal flats, peat shoreline, marsh, Human use-subsistence	Vessel master should have local knowledge. Title 41 permitting required from ADNR. Use appropriate measures as outlined in the STAR manual to protect the shoreline. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations. Surveyed: not yet Tested: not yet
N-09-02 **PR**	**Northern Hazen Bay** a. Lat. 61° 7.28'N Lon. 165°22.48'W b. Lat. 61º10.88'N Lon. 165°18.04'W Arrays C,D E in the area of Lat. 61º09.33'N Lon. 165°12.22'W f. Lat. 61°09.05'N Lon. 165°07.22'W g Lat. 61°07.59'N Lon. 165°11.00'W	**Passive Recovery** Survey the area prior to deployment. Place passive recovery across entrances to the identified sloughs and other major cuts in the back in Northern Hazen Bay.	Place and anchor snare line or sorbent boom across the channels of streams/sloughs in Northern Hazen Bay. Replace as necessary to maximize the recovery. Boom Lengths: a. 600 ft. b. 400 ft. c. 500 ft. d. 500 ft. e. 500 ft. f. 200 ft. g. 600 ft.	**Deployment** **Equipment** 3300 ft. snare line or sorbent boom 12 ea. small anchor systems 20 ea. anchor stakes (Adjust equipment to reflect survey findings) **Vessels/Personnel/Shift** Same as N-09-01 **Tending** **Vessels/Personnel/Shift** Same as N-09-01	Vessel Platform	Via marine waters Chart 16606	Same as N-09-01	Vessel master should have local knowledge.
N-09-03 **FO-S**	**Northern Hazen Bay** Nearshore waters in the general area of: Lat. 61° 06.93'N Lon. 165°20.02'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Northern Hazen Bay depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Northern Hazen Bay. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Hooper Bay	Via marine waters Chart 16606	Same as N-09-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

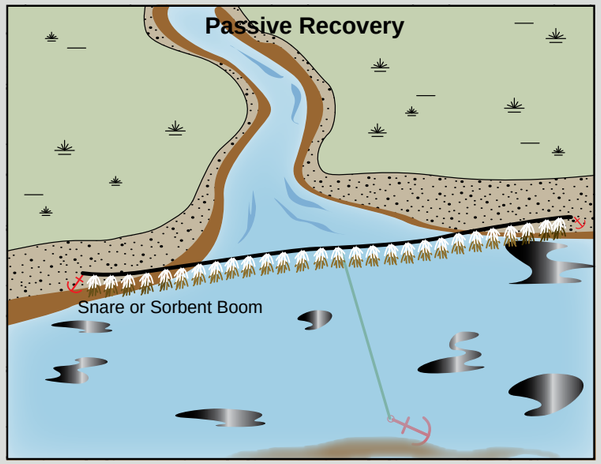
NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

Geographic Response Strategies for Western Alaska Subarea, Northern Zone

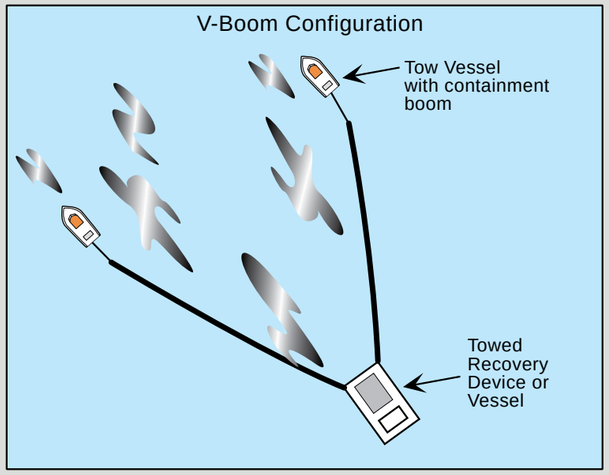
Anerkochik/Azun Rivers, WAK-N10

Center of map at 61˚ 03.00' N Lat., 165˚ 10.10' W Lon.

This is not intended for navigational use.



An example of the ***Passive Recovery Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.

Map Legend

- FO-S — Free-oil Recovery
- PR — Passive Recovery
- Snare or Sorbent Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

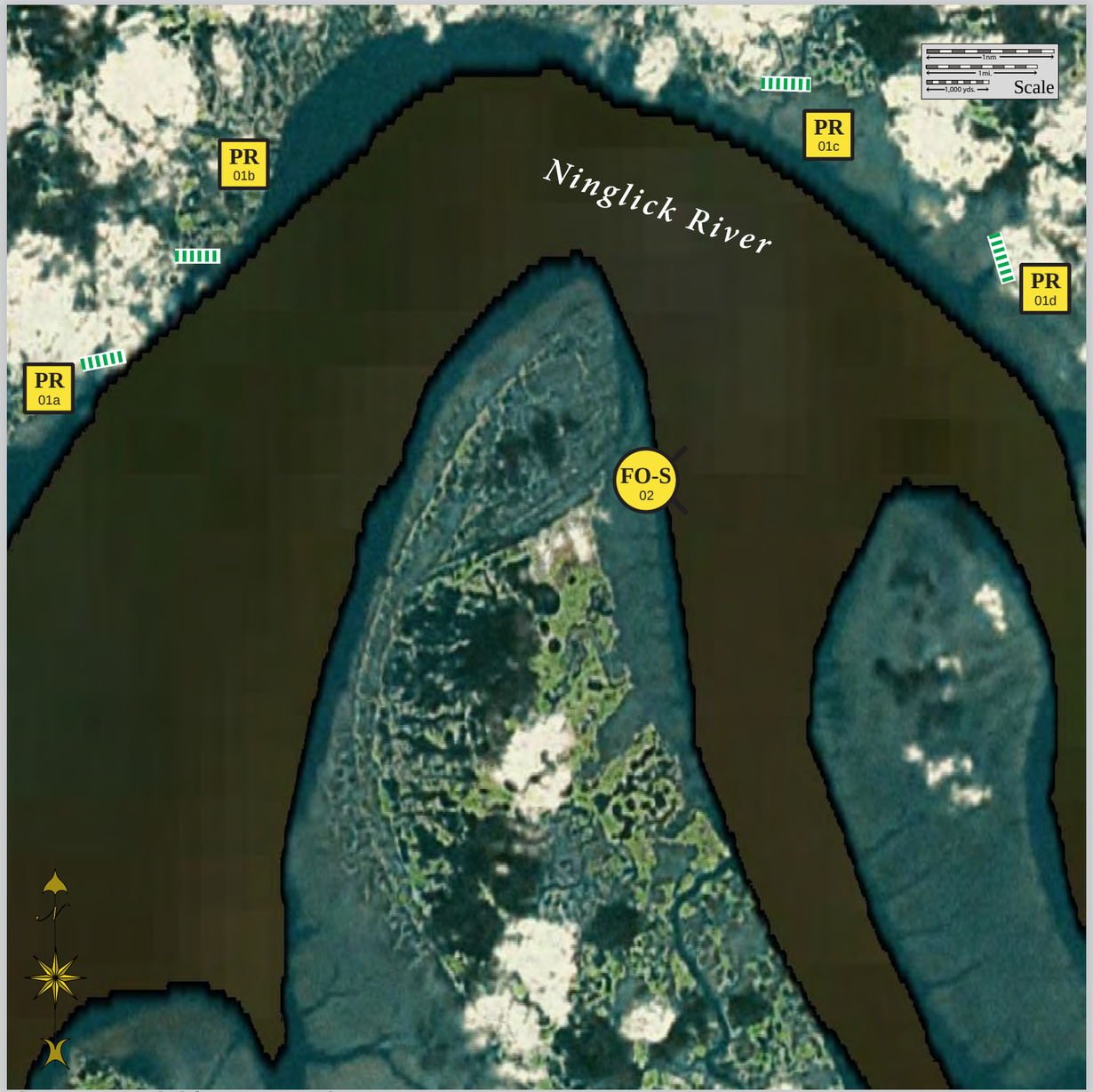
ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-10-01 **PR**	**Southern Hazen Bay** a. Lat. 61º 00.89'N Lon. 165°06.46'W b. Lat. 61º 00.58'N Lon. 165°03.17'W c. Lat. 61º 01.35'N Lon. 165°56.72'W d. Lat. 61º 04.21'N Lon. 164°56.78'W e. Lat. 61º 06.84'N Lon. 164°53.85'W f. Lat. 61º 04.97'N Lon. 164°00.65'W **Anerkochik River** g. Lat. 61º 06.82'N Lon. 165º06.58'W	**Passive Recovery** Survey the area prior to deployment. Place passive recovery across entrances to the identified rivers and other major cuts in the bank in Southern Hazen Bay.	Place and anchor snare line or sorbent boom across the channels of streams/sloughs in Southern Hazen Bay. Replace as necessary to maximize the recovery. Boom Lengths: a. 400 ft. b. 650 ft. c. 1100 ft. d. 1500 ft. e. 850 ft. f. 500 ft. g. 900 ft.	**Deployment** **Equipment** 5900 ft. snare line or sorbent boom 30 ea. small anchor systems 28 ea. anchor stakes (Adjust equipment to reflect survey findings) **Vessels** 1 ea. class 3 2 ea. class 6 **Personnel/Shift** 6 ea. vessel crew/general techs **Tending** **Vessels** 1 ea. class 3 1 ea. class 6 **Personnel/Shift** 3 ea. vessel crew/general techs	Hooper Bay	Via marine waters Chart 16606	Fish- intertidal spawning-salmon (June-Sept.), sheefish, white fish Birds-waterfowl and shorebird concentration Marine mammals- seals Habitat- exposed tidal flats, peat shoreline, marsh, Human use-subsistence	Vessel master should have local knowledge. Title 41 permitting required from ADNR. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations. Surveyed: not yet Tested: not yet
N-10-02 **FO-S**	**Southern Hazen Bay** Nearshore waters in the general area of: Lat. 61° 03.00'N Lon. 165°10.10'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Southern Hazen Bay depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Southern Hazen Bay. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Hooper Bay	Via marine waters Chart 16606	Same as N-10-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

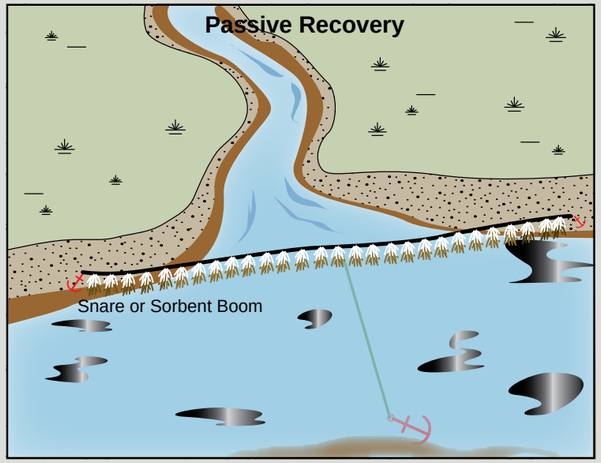
Ninglick River, WAK-N11

Center of map at 60˚ 52.41' N Lat., 165˚ 03.72' W Lon.

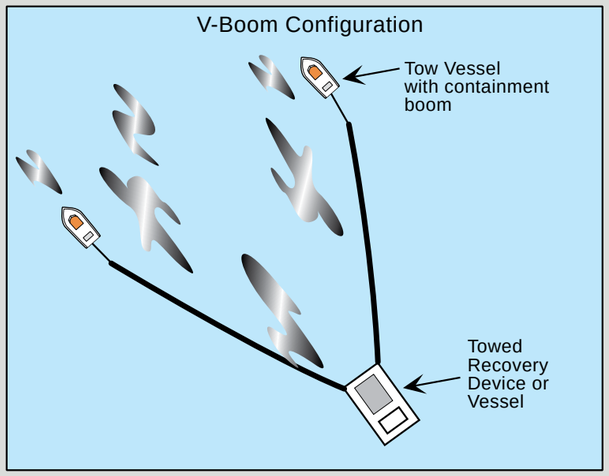
Geographic Response Strategies for Western Alaska Subarea, Northern Zone



This is not intended for navigational use.



An example of the ***Passive Recovery Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.

Map Legend

- FO-S — Free-oil Recovery
- PR — Passive Recovery
- Snare or Sorbent Boom

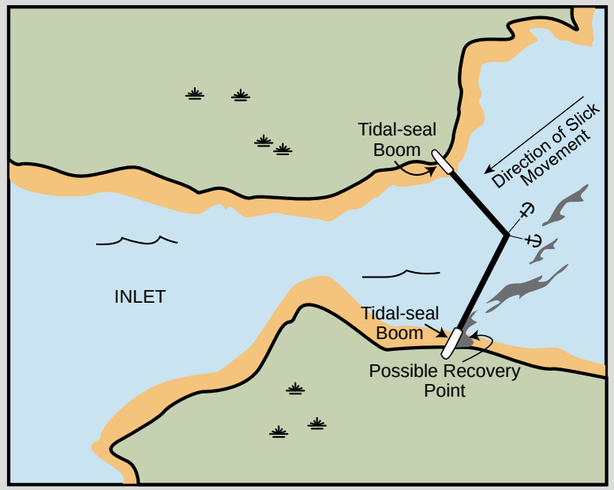
Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-11-01 PR	**Ninglick River** a. Lat. 60º 55.01'N Lon. 165°01.15'W b. Lat. 60º 55.81'N Lon. 164°59.37'W c. Lat. 60º 56.32'N Lon. 164°58.36'W d. Lat. 60º 56.80'N Lon. 164°57.40'W	**Passive Recovery** Survey the area prior to deployment. Place passive recovery across entrances to the identified rivers and other major cuts in the bank in Ninglick River.	Place and anchor snare line or sorbent boom across the channels of streams/sloughs in Ninglick River. Replace as necessary to maximize the recovery. Boom Lengths: a. 300 ft. b. 350 ft. c. 600 ft. d. 600 ft	**Deployment** **Equipment** 1850 ft. snare line or sorbent boom 6 ea. small anchor systems 16 ea. anchor stakes (Adjust equipment to reflect survey findings) **Vessels** 2 ea. class 6 **Personnel/Shift** 6 ea. vessel crew/general techs **Tending** **Vessels** 1 ea. class 6 **Personnel/Shift** 3 ea. vessel crew/general techs	Newtok	Via marine waters Chart 16606	Fish- intertidal spawning-salmon (June-Sept.), sheefish, white fish Birds-waterfowl and shorebird concentration Marine mammals- seals Habitat- exposed tidal flats, peat shoreline, marsh, Human use-subsistence	Vessel master should have local knowledge. Title 41 permitting required from ADNR. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations. Surveyed: not yet Tested: not yet
N-11-02 FO-S	**Ninglick River** Nearshore waters in the general area of: Lat. 60° 52.41'N Lon. 165°03.72'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Ninglick River depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Ninglick River. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Newtok	Via marine waters Chart 16606	Same as N-11-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

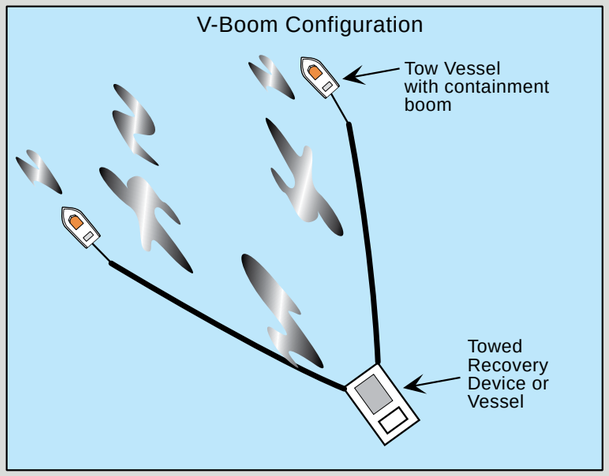
NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

Ikalugtulik River, WAK-N12

Geographic Response Strategies for
Western Alaska Subarea, Northern Zone



An example of the ***Exclusion Booming Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.

Map Legend

- FO-S — Free-oil Recovery
- EX — Exclusion Booming
- Fast-water Boom
- Tidal-seal Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

Center of map at 60˚ 40.46' N Lat., 165˚ 06.46' W Lon.

This is not intended for navigational use.

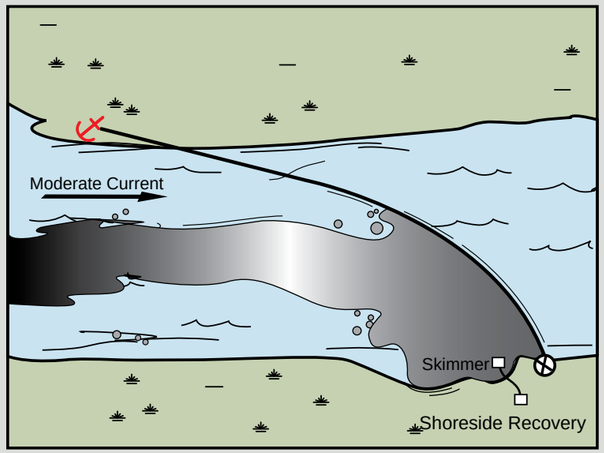
DRAFT This tactic map is a working draft being used to develop a Geographic Response Strategy at this location. The tactics represented here have not been approved by the Subarea Committee and should not be considered final. If you have questions or comments please contact us by email at contact@nukaresearch.com.

ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-12-01 EX	**Ikalugtulik River** Lat. 61º 39.27'N Lon. 165°06.07'W	**Exclusion** Exclude oil from impacting the stream and intertidal area in Ikalugtulik River.	Deploy anchors and boom with skiffs (class 6) at high tide. Place fast-water boom in a chevron pattern across the mouth of the identified stream. Complete the array with 60 ft. of tidal seal boom on each leg. Tend throughout the tide.	**Deployment** **Equipment** 500 ft. fast-water boom 120 ft. tidal seal boom 3 ea. anchor systems 4 ea. anchor stakes **Vessels** 1 ea. class 6 **Personnel/Shift** 3 ea. vessel crew/general techs **Tending** **Vessels** 1 ea. class 6 **Personnel/Shift** 2 ea. vessel crew/general techs	Tununak	Via marine waters Chart 16006	Fish- intertidal spawning-salmon (June-Sept.), herring, sheefish, white fish Birds-waterfowl and shorebird concentration Marine mammals- seals Habitat- exposed tidal flats Human use-subsistence	Vessel master should have local knowledge. Title 41 permitting required from ADNR. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations. Surveyed: not yet Tested: not yet
N-12-02 FO-S	**Ikalugtulik River** Nearshore waters in the general area of: Lat. 60° 40.46'N Lon. 165°06.46'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Ikalugtulik River depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Ikalugtulik River. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Tununak	Via marine waters Chart 16006	Same as N-12-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

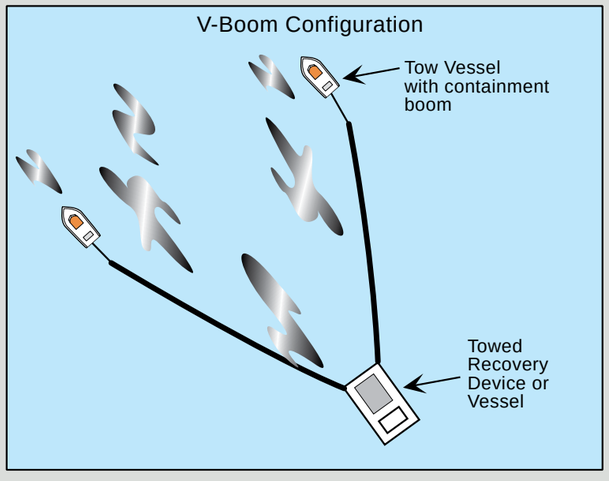
NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

Tanunak River, WAK-N13

Center of map at 60˚ 35.06' N Lat., 165˚ 17.70' W Lon.



An example of the ***Diversion Booming Tactic***. Actual deployment should be adjusted for local conditions.

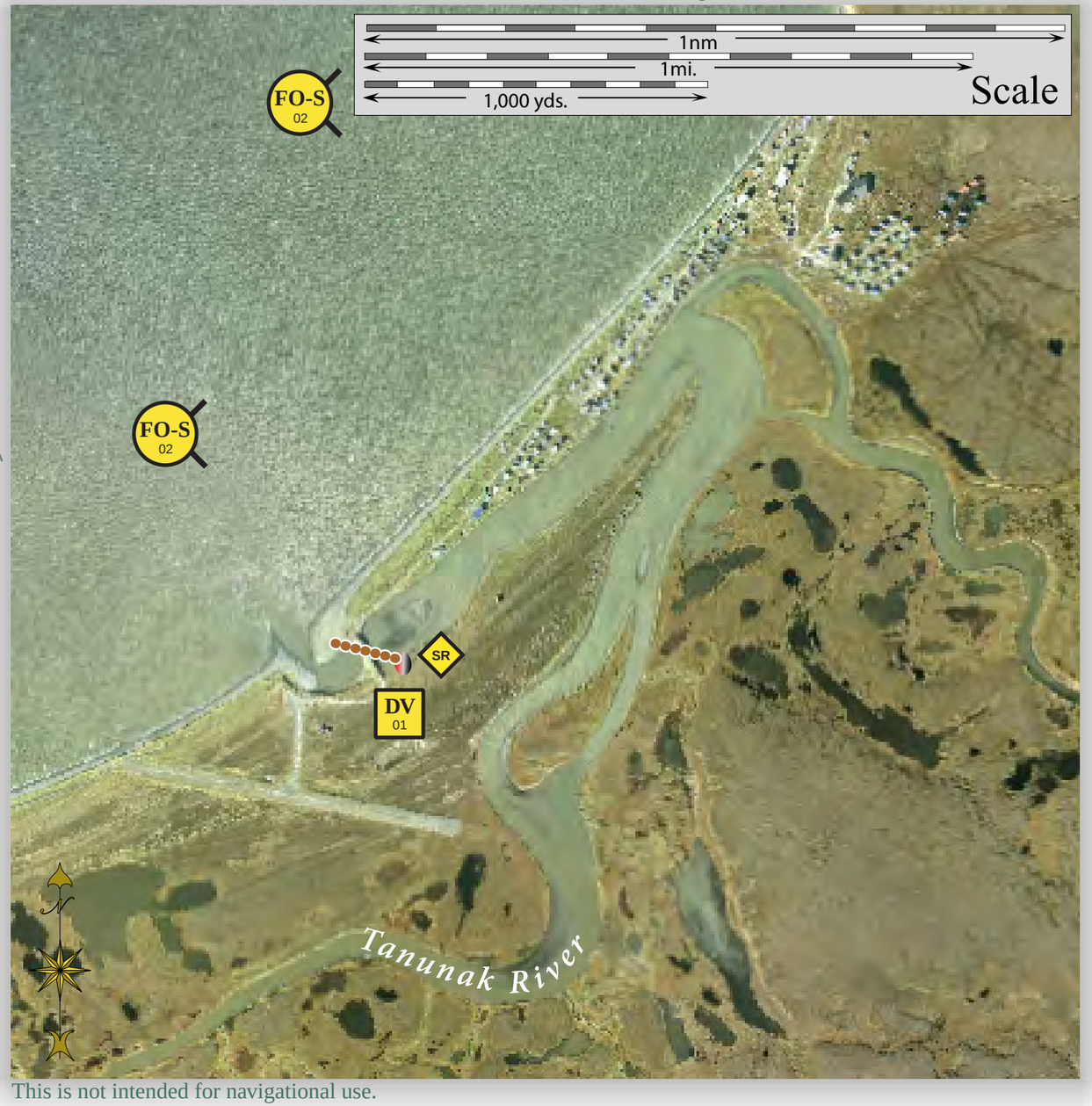


An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.

Map Legend

- FO-S — Free-oil Recovery
- DV — Diversion Booming
- SR — Shoreside Recovery
- Fast-water Boom
- Tidal-seal Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.



This is not intended for navigational use.

Geographic Response Strategies for Western Alaska Subarea, Northern Zone

June 26, 2012

DRAFT This tactic map is a working draft being used to develop a Geographic Response Strategy at this location. The tactics represented here have not been approved by the Subarea Committee and should not be considered final. If you have questions or comments please contact us by email at contact@nukaresearch.com.

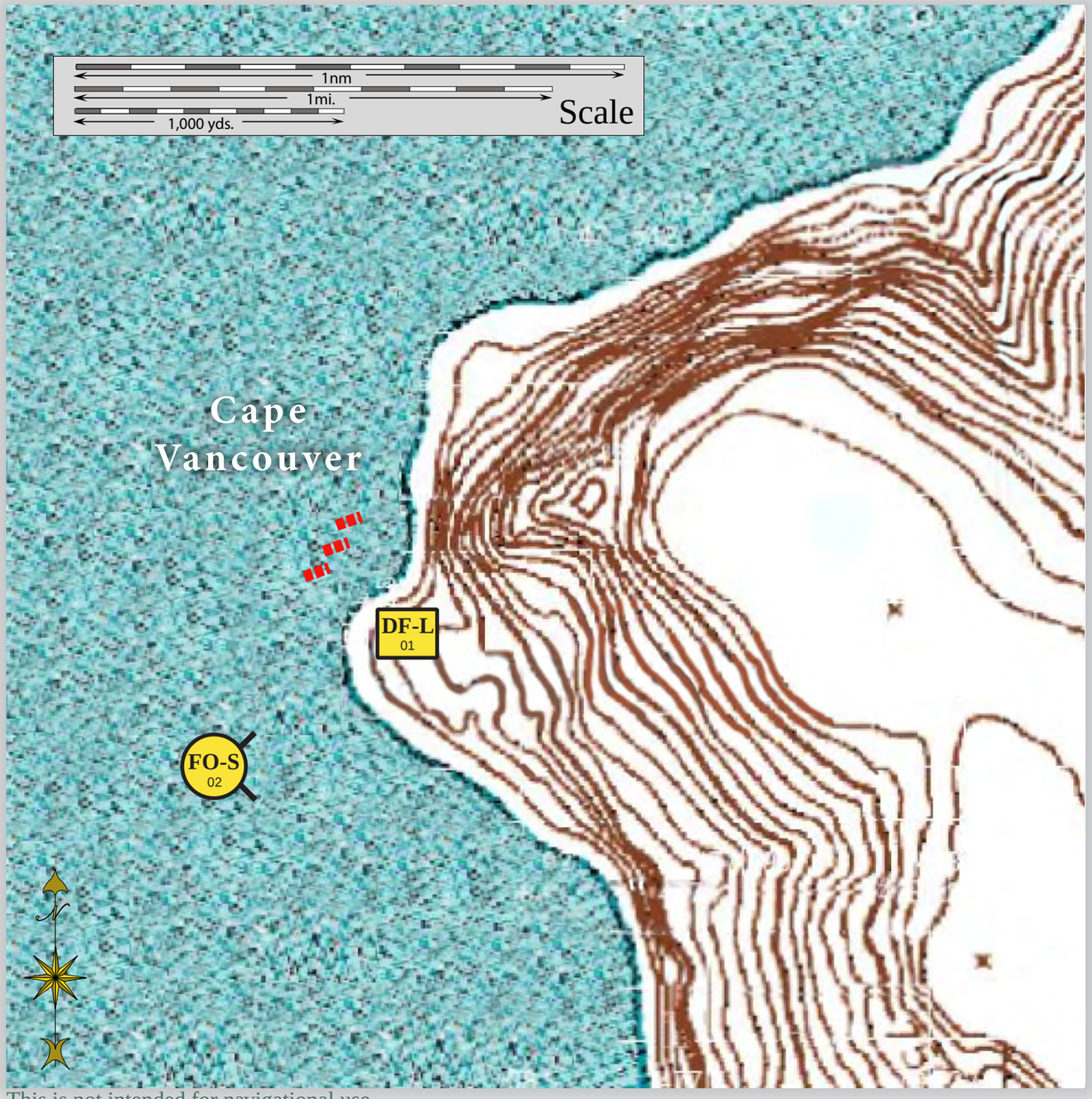
NUKA Research & Planning Group, LLC.

ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-13-02 DV	**Tanunak Bay** Lat. 60º 34.68'N Lon. 165º16.26'W	**Divert and Collect** Divert oil to shore side collection location on the shore of the Tanunak River.	Deploy anchors and boom with skiffs (class 6). Place fast-water boom at the proper angle to divert incoming oil to the collection site. Complete the array with 60 ft. of tidal seal boom on the shore that will be used as a collection site. Set up shore-side recovery and tend throughout the tide.	**Deployment** **Equipment** 350 ft. fast-water boom 60 ft. tidal seal boom 2 ea. anchor systems 4 ea. anchor stakes 1 ea. shore-side recovery systems **Vessels** 2 ea. class 6 **Personnel/Shift** 4 ea. vessel crew/general techs 2 ea. response techs **Tending** **Vessels** 1 ea. class 6 **Personnel/Shift** 2 ea. vessel crew/general techs 1 ea. skilled tech	Tununak	Via marine waters Chart 16606	Fish- intertidal spawning-salmon (June-Sept.), sheefish, white fish Birds-waterfowl and shorebird concentration Marine mammals- seals Habitat- exposed tidal flats, peat shoreline, marsh, Human use-subsistence	Vessel master should have local knowledge. Title 41 permitting required from ADNR. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations. Use appropriate measures as outlined in the STAR manual to protect the shoreline. Surveyed: not yet Tested: not yet
N-13-01 FO-S	**Tanunak Bay** Nearshore waters in the general area of: Lat. 60° 35.06'N Lon. 165°17.70'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Tanunak Bay depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Tanunak Bay. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Tununak	Via marine waters Chart 16606	Same as N-13-01	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.

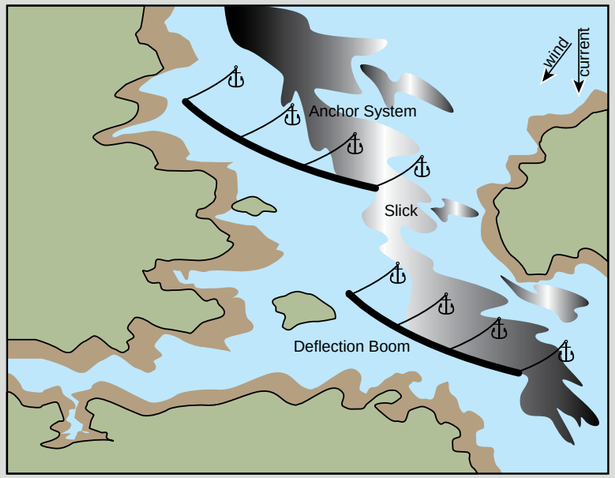
Cape Vancouver, WAK-N14

Center of map at 60˚ 32.14' N Lat., 165˚ 24.72' W Lon.

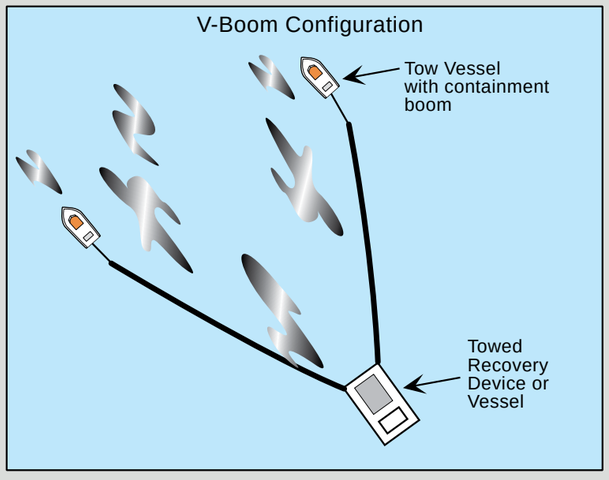


This is not intended for navigational use.

Geographic Response Strategies for
Western Alaska Subarea, Northern Zone



An example of the ***Deflection Live Booming Tactic***. Actual deployment should be adjusted for local conditions.



An example of the ***Free-oil Recovery Tactic***. Actual deployment should be adjusted for local conditions.

Map Legend

- FO-S — Free-oil Recovery
- DF-L — Deflection Live Booming
- Protected-water Boom

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

NUKA Research & Planning Group, LLC.

ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-14-01 DF-L	**Cape Vancouver** Lat. 60° 32.90'N Lon. 165°25.34'W	**Deflection-Live** Deflect oil that is going to impact the haul outs and rookery on Cape Vancouver away from the area and into the channel for free oil collection.	Use aerial surveillance to identify the incoming oil and it's direction. Using vessels, hold in place 3 arrays of 300 ft. protected-water boom in a cascaded pattern that will deflect incoming out for free oil collection.	**Deployment** **Equipment** 900 ft. protected-water boom **Vessels** 6 ea. class 3 **Personnel/Shift** 18 ea. vessel crew/general techs **Tending** **Vessels** 6 ea. class 3 **Personnel/Shift** 18 ea. vessel crew/general techs	Tununak	Via marine waters Chart 16606	Fish- intertidal spawning-Herring (June-July) Birds-waterfowl, seabird and shorebird concentration Marine mammals- seals Habitat- exposed rocky shore Human use-subsistence	Vessel master should have local knowledge. THREATENED OR ENDANGERED SPECIES/ HABITAT POSSIBLE. Discuss with DOI prior to on-site operations. Surveyed: not yet Tested: not yet
N-14-02 FO-S	**Cape Vancouver** Nearshore waters in the general area of: Lat. 60° 32.14'N Lon. 165°24.72'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Cape Vancouver depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of the Cape Vancouver. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Tununak	Via marine waters Chart 16606	Same as N-14-02	Vessel master should have local knowledge. Use extreme caution, shallow waters with shifting channels and bars.

NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the Western Alaska Subarea Contingency Plan: http://dec.alaska.gov/spar/perp/plans/scp_wak.htm.