

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: SI Event #: 1 Ship: Vector UTC Date (dd mmm yyyy):

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |  |  |  |  |  | Comments |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|--|--|--|--|--|----------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC |  |  |  |  |  |          |
| 1        |          | 1        | 100               | ✓ 100                | x                                  | x    | x   |       |      |  |  |  |  |  |          |
| 2        |          | 2        | 75                | ✓ 75                 | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 3        |          | 3        | 50                | ✓ 50                 | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 4        |          | 4        | 40                | ✓ 40                 | xx                                 | x    |     |       |      |  |  |  |  |  |          |
| 5        |          | 5        | 30                | ✓ 30                 | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 6        |          | 6        | 20                | ✓ 20                 | x                                  | xx   |     | xx    |      |  |  |  |  |  |          |
| 7        |          | 7        | 10                | ✓ 10                 | x                                  | x    |     | x     |      |  |  |  |  |  |          |
| 8        |          | 8        | 5                 | ✓ 5                  | x                                  | xx   |     | x     |      |  |  |  |  |  |          |
| 9        |          | 9        | 0                 | ✓ 1.3                | x                                  | x    |     | x     | xx   |  |  |  |  |  | FLUOR:   |
| 10       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 11       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 12       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 13       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 14       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 15       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 16       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 17       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 18       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 19       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 20       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 21       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 22       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 23       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 24       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |

Profile type:  
ROS TRM X-Niskin other?  
Watchkeeper(s):Bottom Depth: 181 m  
Transmisso Cleaned: Y / N

| Time   | UTC   | Local |
|--------|-------|-------|
| Start  | 23 39 | 16 39 |
| Bottom | 23 31 | 16 31 |
| End    | 23 42 | 16 42 |

Positional Information

|        |                     |
|--------|---------------------|
| Start  | Lat: 48 ° 38.986 N  |
|        | Lon: 123 ° 29.942 W |
| Bottom | Lat: 48 ° 38.989 N  |
|        | Lon: 123 ° 29.942 W |
| End    | Lat: 48 ° 38.988 N  |
|        | Lon: 123 ° 29.945 W |

Extra comments:

# Water Properties Group

# Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 59 Event #: 4 Ship: Vector UTC Date (dd|mmm|yyyy): 03/06/2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |     |       |      |    |       |  |  |  |  | Comments |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-----|-------|------|----|-------|--|--|--|--|----------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | DIC | Chl_a | HPLC | DA | PHYTO |  |  |  |  |          |
| 1        |          | 10       | Bot-5             | ✓ 228                | xx                                 | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 2        |          | 11       | 200               | ✓ 200                | x                                  | x    | x   | x   |       |      |    |       |  |  |  |  |          |
| 3        |          | 12       | 175               | ✓ 175                | xx                                 | x    |     |     |       |      |    |       |  |  |  |  |          |
| 4        |          | 13       | 150               | ✓ 150                | x                                  | xx   |     | xx  |       |      |    |       |  |  |  |  |          |
| 5        |          | 14       | 125               | ✓ 125                | x                                  | x    |     |     |       |      |    |       |  |  |  |  |          |
| 6        |          | 15       | 100               | ✓ 100                | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 7        |          | 16       | 75                | ✓ 75                 | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 8        |          | 17       | 50                | ✓ 50                 | x                                  | x    |     | xx  |       |      |    |       |  |  |  |  |          |
| 9        |          | 18       | 40                | ✓ 40                 | x                                  | x    |     |     |       |      |    |       |  |  |  |  |          |
| 10       |          | 19       | 30                | ✓ 30                 | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 11       |          | 20       | 20                | ✓ 20                 | x                                  | xx   |     | x   | x     |      |    |       |  |  |  |  |          |
| 12       |          | 21       | 10                | ✓ 10                 | x                                  | x    |     | x   | xx    |      |    |       |  |  |  |  |          |
| 13       |          | 22       | 5                 | ✓ 5                  | x                                  | x    |     | x   | x     |      |    |       |  |  |  |  |          |
| 14       |          | 23       | 0                 | 1.9                  | x                                  | x    |     |     | x     | xx   | x  | x     |  |  |  |  |          |
| 15       |          | 24       | 0                 | 1.9                  |                                    |      |     | x   |       |      |    |       |  |  |  |  | FLUOR:   |
| 16       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 17       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 18       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 19       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 20       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 21       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 22       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 23       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 24       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |

Profile type:  
 ROS TRM X-Niskin other?  
 Watchkeeper(s):

Bottom Depth: 231 m  
 Transmisso Cleaned: Y / N

| Time   | UTC   | Local |
|--------|-------|-------|
| Start  | 03:39 | 20:35 |
| Bottom | 03:43 | 20:43 |
| End    | 03:59 | 20:59 |

Positional Information

|      |              |   |
|------|--------------|---|
| Lat: | 48 ° 37.798  | N |
| Lon: | 123 ° 14.617 | W |

Start

|      |              |   |
|------|--------------|---|
| Lat: | 48 ° 37.793  | N |
| Lon: | 123 ° 14.606 | W |

Bottom

|      |              |   |
|------|--------------|---|
| Lat: | 48 ° 37.816  | N |
| Lon: | 123 ° 14.642 | W |

End

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID:

2019-050

Station:

102

Event #: 8

Ship: Vector

UTC Date (dd|mm|yyyy): 03|06|2019

| Niskin # | Firing # | Sample # | Rosette Operation |                    | Samples Taken / Sampler's Initials |      |     |       |      |    |       |  |  |  | Comments   |
|----------|----------|----------|-------------------|--------------------|------------------------------------|------|-----|-------|------|----|-------|--|--|--|------------|
|          |          |          | Target Pressure   | Confirmed Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC | DA | PHYTO |  |  |  |            |
| 1        |          | 25       | Bot-5             | 250                | xx                                 | x    |     |       |      |    |       |  |  |  |            |
| 2        |          | 26       | 250               | 250                | x                                  | xx   | x   |       |      |    |       |  |  |  |            |
| 3        |          | 27       | 200               |                    | x                                  | xx   |     |       |      |    |       |  |  |  |            |
| 4        |          | 28       | 175               |                    | x                                  | x    |     |       |      |    |       |  |  |  |            |
| 5        |          | 29       | 150               |                    | x                                  | x    |     |       |      |    |       |  |  |  |            |
| 6        |          | 30       | 125               |                    | x                                  | x    |     |       |      |    |       |  |  |  |            |
| 7        |          | 31       | 100               | 99                 | x                                  | x    |     |       |      |    |       |  |  |  |            |
| 8        |          | 32       | 75                |                    | x                                  | x    |     |       |      |    |       |  |  |  |            |
| 9        |          | 33       | 50                | 51                 | x                                  | x    |     |       |      |    |       |  |  |  |            |
| 10       |          | 34       | 40                |                    | x                                  | x    |     |       |      |    |       |  |  |  |            |
| 11       |          | 35       | 30                |                    | xx                                 | x    |     |       |      |    |       |  |  |  |            |
| 12       |          | 36       | 20                |                    | x                                  | x    |     | x     |      |    |       |  |  |  |            |
| 13       |          | 37       | 10                | 11                 | x                                  | x    |     | x     |      |    |       |  |  |  |            |
| 14       |          | 38       | 5                 |                    | x                                  | x    |     | x     |      |    |       |  |  |  |            |
| 15       |          | 39       | 0                 |                    | x                                  | x    |     | xx    | xx   | x  | x     |  |  |  | FLUOR: 2.3 |
| 16       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |            |
| 17       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |            |
| 18       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |            |
| 19       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |            |
| 20       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |            |
| 21       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |            |
| 22       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |            |
| 23       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |            |
| 24       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |            |

Profile type:  
ROS TRM X-Niskin other?  
Watchkeeper(s): 512

Bottom Depth: 255 m

Transmisso Cleaned: Y / N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 1516 | 0816  |
| Bottom | 1522 |       |
| End    |      |       |

Positional Information

|      |       |          |
|------|-------|----------|
| Lat: | 48 °  | 30.016 N |
| Lon: | 124 ° | 44.486 W |

Start

|      |       |          |
|------|-------|----------|
| Lat: | 48 °  | 30.059 N |
| Lon: | 124 ° | 44.608 W |

Bottom

|      |       |          |
|------|-------|----------|
| Lat: | 48 °  | 30.164 N |
| Lon: | 124 ° | 44.917 W |

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID:

2019-050

Station:

75

Event #: 11

Ship: Vector

UTC Date (dd mmm yyyy): 03 Jun 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |  |  |  |  |  | Comments |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|--|--|--|--|--|----------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC |  |  |  |  |  |          |
| 1        |          | 40       | Bot-5             | ✓ 214                | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 2        |          | 41       | 200               | ✓                    | x                                  | x    | x   |       |      |  |  |  |  |  |          |
| 3        |          | 42       | 175               | ✓ 176                | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 4        |          | 43       | 150               | ✓ 149                | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 5        |          | 44       | 125               | ✓                    | xx                                 | x    |     |       |      |  |  |  |  |  |          |
| 6        |          | 45       | 100               | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 7        |          | 46       | 75                | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 8        |          | 47       | 50                | ✓                    | x                                  | xx   |     |       |      |  |  |  |  |  |          |
| 9        |          | 48       | 40                | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 10       |          | 49       | 30                | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 11       |          | 50       | 20                | ✓ 21                 | x                                  | xx   |     | x     |      |  |  |  |  |  |          |
| 12       |          | 51       | 10                | ✓                    | xx                                 | x    |     | xx    |      |  |  |  |  |  |          |
| 13       |          | 52       | 5                 | ✓ 4.3                | x                                  | x    |     | x     |      |  |  |  |  |  |          |
| 14       |          | 53       | 0                 |                      | x                                  | x    |     | x     | xx   |  |  |  |  |  |          |
| 15       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 16       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 17       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 18       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 19       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 20       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 21       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 22       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 23       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 24       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |

Profile type:

ROS TRM X-Niskin other?

Watchkeeper(s): SR

Bottom Depth: m

Transmisso Cleaned: Y / N

Time UTC Local

Start 1825 1125

Bottom 1831

End 1830

Positional Information

Lat: 48 ° 28.337 N

Lon: 124 ° 32.567 W

Lat: 48 ° 28.312 N

Lon: 124 ° 32.706 W

Lat: 48 ° 28.243 N

Lon: 124 ° 32.157 W

Extra comments:

51  
NUT  
75  
2019-050  
Bot 12

Not sampled

FLUOR: 0.9

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID:

2019-050

Station:

72

Event #: 15

Ship: Vector

UTC Date (dd mmm yyyy):

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |     |       |      |    |       |  |  | Comments |        |  |  |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-----|-------|------|----|-------|--|--|----------|--------|--|--|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | DIC | Chl_a | HPLC | DA | PHYTO |  |  |          |        |  |  |
| 1        |          | 54       | Bot-5             | ✓ 184                | xx                                 | x    |     | x   |       |      |    |       |  |  |          |        |  |  |
| 2        |          | 55       | 175               | ✓ 158                | x                                  | x    | x   |     |       |      |    |       |  |  |          |        |  |  |
| 3        |          | 56       | 150               | ✓ 145                | x                                  | xx   |     | x   |       |      |    |       |  |  |          |        |  |  |
| 4        |          | 57       | 125               | ✓ 125                | x                                  | x    |     |     |       |      |    |       |  |  |          |        |  |  |
| 5        |          | 58       | 100               | ✓ 100                | x                                  | x    |     | xx  |       |      |    |       |  |  |          |        |  |  |
| 6        |          | 59       | 75                | ✓ 75                 | x                                  | x    |     | x   |       |      |    |       |  |  |          |        |  |  |
| 7        |          | 60       | 50                | ✓ 50                 | x                                  | x    |     | x   |       |      |    |       |  |  |          |        |  |  |
| 8        |          | 61       | 40                | ✓ 40                 | x                                  | x    |     |     |       |      |    |       |  |  |          |        |  |  |
| 9        |          | 62       | 30                | ✓ 30                 | x                                  | x    |     | x   |       |      |    |       |  |  |          |        |  |  |
| 10       |          | 63       | 20                | ✓ 20                 | x                                  | x    |     | xx  | xx    |      |    |       |  |  |          |        |  |  |
| 11       |          | 64       | 10                | ✓ 10                 | x                                  | xx   |     | x   | x     |      |    |       |  |  |          |        |  |  |
| 12       |          | 65       | 5                 | ✓ 5                  | xx                                 | x    |     | x   | x     |      |    |       |  |  |          |        |  |  |
| 13       |          | 66       | 0                 | ✓ 1.9                | x                                  | x    |     |     | x     | xx   | x  | x     |  |  |          |        |  |  |
| 14       |          | 67       | 0                 | ✓ 1.9                |                                    |      |     | x   |       |      |    |       |  |  |          | FLUOR: |  |  |
| 15       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |          |        |  |  |
| 16       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |          |        |  |  |
| 17       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |          |        |  |  |
| 18       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |          |        |  |  |
| 19       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |          |        |  |  |
| 20       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |          |        |  |  |
| 21       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |          |        |  |  |
| 22       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |          |        |  |  |
| 23       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |          |        |  |  |
| 24       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |          |        |  |  |

Profile type:

ROS TRM X-Niskin other?

Watchkeeper(s):

Bottom Depth: 187 m

Transmisso Cleaned: (Y) / N

Time UTC Local

Start 22 59 15 54

Bottom 23 10 16 10

End 23 25 16 25

Positional Information

Lat: 48 ° 18.535 N

Lon: 124 ° 03.961 W

Lat: 48 ° 18.446 N

Lon: 124 ° 03.995 W

Lat: 48 ° 18.396 N

Lon: 124 ° 03.997 W

Extra comments:

# Water Properties Group

# Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 69 Event #: 18 Ship: Vector UTC Date (dd|mmm|yyyy): 04|Jul|2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |  |  |  |  |  | Comments |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|--|--|--|--|--|----------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC |  |  |  |  |  |          |
| 1        |          | 68       | Bot-5             | ✓ 173                | xx                                 | xx   |     |       |      |  |  |  |  |  |          |
| 2        |          | 69       | 150               | ✓ 150                | x                                  | x    | x   |       |      |  |  |  |  |  |          |
| 3        |          | 70       | 125               | ✓ 125                | x                                  | xx   |     |       |      |  |  |  |  |  |          |
| 4        |          | 71       | 100               | ✓ 100                | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 5        |          | 72       | 75                | ✓ 75                 | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 6        |          | 73       | 50                | ✓ 50                 | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 7        |          | 74       | 40                | ✓ 40                 | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 8        |          | 75       | 30                | ✓ 30                 | x                                  | x    |     |       |      |  |  |  |  |  |          |
| 9        |          | 76       | 20                | ✓ 20                 | x                                  | x    |     | x     |      |  |  |  |  |  |          |
| 10       |          | 77       | 10                | ✓ 10                 | x                                  | x    |     | x     |      |  |  |  |  |  |          |
| 11       |          | 78       | 5                 | ✓ 5                  | x                                  | x    |     | xx    |      |  |  |  |  |  |          |
| 12       |          | 79       | 0                 | ✓ 1.7                | xx                                 | x    |     | x     | xx   |  |  |  |  |  | FLUOR:   |
| 13       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 14       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 15       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 16       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 17       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 18       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 19       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 20       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 21       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 22       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 23       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |
| 24       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |

Profile type:  
 ROS TRM X-Niskin other?  
 Watchkeeper(s):

Bottom Depth: 177 m  
 Transmisso Cleaned: (Y) N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 0155 | 1855  |
| Bottom | 0200 | 1900  |
| End    | 0213 | 1913  |

Positional Information  
 Start  
 Lat: 48 ° 15.517 N  
 Lon: 123 ° 43.082 W

Bottom  
 Lat: 48 ° 15.474 N  
 Lon: 123 ° 43.159 W

End  
 Lat: 48 ° 15.304 N  
 Lon: 123 ° 43.412 W

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050

Station: ADCP

Event #: 21

Ship: Vector

UTC Date (dd/mm/yyyy): 04 JUN 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                    | Samples Taken / Sampler's Initials |      |     |       |      |    |       |   |  |  |  |  | Comments |        |
|----------|----------|----------|-------------------|--------------------|------------------------------------|------|-----|-------|------|----|-------|---|--|--|--|--|----------|--------|
|          |          |          | Target Pressure   | Confirmed Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC | DA | PHYTO |   |  |  |  |  |          |        |
| 1        |          | 80       | Bot-5             | ✓                  | 117                                | x    | x   |       |      |    |       |   |  |  |  |  |          |        |
| 2        |          | 81       | 100               | ✓                  | 100                                | x    | x   | x     |      |    |       |   |  |  |  |  |          |        |
| 3        |          | 82       | 75                | ✓                  | 75                                 | x    | x   |       |      |    |       |   |  |  |  |  |          |        |
| 4        |          | 83       | 50                | ✓                  | 50                                 | x    | x   |       |      |    |       |   |  |  |  |  |          |        |
| 5        |          | 84       | 40                | ✓                  | 40                                 | xx   | x   |       |      |    |       |   |  |  |  |  |          |        |
| 6        |          | 85       | 30                | ✓                  | 30                                 | x    | x   |       |      |    |       |   |  |  |  |  |          |        |
| 7        |          | 86       | 20                | ✓                  | 20                                 | x    | x   |       | x    |    |       |   |  |  |  |  |          |        |
| 8        |          | 87       | 10                | ✓                  | 10                                 | x    | x   |       | xx   |    |       |   |  |  |  |  |          |        |
| 9        |          | 88       | 5                 | ✓                  | 5                                  | x    | xx  |       | x    |    |       |   |  |  |  |  |          |        |
| 10       |          | 89       | 0                 | ✓                  | 2.0                                | x    | x   |       | x    | xx | x     | x |  |  |  |  |          | FLUOR: |
| 11       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 12       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 13       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 14       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 15       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 16       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 17       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 18       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 19       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 20       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 21       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 22       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 23       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |
| 24       |          |          |                   |                    |                                    |      |     |       |      |    |       |   |  |  |  |  |          |        |

Profile type:  
ROS TRM X-Niskin other?  
Watchkeeper(s):

Bottom Depth: 121 m  
Transmisso Cleaned: Y / N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 0546 | 22 46 |
| Bottom | 0548 | 22 48 |
| End    | 0559 | 22 59 |

Positional Information

|      |              |   |
|------|--------------|---|
| Lat: | 48 ° 14.028  | N |
| Lon: | 123 ° 17.981 | W |

Start

Bottom

|      |              |   |
|------|--------------|---|
| Lat: | 48 ° 14.044  | N |
| Lon: | 123 ° 18.005 | W |

End

|      |              |   |
|------|--------------|---|
| Lat: | 48 ° 14.028  | N |
| Lon: | 123 ° 14.217 | W |

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 65 Event #: 25 Ship: Vector UTC Date (dd mmm yyyy): 04 Jun 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |  |  |  |  |  | Comments   |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|--|--|--|--|--|------------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC |  |  |  |  |  |            |
| 1        |          | 90       | Bot-5             | ✓ 123                | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 2        |          | 91       | 100               | ✓                    | x                                  | xx   | x   |       |      |  |  |  |  |  |            |
| 3        |          | 92       | 75                | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 4        |          | 93       | 50                | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 5        |          | 94       | 40                | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 6        |          | 95       | 30                | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 7        |          | 96       | 20                | ✓                    | x                                  | x    |     | x     |      |  |  |  |  |  |            |
| 8        |          | 97       | 10                | ✓                    | xx                                 | x    |     | xx    |      |  |  |  |  |  |            |
| 9        |          | 98       | 5                 | ✓                    | x                                  | x    |     | x     |      |  |  |  |  |  |            |
| 10       |          | 99       | 0                 | ✓                    | x                                  | x    |     | x     | xx   |  |  |  |  |  | FLUOR: 1.2 |
| 11       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 12       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 13       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 14       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 15       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 16       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 17       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 18       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 19       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 20       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 21       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 22       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 23       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 24       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |

Profile type:  
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?  
Watchkeeper(s): SR

Bottom Depth: 125 m  
Transmisso Cleaned: ☒ Y ☐ N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 0911 | 0211  |
| Bottom | 0915 |       |
| End    | 0927 |       |

Positional Information

|      |             |   |
|------|-------------|---|
| Lat: | 48 ° 15.904 | N |
| Lon: | 123 ° 9.565 | W |

Start

|      |             |   |
|------|-------------|---|
| Lat: | 48 ° 15.870 | N |
| Lon: | 123 ° 9.581 | W |

Bottom

|      |             |   |
|------|-------------|---|
| Lat: | 48 ° 15.610 | N |
| Lon: | 123 ° 9.529 | W |

End

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 63 Event #: 28 Ship: Vector UTC Date (dd|mmm|yyyy): 04|Jun|2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |       |      |    |       |  |  |  |  |  |  |  | Comments   |
|----------|----------|----------|-------------------|----------------------|------------------------------------|-------|------|----|-------|--|--|--|--|--|--|--|------------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | NUTS                               | Chl_a | HPLC | DA | PHYTO |  |  |  |  |  |  |  |            |
| 1        |          | 100      | 20                | ✓                    | x                                  | x     |      |    |       |  |  |  |  |  |  |  |            |
| 2        |          | 101      | 10                | ✓                    | x                                  | x     |      |    |       |  |  |  |  |  |  |  |            |
| 3        |          | 102      | 5                 | ✓                    | x                                  | xx    |      |    |       |  |  |  |  |  |  |  |            |
| 4        |          | 103      | 0                 |                      | x                                  | x     | xx   | x  | x     |  |  |  |  |  |  |  | FLUOR: 3.2 |
| 5        |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 6        |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 7        |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 8        |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 9        |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 10       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 11       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 12       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 13       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 14       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 15       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 16       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 17       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 18       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 19       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 20       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 21       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 22       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 23       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |
| 24       |          |          |                   |                      |                                    |       |      |    |       |  |  |  |  |  |  |  |            |

Profile type:  
ROS TRM X-Niskin other?

Watchkeeper(s): SR

Bottom Depth: 145 m

Transmisso Cleaned: Y / N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 1118 | 0418  |
| Bottom | 1121 |       |
| End    | 1127 |       |

Positional Information

StartLat: 48 ° 14.197 N  
Lon: 122 ° 58.385 W

BottomLat: 48 ° 14.207 N  
Lon: 122 ° 58.404 W

EndLat: 48 ° 14.220 N  
Lon: 122 ° 58.418 W

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 62 Event #: 29 Ship: Vector UTC Date (dd mmm/yyyy): 04 Jun 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |  |  |  |  |  | Comments   |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|--|--|--|--|--|------------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC |  |  |  |  |  |            |
| 1        |          | 104      | Bot-5             | ✓ 146                | x                                  | xx   |     |       |      |  |  |  |  |  |            |
| 2        |          | 105      | 125               | ✓                    | xx                                 | x    | x   |       |      |  |  |  |  |  |            |
| 3        |          | 106      | 100               | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 4        |          | 107      | 75                |                      | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 5        |          | 108      | 50                |                      | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 6        |          | 109      | 40                |                      | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 7        |          | 110      | 30                |                      | xx                                 | x    |     |       |      |  |  |  |  |  |            |
| 8        |          | 111      | 20                |                      | x                                  | x    |     | x     |      |  |  |  |  |  |            |
| 9        |          | 112      | 10                |                      | x                                  | x    |     | x     |      |  |  |  |  |  |            |
| 10       |          | 113      | 5                 |                      | x                                  | xx   |     | xx    |      |  |  |  |  |  |            |
| 11       |          | 114      | 0                 |                      | x                                  | x    |     | x     | xx   |  |  |  |  |  | FLUOR: 1.2 |
| 12       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 13       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 14       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 15       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 16       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 17       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 18       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 19       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 20       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 21       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 22       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 23       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 24       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |

Profile type:  
ROS TRM X-Niskin other?  
Watchkeeper(s): *SR*

Bottom Depth: 151 m  
Transmisso Cleaned: (Y) / N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 1247 | 0547  |
| Bottom | 1251 |       |
| End    | 1303 |       |

Positional Information

|      |             |   |
|------|-------------|---|
| Lat: | 48 ° 22.793 | N |
| Lon: | 123 ° 2.658 | W |

Start

Bottom

|      |             |   |
|------|-------------|---|
| Lat: | 48 ° 22.792 | N |
| Lon: | 123 ° 2.706 | W |

End

|      |             |   |
|------|-------------|---|
| Lat: | 48 ° 22.752 | N |
| Lon: | 123 ° 2.767 | W |

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 56 Event #: 35 Ship: Vector UTC Date (dd mmm yyyy): 04 JUN 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |    |       |  |  |             | Comments |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|----|-------|--|--|-------------|----------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC | DA | PHYTO |  |  |             |          |
| 1        |          | 115      | Bot-5             | ✓ 201                | x                                  | x    |     |       |      |    |       |  |  |             |          |
| 2        |          | 116      | 200               | ✓ 200                | x                                  | x    | x   |       |      |    |       |  |  |             |          |
| 3        |          | 117      | 175               | ✓ 175                | x                                  | x    |     |       |      |    |       |  |  |             |          |
| 4        |          | 118      | 150               | ✓ 150                | x                                  | x    |     |       |      |    |       |  |  |             |          |
| 5        |          | 119      | 125               | ✓ 125                | x                                  | x    |     |       |      |    |       |  |  |             |          |
| 6        |          | 120      | 100               | ✓ 100                | x                                  | x    |     |       |      |    |       |  |  |             |          |
| 7        |          | 121      | 75                | ✓ 75                 | xx                                 | xx   |     |       |      |    |       |  |  |             |          |
| 8        |          | 122      | 50                | ✓ 50                 | x                                  | x    |     |       |      |    |       |  |  |             |          |
| 9        |          | 123      | 40                | ✓ 40                 | x                                  | x    |     |       |      |    |       |  |  |             |          |
| 10       |          | 124      | 30                | ✓ 30                 | x                                  | x    |     |       |      |    |       |  |  |             |          |
| 11       |          | 125      | 20                | ✓ 20                 | x                                  | x    |     | xx    |      |    |       |  |  |             |          |
| 12       |          | 126      | 10                | ✓ 10                 | x                                  | x    |     | x     |      |    |       |  |  |             |          |
| 13       |          | 127      | 5                 | ✓ 5                  | xx                                 | x    |     | x     |      |    |       |  |  |             |          |
| 14       |          | 128      | 0                 | ✓ 1.8                | x                                  | xx   |     | x     | xx   | x  | x     |  |  | FLUOR: ~0.5 |          |
| 15       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |             |          |
| 16       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |             |          |
| 17       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |             |          |
| 18       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |             |          |
| 19       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |             |          |
| 20       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |             |          |
| 21       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |             |          |
| 22       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |             |          |
| 23       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |             |          |
| 24       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |             |          |

Profile type:  
ROS TRM X-Niskin other?  
Watchkeeper(s):

Bottom Depth: 213 m  
Transmisso Cleaned: (Y) / N

| Time   | UTC   | Local |
|--------|-------|-------|
| Start  | 22:39 | 15:39 |
| Bottom | 22:45 | 15:45 |
| End    | 23:03 | 16:03 |

Positional Information  
Start  
Lat: 48 ° 46.463 N  
Lon: 123 ° 01.466 W

Bottom  
Lat: 48 ° 46.452 N  
Lon: 123 ° 01.470 W

End  
Lat: 48 ° 46.490 N  
Lon: 123 ° 01.428 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 46 Event #: 43 Ship: Vector UTC Date (dd|mmm|yyyy): 05 | Jun | 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |  |  |  |  |  | Comments |  |  |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|--|--|--|--|--|----------|--|--|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC |  |  |  |  |  |          |  |  |
| 1        |          | 129      | Bot-5             | ✓ 174                | xx                                 | x    |     |       |      |  |  |  |  |  |          |  |  |
| 2        |          | 130      | 150               | ✓ 150                | x                                  | x    | x   |       |      |  |  |  |  |  |          |  |  |
| 3        |          | 131      | 125               | ✓ 125                | x                                  | x    |     |       |      |  |  |  |  |  |          |  |  |
| 4        |          | 132      | 100               | ✓ 100                | x                                  | x    |     |       |      |  |  |  |  |  |          |  |  |
| 5        |          | 133      | 75                | ✓ 75                 | x                                  | x    |     |       |      |  |  |  |  |  |          |  |  |
| 6        |          | 134      | 50                | ✓ 50                 | x                                  | xx   |     |       |      |  |  |  |  |  |          |  |  |
| 7        |          | 135      | 40                | ✓ 40                 | x                                  | x    |     |       |      |  |  |  |  |  |          |  |  |
| 8        |          | 136      | 30                | ✓ 30                 | x                                  | x    |     |       |      |  |  |  |  |  |          |  |  |
| 9        |          | 137      | 20                | ✓ 20                 | x                                  | x    |     | x     |      |  |  |  |  |  |          |  |  |
| 10       |          | 138      | 10                | ✓ 10                 | xx                                 | xx   |     | x     |      |  |  |  |  |  |          |  |  |
| 11       |          | 139      | 5                 | ✓ 5                  | x                                  | x    |     | xx    |      |  |  |  |  |  |          |  |  |
| 12       |          | 140      | 0                 | ✓ 2.1                | x                                  | x    |     | x     | xx   |  |  |  |  |  | FLUOR:   |  |  |
| 13       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |
| 14       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |
| 15       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |
| 16       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |
| 17       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |
| 18       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |
| 19       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |
| 20       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |
| 21       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |
| 22       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |
| 23       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |
| 24       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |          |  |  |

Profile type:  
ROS TRM X-Niskin other?

Watchkeeper(s):

Bottom Depth: m

Transmisso Cleaned: Y / N

| Time   | UTC   | Local |
|--------|-------|-------|
| Start  | 0434  | 21:34 |
| Bottom | 04:37 | 21:37 |
| End    | 04:48 | 21:48 |

Positional Information

Start

Lat: 48 ° 51.416 N

Lon: 123 ° 10.786 W

Bottom

Lat: 48 ° 51.419 N

Lon: 123 ° 10.765 W

End

Lat: 48 ° 51.400 N

Lon: 123 ° 10.724 W

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 42 Event #: 47 Ship: Vector UTC Date (dd|mmm|yyyy): 05 Jun 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |     |       |      |    |       |  |  |  |  | Comments |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-----|-------|------|----|-------|--|--|--|--|----------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | DIC | Chl_a | HPLC | DA | PHYTO |  |  |  |  |          |
| 1        |          | 141      | Bot-5             | ✓ 313                | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 2        |          | 142      | 300               | ✓                    | x                                  | x    | x   |     |       |      |    |       |  |  |  |  |          |
| 3        |          | 143      | 250               | ✓                    | x                                  | xx   |     | x   |       |      |    |       |  |  |  |  |          |
| 4        |          | 144      | 200               | ✓                    | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 5        |          | 145      | 175               | ✓                    | x                                  | x    |     |     |       |      |    |       |  |  |  |  |          |
| 6        |          | 146      | 150               | ✓                    | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 7        |          | 147      | 125               | ✓                    | x                                  | x    |     | xx  |       |      |    |       |  |  |  |  |          |
| 8        |          | 148      | 100               | ✓                    | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 9        |          | 149      | 75                | ✓                    | xx                                 | xx   |     | x   |       |      |    |       |  |  |  |  |          |
| 10       |          | 150      | 50                | ✓                    | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 11       |          | 151      | 40                |                      | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 12       |          | 152      | 30                |                      | xx                                 | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 13       |          | 153      | 20                |                      | x                                  | x    |     | x   | xx    |      |    |       |  |  |  |  |          |
| 14       |          | 154      | 10                |                      | x                                  | x    |     | xx  | x     |      |    |       |  |  |  |  |          |
| 15       |          | 155      | 5                 |                      | x                                  | x    |     | x   | x     |      |    |       |  |  |  |  |          |
| 16       |          | 156      | 0                 |                      | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |
| 17       |          | 157      | 0                 |                      |                                    |      |     |     | x     | xx   | x  | x     |  |  |  |  | FLUOR:   |
| 18       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 19       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 20       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 21       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 22       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 23       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |
| 24       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |          |

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?  
Watchkeeper(s): JRBottom Depth: 317 m  
Transmisso Cleaned: ☒ Y ☐ N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 0801 | 0101  |
| Bottom | 0807 |       |
| End    | 0828 |       |

Positional Information  
Start  
Lat: 49 ° 01.897 N  
Lon: 123 ° 26.048 WBottom  
Lat: 49 ° 01.895 N  
Lon: 123 ° 26.063 WEnd  
Lat: 49 ° 01.860 N  
Lon: 123 ° 26.131 W

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 39 Event #: 53 Ship: Vector UTC Date (dd/mm/yyyy): 05 Jun 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                    | Samples Taken / Sampler's Initials |      |     |       |      |  |  |  |  |  | Comments   |
|----------|----------|----------|-------------------|--------------------|------------------------------------|------|-----|-------|------|--|--|--|--|--|------------|
|          |          |          | Target Pressure   | Confirmed Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC |  |  |  |  |  |            |
| 1        |          | 158      | Bot-5             | ✓ 371              | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 2        |          | 159      | 350               | ✓                  | x                                  | x    | x   |       |      |  |  |  |  |  |            |
| 3        |          | 160      | 300               | ✓ 301              | xx                                 | x    |     |       |      |  |  |  |  |  |            |
| 4        |          | 161      | 250               | ✓ 251              | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 5        |          | 162      | 200               | ✓                  | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 6        |          | 163      | 175               | ✓                  | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 7        |          | 164      | 150               | ✓                  | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 8        |          | 165      | 125               | ✓                  | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 9        |          | 166      | 100               | ✓                  | xx                                 | x    |     |       |      |  |  |  |  |  |            |
| 10       |          | 167      | 75                | ✓                  | x                                  | xx   |     |       |      |  |  |  |  |  |            |
| 11       |          | 168      | 50                | ✓                  | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 12       |          | 169      | 40                | ✓                  | x                                  | xx   |     |       |      |  |  |  |  |  |            |
| 13       |          | 170      | 30                | ✓                  | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 14       |          | 171      | 20                | ✓                  | x                                  | x    |     | x     |      |  |  |  |  |  |            |
| 15       |          | 172      | 10                | ✓                  | x                                  | x    |     | x     |      |  |  |  |  |  |            |
| 16       |          | 173      | 5                 | ✓                  | x                                  | x    |     | x     |      |  |  |  |  |  |            |
| 17       |          | 174      | 0                 | ✓                  | x                                  | x    |     | xx    | xx   |  |  |  |  |  | FLUOR: 2.3 |
| 18       |          |          |                   |                    |                                    |      |     |       |      |  |  |  |  |  |            |
| 19       |          |          |                   |                    |                                    |      |     |       |      |  |  |  |  |  |            |
| 20       |          |          |                   |                    |                                    |      |     |       |      |  |  |  |  |  |            |
| 21       |          |          |                   |                    |                                    |      |     |       |      |  |  |  |  |  |            |
| 22       |          |          |                   |                    |                                    |      |     |       |      |  |  |  |  |  |            |
| 23       |          |          |                   |                    |                                    |      |     |       |      |  |  |  |  |  |            |
| 24       |          |          |                   |                    |                                    |      |     |       |      |  |  |  |  |  |            |

|                         |
|-------------------------|
| Profile type:           |
| ROS TRM X-Niskin other? |
| Watchkeeper(s): SR      |

|                     |     |   |
|---------------------|-----|---|
| Bottom Depth:       | 374 | m |
| Transmisso Cleaned: | (Y) | N |

|        |      |       |
|--------|------|-------|
| Time   | UTC  | Local |
| Start  | 1338 | 0638  |
| Bottom | 1345 |       |
| End    | 1408 |       |

|                        |
|------------------------|
| Positional Information |
| Lat: 49 ° 9.902 N      |
| Lon: 123 ° 32.971 W    |

Start  
Bottom  
End

|                     |
|---------------------|
| Lat: 49 ° 9.865 N   |
| Lon: 123 ° 32.982 W |

|                     |
|---------------------|
| Lat: 49 ° 9.810 N   |
| Lon: 123 ° 33.032 W |

|                 |
|-----------------|
| Extra comments: |
|-----------------|

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: GEO1 Event #: 58 Ship: Vector UTC Date (dd mmm yyyy): 05 Jun 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                    | Samples Taken / Sampler's Initials |       |      |  |  |  |  |  |  |  |  |  | Comments   |
|----------|----------|----------|-------------------|--------------------|------------------------------------|-------|------|--|--|--|--|--|--|--|--|--|------------|
|          |          |          | Target Pressure   | Confirmed Pressure | NUTS                               | Chl_a | HPLC |  |  |  |  |  |  |  |  |  |            |
| 1        |          | 175      | 20                |                    | x                                  | xx    |      |  |  |  |  |  |  |  |  |  |            |
| 2        |          | 176      | 10                |                    | x                                  | x     |      |  |  |  |  |  |  |  |  |  |            |
| 3        |          | 177      | 5                 |                    | x                                  | x     |      |  |  |  |  |  |  |  |  |  |            |
| 4        |          | 178      | 0                 |                    | x                                  | x     | xx   |  |  |  |  |  |  |  |  |  | FLUOR: 1.4 |
| 5        |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 6        |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 7        |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 8        |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 9        |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 10       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 11       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 12       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 13       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 14       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 15       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 16       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 17       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 18       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 19       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 20       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 21       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 22       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 23       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |
| 24       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |  |  |            |

|                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------|
| Profile type:                                                                                                              |
| <input checked="" type="radio"/> ROS <input type="radio"/> TRM <input type="radio"/> X-Niskin <input type="radio"/> other? |
| Watchkeeper(s): SK                                                                                                         |

|                     |                                                            |
|---------------------|------------------------------------------------------------|
| Bottom Depth:       | 401 m                                                      |
| Transmisso Cleaned: | <input checked="" type="radio"/> Y <input type="radio"/> N |

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 1714 | 1014  |
| Bottom | 1721 |       |
| End    | 1732 |       |

|                        |
|------------------------|
| Positional Information |
| Lat: 49 ° 14.981 N     |
| Lon: 123 ° 44.873 W    |

Start

Bottom

End

|                     |
|---------------------|
| Lat: 49 ° 14.951 N  |
| Lon: 123 ° 44.858 W |

|                     |
|---------------------|
| Lat: 49 ° 14.896 N  |
| Lon: 123 ° 44.807 W |

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID:

2019-050

Station:

27

Event #:

61

Ship:

Vector

UTC Date (dd mmm yyyy): 05 Jun 2019

| Niskin # | Firing # | Sample # | Rosette Operation |            | Samples Taken / Sampler's Initials |      |     |     |       |      |    |       |  |  | Comments |  |        |  |
|----------|----------|----------|-------------------|------------|------------------------------------|------|-----|-----|-------|------|----|-------|--|--|----------|--|--------|--|
|          |          |          | Target            | Confirmed  | OXY                                | NUTS | Sal | DIC | Chl_a | HPLC | DA | PHYTO |  |  |          |  |        |  |
|          |          |          | Pressure          | ✓ Pressure |                                    |      |     |     |       |      |    |       |  |  |          |  |        |  |
| 1        |          | 179      | Bot-5             | ✓          | 338                                | x    | x   | x   |       |      |    |       |  |  |          |  |        |  |
| 2        |          | 180      | 300               | ✓          | 300                                | x    | x   | x   | x     |      |    |       |  |  |          |  |        |  |
| 3        |          | 181      | 250               | ✓          | 250                                | x    | x   |     | xx    |      |    |       |  |  |          |  |        |  |
| 4        |          | 182      | 200               | ✓          | 200                                | x    | xx  | x   |       |      |    |       |  |  |          |  |        |  |
| 5        |          | 183      | 175               | ✓          | 175                                | x    | x   |     |       |      |    |       |  |  |          |  |        |  |
| 6        |          | 184      | 150               | ✓          | 150                                | x    | x   |     |       |      |    |       |  |  |          |  |        |  |
| 7        |          | 185      | 125               | ✓          | 125                                | xx   | x   |     |       |      |    |       |  |  |          |  |        |  |
| 8        |          | 186      | 100               | ✓          | 100                                | xx   | x   |     |       |      |    |       |  |  |          |  |        |  |
| 9        |          | 187      | 75                | ✓          | 75                                 | x    | xx  |     |       |      |    |       |  |  |          |  |        |  |
| 10       |          | 188      | 50                | ✓          | 50                                 | x    | x   |     |       |      |    |       |  |  |          |  |        |  |
| 11       |          | 189      | 40                | ✓          | 40                                 | x    | x   |     |       |      |    |       |  |  |          |  |        |  |
| 12       |          | 190      | 30                | ✓          | 30                                 | x    | x   |     |       |      |    |       |  |  |          |  |        |  |
| 13       |          | 191      | 20                | ✓          | 20                                 | x    | x   |     | x     |      |    |       |  |  |          |  |        |  |
| 14       |          | 192      | 10                | ✓          | 10                                 | x    | x   |     | x     |      |    |       |  |  |          |  |        |  |
| 15       |          | 193      | 5                 | ✓          | 5                                  | x    | x   |     | x     |      |    |       |  |  |          |  |        |  |
| 16       |          | 194      | 0                 | ✓          | 1.8                                | x    | x   |     |       |      |    |       |  |  |          |  |        |  |
| 17       |          | 195      | 0                 | ✓          | 1.8                                |      |     |     | xx    | xx   | x  | x     |  |  |          |  | FLUOR: |  |
| 18       |          |          |                   |            |                                    |      |     |     |       |      |    |       |  |  |          |  |        |  |
| 19       |          |          |                   |            |                                    |      |     |     |       |      |    |       |  |  |          |  |        |  |
| 20       |          |          |                   |            |                                    |      |     |     |       |      |    |       |  |  |          |  |        |  |
| 21       |          |          |                   |            |                                    |      |     |     |       |      |    |       |  |  |          |  |        |  |
| 22       |          |          |                   |            |                                    |      |     |     |       |      |    |       |  |  |          |  |        |  |
| 23       |          |          |                   |            |                                    |      |     |     |       |      |    |       |  |  |          |  |        |  |
| 24       |          |          |                   |            |                                    |      |     |     |       |      |    |       |  |  |          |  |        |  |

Profile type:

ROS TRM X-Niskin other?

Watchkeeper(s):

Bottom Depth: 343 m

Transmisso Cleaned: Y / N

Time UTC Local

Start 1922 12:22

Bottom 1928 12:28

End 1946 12:46

Positional Information

Lat: 49 ° 19 . 145 N

Lon: 123 ° 48 . 015 W

Lat: 49 ° 19 . 180 N

Lon: 123 ° 49 . 975 W

Lat: 49 ° 19 . 332 N

Lon: 123 ° 47 . 755 W

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: ~~24~~ 24 Event #: 66 Ship: Vector UTC Date (dd|mmm|yyyy): 07 JUN 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |       |      |  |  |  |  |  |  |  | Comments |
|----------|----------|----------|-------------------|----------------------|------------------------------------|-------|------|--|--|--|--|--|--|--|----------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | NUTS                               | Chl_a | HPLC |  |  |  |  |  |  |  |          |
| 1        |          | 196      | 20                | ✓ 20                 | x                                  | x     |      |  |  |  |  |  |  |  |          |
| 2        |          | 197      | 10                | ✓ 10                 | x                                  | xx    |      |  |  |  |  |  |  |  |          |
| 3        |          | 198      | 5                 | ✓ 5                  | x                                  | x     |      |  |  |  |  |  |  |  |          |
| 4        |          | 199      | 0                 | ✓ 1.7                | x                                  | x     | xx   |  |  |  |  |  |  |  | FLUOR:   |
| 5        |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 6        |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 7        |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 8        |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 9        |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 10       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 11       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 12       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 13       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 14       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 15       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 16       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 17       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 18       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 19       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 20       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 21       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 22       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 23       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |
| 24       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |          |

|                         |
|-------------------------|
| Profile type:           |
| ROS TRM X-Niskin other? |
| Watchkeeper(s):         |

|                     |       |   |
|---------------------|-------|---|
| Bottom Depth:       | 426   | m |
| Transmisso Cleaned: | Y / N |   |

| Time   | UTC   | Local |
|--------|-------|-------|
| Start  | 01:12 | 18:12 |
| Bottom | 01:20 | 18:20 |
| End    | 01:29 | 18:29 |

|                        |                |
|------------------------|----------------|
| Positional Information |                |
| Lat:                   | 49 ° 30.344 N  |
| Lon:                   | 124 ° 06.080 W |

Start

Bottom

End

|      |                |
|------|----------------|
| Lat: | 49 ° 30.342 N  |
| Lon: | 124 ° 06.043 W |

|      |                |
|------|----------------|
| Lat: | 49 ° 30.390 N  |
| Lon: | 124 ° 06.070 W |

|                 |
|-----------------|
| Extra comments: |
|-----------------|

Water Properties Group

Sampling Log 68

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 24 Event #: 72 Ship: Vector UTC Date (dd|mmm|yyyy):

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |    |       |  |  |  |  |             | Comments |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|----|-------|--|--|--|--|-------------|----------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC | DA | PHYTO |  |  |  |  |             |          |
| 1        |          | 200      | Bot-5             | ✓ 274                | x                                  | x    |     |       |      |    |       |  |  |  |  |             |          |
| 2        |          | 201      | 250               | ✓ 250                | x                                  | x    | x   |       |      |    |       |  |  |  |  |             |          |
| 3        |          | 202      | 200               | ✓ 200                | x                                  | xx   |     |       |      |    |       |  |  |  |  |             |          |
| 4        |          | 203      | 175               | ✓ 175                | x                                  | x    |     |       |      |    |       |  |  |  |  |             |          |
| 5        |          | 204      | 150               | ✓ 150                | x                                  | x    |     |       |      |    |       |  |  |  |  |             |          |
| 6        |          | 205      | 125               | ✓ 125                | xx                                 | x    |     |       |      |    |       |  |  |  |  |             |          |
| 7        |          | 206      | 100               | ✓ 100                | xx                                 | x    |     |       |      |    |       |  |  |  |  |             |          |
| 8        |          | 207      | 75                | ✓ 75                 | x                                  | x    |     |       |      |    |       |  |  |  |  |             |          |
| 9        |          | 208      | 50                | ✓ 50                 | x                                  | xx   |     |       |      |    |       |  |  |  |  |             |          |
| 10       |          | 209      | 40                | ✓ 40                 | x                                  | x    |     |       |      |    |       |  |  |  |  |             |          |
| 11       |          | 210      | 30                | ✓ 30                 | x                                  | x    |     |       |      |    |       |  |  |  |  |             |          |
| 12       |          | 211      | 20                | ✓ 20                 | x                                  | x    |     | x     |      |    |       |  |  |  |  |             |          |
| 13       |          | 212      | 10                | ✓ 10                 | x                                  | x    |     | xx    |      |    |       |  |  |  |  |             |          |
| 14       |          | 213      | 5                 | ✓ 5                  | x                                  | x    |     | x     |      |    |       |  |  |  |  |             |          |
| 15       |          | 214      | 0                 | ✓ 1.8                | x                                  | x    |     | x     | xx   | x  | x     |  |  |  |  | FLUOR: ~2.1 |          |
| 16       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |  |  |             |          |
| 17       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |  |  |             |          |
| 18       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |  |  |             |          |
| 19       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |  |  |             |          |
| 20       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |  |  |             |          |
| 21       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |  |  |             |          |
| 22       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |  |  |             |          |
| 23       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |  |  |             |          |
| 24       |          |          |                   |                      |                                    |      |     |       |      |    |       |  |  |  |  |             |          |

Profile type:  
ROS TRM X-Niskin other?  
Watchkeeper(s):

Bottom Depth: m  
Transmisso Cleaned: Y / N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 0242 | 2042  |
| Bottom |      |       |
| End    |      |       |

Positional Information

|      |   |   |
|------|---|---|
| Lat: | ° | N |
| Lon: | ° | W |

Start

|      |   |   |
|------|---|---|
| Lat: | ° | N |
| Lon: | ° | W |

Bottom

|      |   |   |
|------|---|---|
| Lat: | ° | N |
| Lon: | ° | W |

End

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: CPF1 Event #: 70 Ship: Vector UTC Date (dd/mm/yyyy): 06 Jun 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |       |      |  |  |  |  |  |  |  |  |  | Comments |
|----------|----------|----------|-------------------|----------------------|------------------------------------|-------|------|--|--|--|--|--|--|--|--|--|----------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | NUTS                               | Chl_a | HPLC |  |  |  |  |  |  |  |  |  |          |
| 1        |          | 215      | 20                | ✓ 20                 | x                                  | xx    |      |  |  |  |  |  |  |  |  |  |          |
| 2        |          | 216      | 10                | ✓ 10                 | x                                  | x     |      |  |  |  |  |  |  |  |  |  |          |
| 3        |          | 217      | 5                 | ✓ 5                  | x                                  | x     |      |  |  |  |  |  |  |  |  |  |          |
| 4        |          | 218      | 0                 | ✓ 2.1                | x                                  | x     | xx   |  |  |  |  |  |  |  |  |  | FLUOR:   |
| 5        |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 6        |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 7        |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 8        |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 9        |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 10       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 11       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 12       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 13       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 14       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 15       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 16       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 17       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 18       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 19       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 20       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 21       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 22       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 23       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |
| 24       |          |          |                   |                      |                                    |       |      |  |  |  |  |  |  |  |  |  |          |

Profile type:  
ROS TRM X-Niskin other?  
Watchkeeper(s):

Bottom Depth: 244 m  
Transmisso Cleaned: Y / N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 0406 | 2106  |
| Bottom | 0410 | 2110  |
| End    | 0417 | 2117  |

Positional Information  
Start  
Lat: 49 ° 21.976 N  
Lon: 124 ° 05.038 W

Bottom  
Lat: 49 ° 21.958 N  
Lon: 124 ° 05.046 W

End  
Lat: 49 ° 21.964 N  
Lon: 124 ° 05.042 W

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 6 Event #: 76 Ship: Vector UTC Date (dd mmm yyyy): 06 Jun 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |  |  |  |  |  | Comments   |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|--|--|--|--|--|------------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC |  |  |  |  |  |            |
| 1        |          | 235      | Bot-5             | ✓ 188.5              | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 2        |          | 236      | 175               | ✓                    | x                                  | x    | x   |       |      |  |  |  |  |  |            |
| 3        |          | 237      | 150               | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 4        |          | 238      | 125               | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 5        |          | 239      | 100               | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 6        |          | 240      | 75                | ✓                    | xx                                 | x    |     |       |      |  |  |  |  |  |            |
| 7        |          | 241      | 50                | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 8        |          | 242      | 40                | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 9        |          | 243      | 30                | ✓                    | x                                  | xx   |     |       |      |  |  |  |  |  |            |
| 10       |          | 244      | 20                | ✓                    | x                                  | x    |     | xx    |      |  |  |  |  |  |            |
| 11       |          | 245      | 10                | ✓                    | x                                  | x    |     | x     |      |  |  |  |  |  |            |
| 12       |          | 246      | 5                 | ✓                    | xx                                 | x    |     | x     |      |  |  |  |  |  |            |
| 13       |          | 247      | 0                 | ✓                    | x                                  | xx   |     | x     | xx   |  |  |  |  |  | FLUOR: 2.3 |
| 14       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 15       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 16       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 17       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 18       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 19       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 20       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 21       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 22       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 23       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 24       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?  
Watchkeeper(s): SR

Bottom Depth: 193 m

Transmisso Cleaned: (Y) / N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 0905 | 0205  |
| Bottom | 0909 |       |
| End    | 0926 |       |

## Positional Information

Start  
Lat: 49 ° 30.590 N  
Lon: 124 ° 27.745 W

Start

Bottom  
Lat: 49 ° 30.580 N  
Lon: 124 ° 27.751 W

Bottom

End  
Lat: 49 ° 30.529 N  
Lon: 124 ° 27.790 W

End

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 3 Event #: 73 Ship: Vector UTC Date (dd mmm yyyy): 06 Jul 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |    |  |  |  |  | Comments |  |  |  |        |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|----|--|--|--|--|----------|--|--|--|--------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure |                                    |      |     |       |      |    |  |  |  |  |          |  |  |  |        |
|          |          |          |                   |                      | OXY                                | NUTS | Sal | Chl_a | HPLC |    |  |  |  |  |          |  |  |  |        |
| 1        |          | 219      | Bot-5             | ✓                    | 315                                | x    | x   |       |      |    |  |  |  |  |          |  |  |  |        |
| 2        |          | 220      | 300               | ✓                    | 300                                | x    | x   | x     |      |    |  |  |  |  |          |  |  |  |        |
| 3        |          | 221      | 250               | ✓                    | 250                                | x    | x   |       |      |    |  |  |  |  |          |  |  |  |        |
| 4        |          | 222      | 200               | ✓                    |                                    | x    | xx  |       |      |    |  |  |  |  |          |  |  |  |        |
| 5        |          | 223      | 175               | ✓                    |                                    | xx   | xx  |       |      |    |  |  |  |  |          |  |  |  |        |
| 6        |          | 224      | 150               | ✓                    |                                    | x    | x   |       |      |    |  |  |  |  |          |  |  |  |        |
| 7        |          | 225      | 125               | ✓                    |                                    | x    | x   |       |      |    |  |  |  |  |          |  |  |  |        |
| 8        |          | 226      | 100               | ✓                    |                                    | x    | x   |       |      |    |  |  |  |  |          |  |  |  |        |
| 9        |          | 227      | 75                | ✓                    |                                    | xx   | x   |       |      |    |  |  |  |  |          |  |  |  |        |
| 10       |          | 228      | 50                | ✓                    |                                    | x    | x   |       |      |    |  |  |  |  |          |  |  |  |        |
| 11       |          | 229      | 40                | ✓                    |                                    | x    | x   |       |      |    |  |  |  |  |          |  |  |  |        |
| 12       |          | 230      | 30                | ✓                    |                                    | x    | x   |       |      |    |  |  |  |  |          |  |  |  |        |
| 13       |          | 231      | 20                | ✓                    |                                    | x    | x   |       | x    |    |  |  |  |  |          |  |  |  |        |
| 14       |          | 232      | 10                | ✓                    |                                    | x    | x   |       | xx   |    |  |  |  |  |          |  |  |  |        |
| 15       |          | 233      | 5                 | ✓                    |                                    | x    | x   |       | x    |    |  |  |  |  |          |  |  |  |        |
| 16       |          | 234      | 0                 | ✓                    |                                    | x    | x   |       | x    | xx |  |  |  |  |          |  |  |  | FLUOR: |
| 17       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |          |  |  |  |        |
| 18       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |          |  |  |  |        |
| 19       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |          |  |  |  |        |
| 20       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |          |  |  |  |        |
| 21       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |          |  |  |  |        |
| 22       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |          |  |  |  |        |
| 23       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |          |  |  |  |        |
| 24       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |          |  |  |  |        |

Profile type:  
ROS TRM X-Niskin other?  
Watchkeeper(s): PE-SR2

Bottom Depth: 320 m

Transmisso Cleaned: (Y) / N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 0638 | 23:38 |
| Bottom | 0642 | 2342  |
| End    | 0703 |       |

## Positional Information

Start  
Lat: 49 ° 26.606 N  
Lon: 124 ° 20.068 WBottom  
Lat: 49 ° 26.616 N  
Lon: 124 ° 20.059 WEnd  
Lat: 49 ° 26.629 N  
Lon: 124 ° 20.052 W

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 9 Event #: 79 Ship: Vector UTC Date (dd mmm yyyy): 06 June 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |  |  |  |  |  | Comments   |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|--|--|--|--|--|------------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC |  |  |  |  |  |            |
| 1        |          | 248      | Bot-5             | ✓ 165                | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 2        |          | 249      | 150               | ✓                    | x                                  | x    | x   |       |      |  |  |  |  |  |            |
| 3        |          | 250      | 125               | ✓                    | xx                                 | x    |     |       |      |  |  |  |  |  |            |
| 4        |          | 251      | 100               | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 5        |          | 252      | 75                | ✓                    | xx                                 | x    |     |       |      |  |  |  |  |  |            |
| 6        |          | 253      | 50                | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 7        |          | 254      | 40                | ✓                    | x                                  | xx   |     |       |      |  |  |  |  |  |            |
| 8        |          | 255      | 30                | ✓                    | x                                  | x    |     |       |      |  |  |  |  |  |            |
| 9        |          | 256      | 20                | ✓                    | x                                  | x    |     | x     |      |  |  |  |  |  |            |
| 10       |          | 257      | 10                | ✓                    | x                                  | xx   |     | x     |      |  |  |  |  |  |            |
| 11       |          | 258      | 5                 | ✓                    | x                                  | x    |     | xx    |      |  |  |  |  |  |            |
| 12       |          | 259      | 0                 | ✓                    | x                                  | x    |     | x     | xx   |  |  |  |  |  | FLUOR: 1.4 |
| 13       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 14       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 15       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 16       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 17       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 18       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 19       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 20       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 21       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 22       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 23       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |
| 24       |          |          |                   |                      |                                    |      |     |       |      |  |  |  |  |  |            |

|                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------|
| Profile type:                                                                                                                          |
| <input checked="" type="checkbox"/> ROS <input type="checkbox"/> TRM <input type="checkbox"/> X-Niskin <input type="checkbox"/> other? |
| Watchkeeper(s): 812                                                                                                                    |

|                     |                                                                  |   |
|---------------------|------------------------------------------------------------------|---|
| Bottom Depth:       | 170                                                              | m |
| Transmisso Cleaned: | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N |   |

|        |      |       |
|--------|------|-------|
| Time   | UTC  | Local |
| Start  | 1205 | 0505  |
| Bottom | 1208 |       |
| End    | 1222 |       |

|                        |                     |
|------------------------|---------------------|
| Positional Information |                     |
| Start                  | Lat: 49 ° 35.578 N  |
|                        | Lon: 124 ° 38.321 W |

|        |                     |
|--------|---------------------|
| Bottom | Lat: 49 ° 35.580 N  |
|        | Lon: 124 ° 38.317 W |

|     |                     |
|-----|---------------------|
| End | Lat: 49 ° 35.564 N  |
|     | Lon: 124 ° 38.264 W |

|                 |
|-----------------|
| Extra comments: |
|                 |

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 12 Event #: 83 Ship: Vector UTC Date (dd mmm yyyy): 06 Jun 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |     |       |      |    |       |  |  |  |  | Comments    |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-----|-------|------|----|-------|--|--|--|--|-------------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure | OXY                                | NUTS | Sal | DIC | Chl_a | HPLC | DA | PHYTO |  |  |  |  |             |
| 1        |          | 260      | Bot-5             | ✓ 353                | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |             |
| 2        |          | 261      | 300               | ✓                    | x                                  | x    | x   |     |       |      |    |       |  |  |  |  |             |
| 3        |          | 262      | 250               | ✓                    | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |             |
| 4        |          | 263      | 200               | ✓                    | x                                  | x    |     | xx  |       |      |    |       |  |  |  |  |             |
| 5        |          | 264      | 175               | ✓                    | xx                                 | xx   |     |     |       |      |    |       |  |  |  |  |             |
| 6        |          | 265      | 150               | ✓                    | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |             |
| 7        |          | 266      | 125               | ✓                    | xx                                 | x    |     | x   |       |      |    |       |  |  |  |  |             |
| 8        |          | 267      | 100               | ✓                    | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |             |
| 9        |          | 268      | 75                | ✓                    | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |             |
| 10       |          | 269      | 50                | ✓                    | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |             |
| 11       |          | 270      | 40                | ✓                    | x                                  | x    |     | xx  |       |      |    |       |  |  |  |  |             |
| 12       |          | 271      | 30                | ✓                    | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |             |
| 13       |          | 272      | 20                | ✓                    | x                                  | x    |     | x   | x     |      |    |       |  |  |  |  |             |
| 14       |          | 273      | 10                | ✓                    | x                                  | x    |     | x   | x     |      |    |       |  |  |  |  |             |
| 15       |          | 274      | 5                 | ✓                    | x                                  | xx   |     | x   | x     |      |    |       |  |  |  |  |             |
| 16       |          | 275      | 0                 | ✓                    | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |             |
| 17       |          | 276      | 0                 | ✓                    |                                    |      |     |     | xx    | xx   | x  | x     |  |  |  |  | FLUOR: 42.0 |
| 18       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |             |
| 19       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |             |
| 20       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |             |
| 21       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |             |
| 22       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |             |
| 23       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |             |
| 24       |          |          |                   |                      |                                    |      |     |     |       |      |    |       |  |  |  |  |             |

Profile type:  
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?  
Watchkeeper(s): SR

Bottom Depth: 357 m  
Transmisso Cleaned: ☒ Y ☐ N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 1512 | 0812  |
| Bottom | 1520 |       |
| End    | 1540 |       |

Positional Information

|      |              |   |
|------|--------------|---|
| Lat: | 49 ° 43.591  | N |
| Lon: | 124 ° 40.753 | W |

Start

Bottom

Lat: 49 ° 43.585 N  
Lon: 124 ° 40.784 W

End

Lat: 49 ° 43.576 N  
Lon: 124 ° 40.786 W

Extra comments:

# Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: Pen1 Event #: 86 Ship: Vector UTC Date (dd mmm yyyy): 06 JUN 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                    | Samples Taken / Sampler's Initials |      |     |     |       |      |      |       |  |  | Comments    |
|----------|----------|----------|-------------------|--------------------|------------------------------------|------|-----|-----|-------|------|------|-------|--|--|-------------|
|          |          |          | Target Pressure   | Confirmed Pressure | OXY                                | NUTS | Sal | DIC | Chl_a | HPLC | DA   | PHYTO |  |  |             |
| 1        |          | 277      | Bot-5             | ✓ 169              | xx                                 | x    |     | x   |       |      |      |       |  |  |             |
| 2        |          | 278      | 150               | ✓ 150              | x                                  | xx   |     | x   |       |      |      |       |  |  |             |
| 3        |          | 279      | 125               | ✓ 125              | x                                  | x    |     |     |       |      |      |       |  |  |             |
| 4        |          | 280      | 100               | ✓ 100              | x                                  | x    |     | xx  |       |      |      |       |  |  |             |
| 5        |          | 281      | 75                | ✓ 75               | x                                  | x    |     |     |       |      |      |       |  |  |             |
| 6        |          | 282      | 50                | ✓ 50               | x                                  | x    |     | x   |       |      |      |       |  |  |             |
| 7        |          | 283      | 40                | ✓ 40               | x                                  | x    |     |     |       |      |      |       |  |  |             |
| 8        |          | 284      | 30                | ✓ 30               | x                                  | x    |     | x   |       |      |      |       |  |  |             |
| 9        |          | 285      | 20                | ✓ 20               | x                                  | x    |     | xx  | xx    |      |      |       |  |  |             |
| 10       |          | 286      | 10                | ✓ 10               | x                                  | xx   |     |     | x     |      |      |       |  |  |             |
| 11       |          | 287      | 5                 | ✓ 5                | xx                                 | x    |     | x   | x     |      |      |       |  |  |             |
| 12       |          | 288      | 0                 | ✓ 1.7              | x                                  | x    |     |     | x     | xx   | 1/11 | 1/11  |  |  |             |
| 13       |          | 289      | 0                 | ✓ 1.7              |                                    |      |     | x   |       |      |      |       |  |  |             |
| 14       |          |          |                   |                    |                                    |      |     |     |       |      |      |       |  |  | FLUOR: ~0.5 |
| 15       |          |          |                   |                    |                                    |      |     |     |       |      |      |       |  |  |             |
| 16       |          |          |                   |                    |                                    |      |     |     |       |      |      |       |  |  |             |
| 17       |          |          |                   |                    |                                    |      |     |     |       |      |      |       |  |  |             |
| 18       |          |          |                   |                    |                                    |      |     |     |       |      |      |       |  |  |             |
| 19       |          |          |                   |                    |                                    |      |     |     |       |      |      |       |  |  |             |
| 20       |          |          |                   |                    |                                    |      |     |     |       |      |      |       |  |  |             |
| 21       |          |          |                   |                    |                                    |      |     |     |       |      |      |       |  |  |             |
| 22       |          |          |                   |                    |                                    |      |     |     |       |      |      |       |  |  |             |
| 23       |          |          |                   |                    |                                    |      |     |     |       |      |      |       |  |  |             |

Profile type:  
ROS TRM X-Niskin other?  
Watchkeeper(s): R

Transmisso Cleaned: (Y) N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 2332 | 16:32 |
| Bottom | 2335 | 16:35 |
| End    | 2347 | 16:47 |

Positional Information

|       |                     |
|-------|---------------------|
| Start | Lat: 50 ° 17.005 N  |
|       | Lon: 124 ° 42.710 W |

Bottom

|  |                     |
|--|---------------------|
|  | Lat: 50 ° 17.008 N  |
|  | Lon: 124 ° 42.711 W |

End

|  |                     |
|--|---------------------|
|  | Lat: 50 ° 17.008 N  |
|  | Lon: 124 ° 42.708 W |

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: Pen3 Event #: 88 Ship: Vector UTC Date (dd mmm/yyyy): 07 JUN 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                    | Samples Taken / Sampler's Initials |      |     |     |       |      |    |       |  |  |  |  | Comments |  |
|----------|----------|----------|-------------------|--------------------|------------------------------------|------|-----|-----|-------|------|----|-------|--|--|--|--|----------|--|
|          |          |          | Target Pressure   | Confirmed Pressure | OXY                                | NUTS | Sal | DIC | Chl_a | HPLC | DA | PHYTO |  |  |  |  |          |  |
| 1        |          | 290      | Bot-0             | ✓ 360              | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |  |
| 2        |          | 291      | 300               | ✓ 300              | x                                  | x    | x   | x   |       |      |    |       |  |  |  |  |          |  |
| 3        |          | 292      | 250               | ✓ 250              | x                                  | x    |     | xx  |       |      |    |       |  |  |  |  |          |  |
| 4        |          | 293      | 200               | ✓ 200              | x                                  | xx   |     | x   |       |      |    |       |  |  |  |  |          |  |
| 5        |          | 294      | 175               | ✓ 175              | x                                  | x    |     |     |       |      |    |       |  |  |  |  |          |  |
| 6        |          | 295      | 150               | ✓ 150              | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |  |
| 7        |          | 296      | 125               | ✓ 125              | xx                                 | x    |     |     |       |      |    |       |  |  |  |  |          |  |
| 8        |          | 297      | 100               | ✓ 100              | xx                                 | x    |     | x   |       |      |    |       |  |  |  |  |          |  |
| 9        |          | 298      | 75                | ✓ 75               | x                                  | xx   |     |     |       |      |    |       |  |  |  |  |          |  |
| 10       |          | 299      | 50                | ✓ 50               | x                                  | x    |     | xx  |       |      |    |       |  |  |  |  |          |  |
| 11       |          | 300      | 40                | ✓ 40               | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |  |
| 12       |          | 301      | 30                | ✓ 30               | x                                  | x    |     | x   |       |      |    |       |  |  |  |  |          |  |
| 13       |          | 302      | 20                | ✓ 20               | x                                  | x    |     | x   | x     |      |    |       |  |  |  |  |          |  |
| 14       |          | 303      | 10                | ✓ 10               | x                                  | x    |     | x   | x     |      |    |       |  |  |  |  |          |  |
| 15       |          | 304      | 5                 | ✓ 5                | x                                  | x    |     | x   | x     |      |    |       |  |  |  |  |          |  |
| 16       |          | 305      | 0                 | ✓ 1.7              | x                                  | x    |     |     | xx    | xx   |    |       |  |  |  |  |          |  |
| 17       |          | 306      | 0                 | ✓ 1.7              |                                    |      |     | x   |       |      |    |       |  |  |  |  | FLUOR:   |  |
| 18       |          |          |                   |                    |                                    |      |     |     |       |      |    |       |  |  |  |  |          |  |
| 19       |          |          |                   |                    |                                    |      |     |     |       |      |    |       |  |  |  |  |          |  |
| 20       |          |          |                   |                    |                                    |      |     |     |       |      |    |       |  |  |  |  |          |  |
| 21       |          |          |                   |                    |                                    |      |     |     |       |      |    |       |  |  |  |  |          |  |
| 22       |          |          |                   |                    |                                    |      |     |     |       |      |    |       |  |  |  |  |          |  |
| 23       |          |          |                   |                    |                                    |      |     |     |       |      |    |       |  |  |  |  |          |  |
| 24       |          |          |                   |                    |                                    |      |     |     |       |      |    |       |  |  |  |  |          |  |

Profile type:  
ROS TRM X-Niskin other?  
Watchkeeper(s): RBottom Depth: 360 m  
Transmisso Cleaned: Y / N

| Time   | UTC   | Local |
|--------|-------|-------|
| Start  | 01:22 | 18:22 |
| Bottom | 01:30 | 18:30 |
| End    | 01:47 | 18:47 |

Positional Information  
Start  
Lat: 50 ° 12.368 N  
Lon: 124 ° 45.112 WBottom  
Lat: 50 ° 12.353 N  
Lon: 124 ° 45.143 WEnd  
Lat: 50 ° 12.300 N  
Lon: 124 ° 45.253 W

Extra comments:

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050

Station: QU39

Event #: 92

Ship: Vector

UTC Date (dd|mmm|yyyy): 07 JUN 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                    | Samples Taken / Sampler's Initials |       |      |  |  |  |  |  |  |  | Comments |
|----------|----------|----------|-------------------|--------------------|------------------------------------|-------|------|--|--|--|--|--|--|--|----------|
|          |          |          | Target Pressure   | Confirmed Pressure | NUTS                               | Chl_a | HPLC |  |  |  |  |  |  |  |          |
| 1        |          | 307      | 20                | ✓ 20               | x                                  | xx    |      |  |  |  |  |  |  |  |          |
| 2        |          | 308      | 10                | ✓ 10               | x                                  | x     |      |  |  |  |  |  |  |  |          |
| 3        |          | 309      | 5                 | ✓ 5                | x                                  | x     |      |  |  |  |  |  |  |  |          |
| 4        |          | 310      | 0                 | ✓ 1.6              | x                                  | x     | xx   |  |  |  |  |  |  |  | FLUOR:   |
| 5        |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 6        |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 7        |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 8        |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 9        |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 10       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 11       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 12       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 13       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 14       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 15       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 16       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 17       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 18       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 19       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 20       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 21       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 22       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 23       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |
| 24       |          |          |                   |                    |                                    |       |      |  |  |  |  |  |  |  |          |

|                         |
|-------------------------|
| Profile type:           |
| ROS TRM X-Niskin other? |
| Watchkeeper(s):         |

|                     |       |
|---------------------|-------|
| Bottom Depth:       | 275 m |
| Transmisso Cleaned: | Y / N |

|        |      |       |
|--------|------|-------|
| Time   | UTC  | Local |
| Start  | 0501 | 2201  |
| Bottom | 0506 | 2206  |
| End    | 0513 | 2213  |

|                        |                     |
|------------------------|---------------------|
| Positional Information |                     |
| Start                  | Lat: 50 ° 01.832 N  |
|                        | Lon: 125 ° 05.945 W |

|        |                     |
|--------|---------------------|
| Bottom | Lat: 50 ° 01.829 N  |
|        | Lon: 125 ° 05.986 W |

|     |                     |
|-----|---------------------|
| End | Lat: 50 ° 01.850 N  |
|     | Lon: 125 ° 06.043 W |

|                 |
|-----------------|
| Extra comments: |
|-----------------|

## Water Properties Group

## Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 16 Event #: 94 Ship: Vector UTC Date (dd/mm/yyyy): 07 JUN 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                      | Samples Taken / Sampler's Initials |      |     |       |      |    |  |  |  |  |  |  |  | Comments |
|----------|----------|----------|-------------------|----------------------|------------------------------------|------|-----|-------|------|----|--|--|--|--|--|--|--|----------|
|          |          |          | Target Pressure   | Confirmed ✓ Pressure |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
|          |          |          |                   |                      | OXY                                | NUTS | Sal | Chl_a | HPLC |    |  |  |  |  |  |  |  |          |
| 1        |          | 311      | Bot-5             | ✓                    | 149                                | x    | x   |       |      |    |  |  |  |  |  |  |  |          |
| 2        |          | 312      | 125               | ✓                    | 125                                | xx   | x   | x     |      |    |  |  |  |  |  |  |  |          |
| 3        |          | 313      | 100               | ✓                    | 100                                | x    | x   |       |      |    |  |  |  |  |  |  |  |          |
| 4        |          | 314      | 75                | ✓                    | 75                                 | x    | x   |       |      |    |  |  |  |  |  |  |  |          |
| 5        |          | 315      | 50                | ✓                    | 50                                 | x    | x   |       |      |    |  |  |  |  |  |  |  |          |
| 6        |          | 316      | 40                | ✓                    | 40                                 | x    | x   |       |      |    |  |  |  |  |  |  |  |          |
| 7        |          | 317      | 30                | ✓                    | 30                                 | xx   | xx  |       |      |    |  |  |  |  |  |  |  |          |
| 8        |          | 318      | 20                | ✓                    | 20                                 | x    | x   |       | x    |    |  |  |  |  |  |  |  |          |
| 9        |          | 319      | 10                | ✓                    | 10                                 | x    | x   |       | x    |    |  |  |  |  |  |  |  |          |
| 10       |          | 320      | 5                 | ✓                    | 5                                  | x    | x   |       | xx   |    |  |  |  |  |  |  |  |          |
| 11       |          | 321      | 0                 | ✓                    | 1.8                                | x    | xx  |       | x    | xx |  |  |  |  |  |  |  | FLUOR:   |
| 12       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 13       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 14       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 15       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 16       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 17       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 18       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 19       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 20       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 21       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 22       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 23       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |
| 24       |          |          |                   |                      |                                    |      |     |       |      |    |  |  |  |  |  |  |  |          |

Profile type:  
ROS TRM X-Niskin other?  
Watchkeeper(s): RBottom Depth: 158 m  
Transmisso Cleaned: Y / N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 0614 | 2314  |
| Bottom | 0617 | 2317  |
| End    | 0628 | 2328  |

Positional Information  
Start  
Lat: 49 ° 57.780 N  
Lon: 125 ° 08.889 WBottom  
Lat: 49 ° 57.797 N  
Lon: 125 ° 08.891 WEnd  
Lat: 49 ° 57.760 N  
Lon: 125 ° 08.917 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2019-050 Station: 14 Event #: 98 Ship: Vector UTC Date (dd mmm yyyy): 07 Jun 2019

| Niskin # | Firing # | Sample # | Rosette Operation |                    | Samples Taken / Sampler's Initials |      |     |       |      |    |       |  |  |  | Comments |
|----------|----------|----------|-------------------|--------------------|------------------------------------|------|-----|-------|------|----|-------|--|--|--|----------|
|          |          |          | Target Pressure   | Confirmed Pressure | OXY                                | NUTS | Sal | Chl_a | HPLC | DA | PHYTO |  |  |  |          |
| 1        |          | 322      | Bot-5             | ✓ 300              | x                                  | x    |     |       |      |    |       |  |  |  |          |
| 2        |          | 323      | 250               | ✓ 251              | x                                  | x    | x   |       |      |    |       |  |  |  |          |
| 3        |          | 324      | 200               | ✓                  | xx                                 | x    |     |       |      |    |       |  |  |  |          |
| 4        |          | 325      | 175               | ✓                  | x                                  | x    |     |       |      |    |       |  |  |  |          |
| 5        |          | 326      | 150               | ✓                  | x                                  | x    |     |       |      |    |       |  |  |  |          |
| 6        |          | 327      | 125               | ✓                  | x                                  | x    |     |       |      |    |       |  |  |  |          |
| 7        |          | 328      | 100               | ✓                  | x                                  | x    |     |       |      |    |       |  |  |  |          |
| 8        |          | 329      | 75                | ✓                  | xx                                 | xx   |     |       |      |    |       |  |  |  |          |
| 9        |          | 330      | 50                | ✓                  | x                                  | xx   |     |       |      |    |       |  |  |  |          |
| 10       |          | 331      | 40                | ✓                  | x                                  | x    |     |       |      |    |       |  |  |  |          |
| 11       |          | 332      | 30                | ✓                  | x                                  | x    |     |       |      |    |       |  |  |  |          |
| 12       |          | 333      | 20                | ✓                  | x                                  | x    |     | x     |      |    |       |  |  |  |          |
| 13       |          | 334      | 10                | ✓                  | x                                  | x    |     | x     |      |    |       |  |  |  |          |
| 14       |          | 335      | 5                 | ✓                  | x                                  | x    |     | x     |      |    |       |  |  |  |          |
| 15       |          | 336      | 0                 | ✓                  | x                                  | x    |     | xx    | xx   | x  | x     |  |  |  | FLUOR:   |
| 17       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |          |
| 18       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |          |
| 19       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |          |
| 20       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |          |
| 21       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |          |
| 22       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |          |
| 23       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |          |
| 24       |          |          |                   |                    |                                    |      |     |       |      |    |       |  |  |  |          |

Profile type:  
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?  
Watchkeeper(s): SK

Bottom Depth: 305 m  
Transmisso Cleaned: ☒ Y ☐ N

| Time   | UTC  | Local |
|--------|------|-------|
| Start  | 0842 | 0142  |
| Bottom | 0848 |       |
| End    | 0908 |       |

Positional Information  
Start  
Lat: 49 ° 52.510 N  
Lon: 124 ° 59.582 W

Bottom  
Lat: 49 ° 52.505 N  
Lon: 124 ° 59.492 W

End  
Lat: 49 ° 52.339 N  
Lon: 124 ° 59.303 W

Extra comments:

## Water Properties Group

## Sampling Log

**Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC**

UTC Date (dd|mmm|yyyy): 07 Jun 2019

Cruise ID: 2019-050

Station: 22

Event #: 101

Ship: \_\_\_\_\_ Vector

Comments

**Profile type:**

ROS TRM X-Niskin other?

Watchkeeper(s): *SP*

Bottom Depth: 353 m

Transmisso Cleaned: Y / N

| <i>Time</i> | <i>UTC</i> | <i>Local</i> |
|-------------|------------|--------------|
| Start       | 1401       | 0701         |
| Bottom      | 1407       |              |
| End         | 1416       |              |

**Positional Information**

|      |       |        |   |
|------|-------|--------|---|
| Lat: | 49 °  | 40.108 | N |
| Lon: | 124 ° | 16.333 | W |

Bottom

|      |              |   |
|------|--------------|---|
| Lat: | 49 ° 40.136  | N |
| Lon: | 124 ° 16.253 | W |

|     |      |              |   |
|-----|------|--------------|---|
| End | Lat: | 49 ° 40.232  | N |
|     | Lon: | 124 ° 16.230 | W |

**Extra comments:**

<http://www.pac.dfo-mpo.gc.ca/sci/osap/projects/waterproperties/>

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use Ammonia products

[illegible]