

# DAILY SCIENCE LOG BOOK

MISSION  
NUMBER

2015-25

Neville Cruise # 2015-05

DATE:

From: 12 MAY 2015

To: 15 JUL 2015

VESSEL:

Nordic Queen

PROJECT(S):

Neville - Discovery Island  
Purse Seine

Water Properties Group  
Fisheries and Oceans Canada  
Institute of Ocean Sciences  
Ocean Sciences Division  
North Saanich, BC, Canada

[WaterProperties.ca](http://WaterProperties.ca)

Captain: Harold First Officer: \_\_\_\_\_

Second Officer: \_\_\_\_\_ Third Officer: \_\_\_\_\_

Fishing Master: \_\_\_\_\_ Chief Engineer: \_\_\_\_\_

Mission Participants / Agencies:

50 JUNE / PAR

**\*\* Chief Scientist to complete section below OR cut and tape from cruise plan \*\***

**1<sup>st</sup> Leg Scientific Personnel:** Chief Scientist: Chrys Newble

| Name | Watch | Cabin | Name | Watch | Cabin |
|------|-------|-------|------|-------|-------|
|------|-------|-------|------|-------|-------|

Jeonoha Jung

Cameron Freshwater (WVIC)

Dylan Conover

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 104

[illegible]

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 84

**2<sup>nd</sup> Leg Scientific Personnel:** Chief Scientist:

| Name | Watch | Cabin | Name | Watch | Cabin |
|------|-------|-------|------|-------|-------|
| NAME |       |       | NAME |       |       |

**\*\* The following 3 pages are VERY IMPORTANT as they document equipment and settings used on board \*\***

These pages are to be completed by the CTD Technician setting up the equipment, the Watch Leader on board, and the Chief Scientist MUST verify that all relevant sections are completed prior to leaving the vessel. Any mid-cruise changes to be noted by watch leader in the notes.

Data logging computer: WP16

Data acquisition program: \_\_\_\_\_

CTD deck unit make: N/A model: \_\_\_\_\_ serial number: \_\_\_\_\_

**Primary CTD**

Make: SBE model: 25 serial number: 0404

Primary temperature serial number: 2095

Primary conductivity serial number: 1764

Secondary temperature serial number: \_\_\_\_\_

Secondary conductivity serial number: \_\_\_\_\_

Transmissometer: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_

Transmissometer: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_

Fluorometer: Model \_\_\_\_\_ Cable gain: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Fluorometer: Model \_\_\_\_\_ Cable gain: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Oxygen sensor: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

PAR sensor: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_ Surface PAR? Y / N

Other sensors: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Other sensors: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Other sensors: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Other sensors: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

**Secondary CTD**

Make: SBE model: 25 serial number: 0334

Primary temperature serial number: \_\_\_\_\_

Primary conductivity serial number: \_\_\_\_\_

Secondary temperature serial number: \_\_\_\_\_

Secondary conductivity serial number: \_\_\_\_\_

Transmissometer: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_

Transmissometer: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_

Fluorometer: Model \_\_\_\_\_ Cable gain: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Fluorometer: Model \_\_\_\_\_ Cable gain: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Oxygen sensor: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

PAR sensor: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_ Surface PAR? Y / N

Other sensors: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Other sensors: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Other sensors: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Other sensors: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

CTD calibration bottle location (height above CTD in metres): \_\_\_\_\_

*This also includes the bottle location above the CTD on non-rossette casts (e.g., W.E. Ricker)*

This survey was conducted 2 days/week over 10 weeks starting 11-12 MAY 2015 and ending 14-15 JUL 2015.

IOS Cruise Number 2015-25 = Neville Cruise Number 2015-05

Plankton sampling conducted by SCOR net (TSK #15255) borrowed from M. Galbraith (IOS).

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Flowmeter # 5255

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| Month MAY    |              |        | Year 2015  |           |            | Vessel NORDIC QUEEN |                     |                       | Cruise ID 2015-25 |              |                       |              |                  |                          |                            |
|--------------|--------------|--------|------------|-----------|------------|---------------------|---------------------|-----------------------|-------------------|--------------|-----------------------|--------------|------------------|--------------------------|----------------------------|
| Event Number | Station Name | Day    | Time (UTC) | Time Code | Event Type | Firing Method       | Positional Latitude | Information Longitude | Bottom Depth      | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers    | Trns/FI Cleaned          | Comments                   |
| 1            | 2            | Set 1  | May 12     | 06:50     | PST        | CTD                 | 50° 24.320          | 125° 45.808           | 21 FA             |              | -                     |              | TARGET DEPTH 30m | <input type="checkbox"/> |                            |
| 1            | 3            | 1      | May 12     | 06:59     | PST        | NET                 | 50° 24.394          | 125° 45.609           | 27 FA             |              | -                     | 1            |                  | <input type="checkbox"/> | Flow start 02600 end 02910 |
|              |              |        | :          |           |            |                     | .                   | .                     |                   |              | -                     |              |                  | <input type="checkbox"/> |                            |
| 2            | 6            | Set 3  | May 12     | 10:49     | PST        | CTD                 | 50° 23.781          | 125° 20.313           | 121 FA            |              | -                     |              | 50m              | <input type="checkbox"/> |                            |
| 2            | 7            | 3      | May 12     | 10:56     | PST        | NET                 | 50° 23.824          | 125° 20.313           | 124 FA            |              | -                     |              | 50m              | <input type="checkbox"/> | Flow start 02910 end 03060 |
|              |              |        | :          |           |            |                     | .                   | .                     |                   |              | -                     |              |                  | <input type="checkbox"/> |                            |
| 3            | 11           | Set 6  | MAY 12     | 14:30     | PST        | CTD                 | 50° 18.312          | 125° 19.905           | 39 FA             |              | -                     |              | 50m              | <input type="checkbox"/> |                            |
| 3            | 12           | 6      | MAY 12     | 14:37     | PST        | NET                 | 50° 18.270          | 125° 20.000           | 38 FA             |              | -                     |              | 50m              | <input type="checkbox"/> | START 03060 END 03390      |
| 4            | 16           | Set 8  | May 25     | 6:59      | PST        | CTD                 | 50° 18.277          | 125° 19.955           | 40 FA             |              | -                     |              | 50m              | <input type="checkbox"/> |                            |
| 4            | 17           | 8      | May 25     | 7:10      | PST        | NET                 | 50° 18.277          | 125° 19.955           | 40 FA             |              | -                     |              | 50m              | <input type="checkbox"/> | Start 03492 END 03653      |
| 5            | 19           | Set 10 | May 25     | 10:31     | PST        | CTD                 | 50° 21.207          | 125° 22.946           | 24 FA             |              | -                     |              | 50m              | <input type="checkbox"/> |                            |
| 5            | 20           | 10     | May 25     | 10:35     | PST        | NET                 | 50° 21.217          | 125° 22.993           | 60 FA             |              | -                     |              | 50m              | <input type="checkbox"/> | start 03653 end 04005      |
| 6            | 22           | Set 11 | May 25     | 14:06     | PST        | CTD                 | 50° 24.351          | 125° 45.606           | 20 FA             |              | -                     |              | 30m              | <input type="checkbox"/> |                            |
| 16           | 23           | 11     | May 25     | 14:09     | PST        | NET                 | 50° 24.361          | 125° 45.614           | 20 FA             |              | -                     |              | 30m              | <input type="checkbox"/> | Start 04005 END 04215      |
|              |              |        | :          |           |            |                     | .                   | .                     |                   |              | -                     |              |                  | <input type="checkbox"/> |                            |
| 7            | 25           | Set 12 | May 25     | 18:00     | PST        | CTD                 | 50° 27.436          | 126° 09.819           | 19 FA             |              | -                     |              | 30m              | <input type="checkbox"/> |                            |
| 7            | 26           | 12     | May 25     | 18:08     | PST        | NET                 | 50° 27.438          | 126° 09.764           | 20 FA             |              | -                     |              | 30m              | <input type="checkbox"/> | Start 04215 END 04219      |
|              |              |        | :          |           |            |                     | .                   | .                     |                   |              | -                     |              |                  | <input type="checkbox"/> |                            |
|              |              |        | :          |           |            |                     | .                   | .                     |                   |              | -                     |              |                  | <input type="checkbox"/> | Problem - no rotation      |

## Event Type:

BOT = Bottle cast (no CTD)  
CTD = Standalone CTD  
ROS = CTD in Rosette  
SET = Fish Set

## LOOP = Sea Water Loop

MOR = Mooring  
NET = Plankton Net Haul  
DRF = Drifter  
=

## Bottle Firing Method:

US = Up / Stop (default)  
UN = Up / No stop  
DN = Down / No stop

## Time Code:

BE = Beginning Time of Cast  
BO = Bottom Time of Cast  
EN = End Time of Cast

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time  
MR = Messenger Release Time  
RE = Recover Mooring Time

Notes:

Produced by the Water Properties Group, IOS

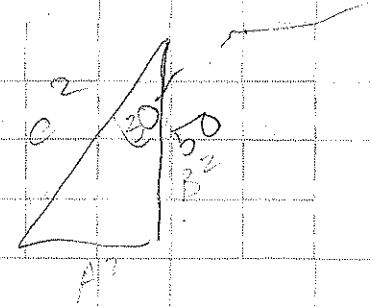
WaterProperties.ca  
Version: 14 February 2013

Notes: Times are in PST not UTC.

1 EA = 1.829 m

Set 1  
wire angle  $\sim 30^\circ$

Set 3  
wire good



Set 10  
Wire  $\sim 30^\circ$  - let out  $\sim 5$  m line

Set 11  
 $\sim 5$  m line as wire  $\sim 30^\circ$   
 $\sim 10$  m line as wire  $\sim 40^\circ$

Set 12  
Problem: no A in flowmeter. May have been misread  
at start as end double checked. Will confirm tomorrow w/ next set  
\* strong wire angle & set loaded good

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month        |              | MAY/JUNE |       | Year      |            | 2015          |                        | Vessel      |              |              | NORNIC QUEEN          |              |               | Cruise ID                |          | 2015-25 |  |  | Page |  | 2 |  | of |  | 9 |  |  |
|--------------|--------------|----------|-------|-----------|------------|---------------|------------------------|-------------|--------------|--------------|-----------------------|--------------|---------------|--------------------------|----------|---------|--|--|------|--|---|--|----|--|---|--|--|
| Event Number | Station Name | Day      | Time  | Time Code | Event Type | Firing Method | Positional Information |             | Bottom Depth | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned          | Comments |         |  |  |      |  |   |  |    |  |   |  |  |
|              |              |          | (UTC) |           |            |               | Latitude               | Longitude   |              |              |                       |              |               |                          |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 29           | Set 14       | May 26   | 7:28  | PAT       | CTD        |               | 50° 27.504             | 126° 04.421 | 148 FA       |              | -                     |              | 50m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 30           | 14           | May 26   | 7:35  | PAT       | NET        |               | 50° 27.546             | 126° 04.306 | 147 FA       |              | -                     |              | 50m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
|              |              |          | :     |           |            |               | .                      | .           |              |              | -                     |              |               | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 33           | Set 16       | May 26   | 11:58 | PAT       | CTD        |               | 50° 19.868             | 125° 28.661 | 52 FA        |              | -                     |              | 30m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 34           | 16           | May 26   | 12:02 | PAT       | NET        |               | 50° 19.862             | 125° 28.636 | 51 FA        |              | -                     |              | 30m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
|              |              |          | :     |           |            |               | .                      | .           |              |              | -                     |              |               | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 37           | Set 18       | May 26   | 14:44 | PAT       | CTD        |               | 50° 18.312             | 125° 19.961 | 38 FA        |              | -                     |              | 50m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 38           | 18           | May 26   | 14:50 | PAT       | NET        |               | 50° 18.324             | 125° 19.971 | 37 FA        |              | -                     |              | 50m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
|              |              |          | :     |           |            |               | .                      | .           |              |              | -                     |              |               | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 40           | Set 19       | May 26   | 17:47 | PAT       | CTD        |               | 50° 11.369             | 125° 20.384 | 34 FA        |              | -                     |              | 30m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 41           | 19           | May 26   | 17:51 | PAT       | NET        |               | 50° 11.334             | 125° 20.314 | 32 FA        |              | -                     |              | 30m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
|              |              |          | :     |           |            |               | .                      | .           |              |              | -                     |              |               | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 44           | Set 22       | June 1   | 10:45 | PAT       | CTD        |               | 50° 21.816             | 125° 39.377 | 40 FA        |              | -                     |              | 50m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 45           | 22           | June 1   | 10:54 | PAT       | NET        |               | 50° 21.867             | 125° 39.586 | 50 FA        |              | -                     |              | 50m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
|              |              |          | :     |           |            |               | .                      | .           |              |              | -                     |              |               | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 48           | Set 23       | June 1   | 13:17 | PAT       | CTD        |               | 50° 24.889             | 125° 45.657 | 69 FA        |              | -                     |              | 50m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
| 49           | 23           | June 1   | 13:25 | PAT       | NET        |               | 50° 24.898             | 125° 45.680 | 67 FA        |              | -                     |              | 50m           | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
|              |              |          | :     |           |            |               | .                      | .           |              |              | -                     |              |               | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
|              | (*) Set 24?  |          | :     |           |            |               | .                      | .           |              |              | -                     |              |               | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |
|              |              |          | :     |           |            |               | .                      | .           |              |              | -                     |              |               | <input type="checkbox"/> |          |         |  |  |      |  |   |  |    |  |   |  |  |

Event Type:

LOOP = Sea Water Loop  
BOT = Bottle cast (no CTD)  
MOP = Mooring

Bottle Firing Method:

Time Code:

CTD Transmissometer and Fluorescence

## Event Type:

BOT = Bottle cast (no CTD)  
CTD = Standalone CTD  
ROS = CTD in Rosette  
SET = Fish Set

LOOP = Sea Water Loop  
MOR = Mooring  
NET = Plankton Net Haul  
DRF = Drifter  
=

## Bottle Firing Method:

US = Up / Stop (default)  
UN = Up / No stop  
DN = Down / No stop

## Notes:

## Time Code:

BE = Beginning Time of Cast  
BO = Bottom Time of Cast  
EN = End Time of Cast

DE = Deployment Time  
MR = Messenger Release Time  
RE = Recover Mooring Time

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

Produced by the Water Properties Group, IOS

WaterProperties.ca  
Version: 14 February 2013

Note: Times are in PST not UTC.

$$1 \text{ FA} = 1.829 \text{ m}$$

\* Hex file for Set 24 but no associated log entry? Set-050 & CTA 051? \*

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month JUNE   |              |       |            | Year 2015 |            | Vessel NORDIC QUEEN |                        |             |              | Cruise ID 2015-25 DEP |                       |              |               | Page 3 of 9              |                       |
|--------------|--------------|-------|------------|-----------|------------|---------------------|------------------------|-------------|--------------|-----------------------|-----------------------|--------------|---------------|--------------------------|-----------------------|
| Event Number | Station Name | Day   | Time (UTC) | Time Code | Event Type | Firing Method       | Positional Information |             | Bottom Depth | Max Pressure          | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned          | Comments              |
|              |              |       |            |           |            |                     | Latitude               | Longitude   |              |                       |                       |              |               |                          |                       |
| 53           | Set 20       | Jun 1 | 17:45      | PBT       | CTD        |                     | 50° 28.654             | 126° 4.086  | 34 FA        |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 54           | 20           | Jun 1 | 17:54      | PBT       | NET        |                     | 50° 28.654             | 126° 4.086  | 34 FA        |                       | -                     |              | 50m           | <input type="checkbox"/> | Start 0655 End 0655   |
|              |              |       | :          |           |            |                     | .                      | .           |              |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 58           | Set 29       | Jun 2 | 06:35      | PBT       | CTD        |                     | 50° 28.691             | 126° 04.190 | 33 FA        |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 59           | 29           | Jun 2 | 06:41      | PBT       | NET        |                     | 50° 28.691             | 126° 04.104 | 38 FA        |                       | -                     |              | 50m           | <input type="checkbox"/> | Start 0655 End 0655   |
|              |              |       | :          |           |            |                     | .                      | .           |              |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 63           | Set 32       | Jun 2 | 13:14      | PBT       | CTD        |                     | 50° 19.284             | 125° 25.151 | 124 FA       |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 64           | 32           | Jun 2 | 13:20      | PBT       | NET        |                     | 50° 19.161             | 125° 26.177 | 124 FA       |                       | -                     |              | 50m           | <input type="checkbox"/> | Start 0655 End 07232  |
|              |              |       | :          |           |            |                     | .                      | .           |              |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 66           | Set 33       | Jun 2 | 14:00      | PBT       | CTD        |                     | 50° 19.289             | 125° 14.950 | 40 FA        |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 67           | 33           | Jun 2 | 14:58      | PBT       | NET        |                     | 50° 19.285             | 125° 14.951 | 40 FA        |                       | -                     |              | 50m           | <input type="checkbox"/> | Start 0400 End 0755   |
|              |              |       | :          |           |            |                     | .                      | .           |              |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 69           | Set 34       | Jun 2 | 17:00      | PBT       | CTD        |                     | 50° 11.345             | 125° 20.369 | 35 FA        |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 70           | 34           | Jun 2 | 17:06      | PBT       | NET        |                     | 50° 11.385             | 125° 20.496 | 36 FA        |                       | -                     |              | 50m           | <input type="checkbox"/> | Start 0755 End 0755   |
|              |              |       | :          |           |            |                     | .                      | .           |              |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 72           | Set 35       | Jun 8 | 07:58      | PBT       | CTD        |                     | 50° 18.312             | 125° 19.918 | 40 FA        |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 73           | 35           |       | 08:07      |           | NET        |                     | 50° 18.325             | 125° 19.893 | 20 FA        |                       | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 76           | Set 37       |       | 10:57      |           | CTD        |                     | 50° 24.066             | 125° 20.622 | 39 FA        |                       | -                     |              |               | <input type="checkbox"/> | Start 07823 End 07823 |
| 77           | 37           |       | 11:01      |           | NET        |                     | 50° 24.061             | 125° 20.609 | 44 FA        |                       | -                     |              |               | <input type="checkbox"/> | Start 07970 End 08130 |

Event Type:  
BOT = Bottle cast (no CTD)  
CTD = Standalone CTD

LOOP = Sea Water Loop  
MOR = Mooring  
NET = Plankton Net

Bottle Firing Method:  
US = Up / Stop (default)

Time Code:  
RF = Beginning Time of Cast

CTD Transmissometer and Fluorometer to be cleaned before next use

## Event Type:

BOT = Bottle cast (no CTD)  
CTD = Standalone CTD  
ROS = CTD in Rosette  
SET = Fish Set

LOOP = Sea Water Loop  
MOR = Mooring  
NET = Plankton Net Haul  
DRF = Drifter

## Bottle Firing Method:

US = Up / Stop (default)  
UN = Up / No stop  
DN = Down / No stop

## Time Code:

BE = Beginning Time of Cast  
BO = Bottom Time of Cast  
EN = End Time of Cast

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time  
MR = Messenger Release Time  
RE = Recover Mooring Time

## Notes:

Produced by the Water Properties Group, IOS

WaterProperties.ca  
Version: 14 February 2013

Note: Times are PDT not UTC.

$$1 \text{ FA} = 1.829 \text{ m}$$

-110.313 FA

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>JUNE</u> |              |        |            | Year <u>2015</u> |            |               | Vessel <u>NORDIC QUEEN</u> |             |                   | Cruise ID    |                       | 2015-25      |               |                          |                       |
|-------------------|--------------|--------|------------|------------------|------------|---------------|----------------------------|-------------|-------------------|--------------|-----------------------|--------------|---------------|--------------------------|-----------------------|
| Event Number      | Station Name | Day    | Time (UTC) | Time Code        | Event Type | Firing Method | Positional Information     |             | Bottom Depth (FA) | Max Pressure | Sample Serial Numbers | ANGLE        | DEPTH         | Trns/FI Cleaned          | Comments              |
|                   |              |        |            |                  |            |               | Latitude                   | Longitude   |                   |              |                       | # of Bottles | Watch Keepers |                          |                       |
| 80                | Set 39       | JUN 8  | 12:59      | PDT              | CTD        |               | 50° 21.688                 | 125° 21.942 | 38 FA             |              | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 81                | ↓            |        | 13:04      |                  | NET        |               | 50° 21.679                 | 125° 21.921 | 37 FA             |              | -                     | 10°          | ✓             | <input type="checkbox"/> | ST 08180<br>EN 08510  |
| 83                | Set 40       |        | 16:16      |                  | CTD        |               | 50° 26.604                 | 125° 44.764 | 29 FA             |              | -                     |              | 40m           | <input type="checkbox"/> |                       |
| 84                | ↓            | ↓      | 16:20      |                  | NET        |               | 50° 26.545                 | 125° 44.622 | 29 FA             |              | -                     | 10°          | ↓             | <input type="checkbox"/> | ST 08510<br>EN 08850  |
| 86                | Set 41       | JUN 9  | 06:27      |                  | CTD        |               | 50° 28.651                 | 126° 00.566 | 21 FA             |              | -                     |              | 30m           | <input type="checkbox"/> |                       |
| 87                | ↓            |        | 06:32      |                  | NET        |               | 50° 28.662                 | 126° 00.500 | 21 FA             |              | -                     | 10°          | 25m           | <input type="checkbox"/> | ST 08850<br>EN 09025  |
| 89                | Set 42       |        | 09:32      |                  | CTD        |               | 50° 23.183                 | 125° 36.736 | 37 FA             |              | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 90                | ↓            |        | 09:37      |                  | NET        |               | 50° 23.217                 | 125° 36.705 | 40 FA             |              | -                     | 20°          |               | <input type="checkbox"/> | ST 09025<br>EN 09370  |
| 92                | Set 43       |        | 12:03      |                  | CTD        |               | 50° 24.072                 | 125° 20.649 | 35 FA             |              | -                     |              |               | <input type="checkbox"/> |                       |
| 93                | ↓            |        | 12:08      |                  | NET        |               | 50° 24.065                 | 125° 20.636 | 37 FA             |              | -                     | 0            |               | <input type="checkbox"/> | ST 09370<br>EN 09600  |
| 96                | Set 45       |        | 15:05      |                  | CTD        |               | 50° 18.299                 | 125° 19.938 | 39 FA             |              | -                     |              |               | <input type="checkbox"/> |                       |
| 97                | ↓            | ↓      | 15:11      | ↓                | NET        |               | 50° 18.309                 | 125° 19.922 | 39 FA             |              | -                     | 10°          | ✓             | <input type="checkbox"/> | ST 09600<br>EN 09980  |
|                   |              |        | :          |                  |            |               | °                          | °           |                   |              | -                     |              |               | <input type="checkbox"/> |                       |
| 101               | Set 48       | JUN 15 | 12:29      | PDT              | CTD        |               | 50° 18.301                 | 125° 19.896 | 39 FA             |              | -                     |              | 50m           | <input type="checkbox"/> |                       |
| 102               | ↓            |        | 12:32      |                  | NET        |               | 50° 18.294                 | 125° 19.873 | 40 FA             |              | -                     | 0°           |               | <input type="checkbox"/> | ST 09982<br>EN 10095? |
| 104               | Set 49       |        | 14:36      |                  | CTD        |               | 50° 24.045                 | 125° 20.639 | 40 FA             |              | -                     |              |               | <input type="checkbox"/> |                       |
| 105               | ↓            |        | 14:39      |                  | NET        |               | 50° 24.076                 | 125° 20.643 | 36 FA             |              | -                     | 0°           |               | <input type="checkbox"/> | ST 10095<br>EN 10320  |
| 108               | Set 51       |        | 17:46      |                  | CTD        |               | 50° 23.210                 | 125° 36.986 | 25 FA             |              | -                     |              |               | <input type="checkbox"/> |                       |
| 109               | ↓            | ↓      | 17:59      | ↓                | NET        |               | 50° 23.223                 | 125° 36.973 | 24 FA             |              | -                     | 0°           | ✓             | <input type="checkbox"/> | ST 10320<br>EN 10665  |

## Event Type:

BOT = Bottle cast (no CTD)  
CTD = Standalone CTD  
ROS = CTD in Rosette  
SET = Fish Set

LOOP = Sea Water Loop  
MOR = Mooring  
NET = Plankton Net Haul  
DRF = Drifter  
=

## Bottle Firing Method:

US = Up / Stop (default)  
UN = Up / No stop  
DN = Down / No stop

## Notes:

## Time Code:

BE = Beginning Time of Cast  
BO = Bottom Time of Cast  
EN = End Time of Cast

DE = Deployment Time  
MR = Messenger Release Time  
RE = Recover Mooring Time

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

Produced by the Water Properties Group, IOS

WaterProperties.ca  
Version: 14 February 2013

Note: Times are PST not UTC.

(FA = 1.829 m)

↳ All Sets up to and including Set 45 processed by G. Gathen June 10/2015.  
(May not have used correct CON File.)

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE

Year 2015

Vessel NORDIC QUEEN

Cruise ID

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2015-25

| Event Number | Station Name | Day    | Time (UTC) | Time Code | Event Type | Firing Method | Positional Information   | Bottom Depth | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned | Comments             |
|--------------|--------------|--------|------------|-----------|------------|---------------|--------------------------|--------------|--------------|-----------------------|--------------|---------------|-----------------|----------------------|
|              |              |        |            |           |            |               | Latitude Longitude       |              |              |                       |              |               |                 |                      |
| ✓ 112        | Set 53       | JUN 16 | 05:58      | PAT       | CTD        |               | 50° 27. 447 126° 09. 860 | 22 FA        |              | -                     |              | 30m           | □□              |                      |
| ✓ 113        | ↓            |        | 06:01      |           | NET        |               | 50° 27. 450 126° 09. 866 | 22 FA        |              | -                     | 0            |               | □□              | ST 10665<br>EN 10870 |
| ✓ 115        | Set 54       |        | 07:36      |           | CTD        |               | 50° 28. 658 126° 00. 560 | 20 FA        |              | -                     |              |               | □□              |                      |
| ✓ 116        | ↓            |        | 07:38      |           | NET        |               | 50° 28. 647 126° 00. 531 | 24 FA        |              | -                     | 0            | ✓             | □□              | ST 10870<br>EN 11060 |
| ✓ 118        | Set 55       |        | 09:44      |           | CTD        |               | 50° 29. 215 125° 46. 945 | 33 FA        |              | -                     |              | 50m           | □□              |                      |
| ✓ 119        | ↓            |        | 09:49      |           | NET        |               | 50° 29. 204 125° 46. 910 | 36 FA        |              | -                     | 0            | ↓             | □□              | ST 11060<br>EN 11428 |
| ✓ 122        | Set 57       |        | 13:02      |           | CTD        |               | 50° 23. 193 125° 36. 919 | 25 FA        |              | -                     |              | 40m           | □□              |                      |
| ✓ 123        | ↓            |        | 13:06      |           | NET        |               | 50° 23. 245 125° 36. 919 | 30 FA        |              | -                     | 0            | ↓             | □□              | ST 11428<br>EN 11735 |
| ✓ 126        | Set 59       |        | 15:45      |           | CTD        |               | 50° 18. 355 125° 19. 189 | 39 FA        |              | -                     |              | 50m           | □□              |                      |
| ✓ 127        | ↓            |        | 15:53      | ✓         | NET        |               | 50° 18. 330 125° 19. 806 | 42 FA        |              | -                     | 0            | ↓             | □□              | ST 11735<br>EN 12088 |
|              |              |        | :          |           |            |               | .                        |              |              | -                     |              |               | □□              |                      |
| ✓ 131        | Set 62       | JUN 21 | 10:48      | PAT       | CTD        |               | 50° 11. 481 125° 20. 581 | 40 FA        |              | -                     |              | 50m           | □□              |                      |
| ✓ 132        | ↓            |        | 10:54      |           | NET        |               | 50° 11. 492 125° 20. 582 | 40 FA        |              | -                     | 0            |               | □□              | ST 21870<br>EN 22170 |
| ✓ 134        | Set 63       |        | 12:42      |           | CTD        |               | 50° 18. 315 125° 19. 905 | 39           |              | -                     |              |               | □□              |                      |
| ✓ 135        | ↓            |        | 12:47      |           | NET        |               | 50° 18. 319 125° 19. 908 | 38           |              | -                     | 0            |               | □□              | ST 22170<br>EN 22496 |
| ✓ 137        | Set 64       |        | 14:12      |           | CTD        |               | 50° 21. 299 125° 24. 745 | 128          |              | -                     | 0            |               | □□              |                      |
| ✓ 138        | ↓            |        | 14:16      |           | NET        |               | 50° 21. 297 125° 24. 743 | ↓            |              | -                     | 0            |               | □□              | ST 22490<br>EN 22800 |
| ✓ 140        | Set 65       |        | 15:58      |           | CTD        |               | 50° 22. 079 125° 36. 513 | 39           |              | -                     |              |               | □□              |                      |
| ✓ 141        | ↓            |        | 16:01      | ✓         | NET        |               | 50° 22. 084 125° 36. 484 | 42           |              | -                     | 8            |               | □□              | ST 22800<br>EN 23075 |

## Event Type:

BOT = Bottle cast (no CTD)  
CTD = Standalone CTD  
ROS = CTD in Rosette  
SET = Fish Set

LOOP = Sea Water Loop  
MOR = Mooring  
NET = Plankton Net Haul  
DRF = Drifter

## Bottle Firing Method:

US = Up / Stop (default)  
UN = Up / No stop  
DN = Down / No stop

## Notes:

## Time Code:

BE = Beginning Time of Cast  
BO = Bottom Time of Cast  
EN = End Time of Cast

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time  
MR = Messenger Release Time  
RE = Recover Mooring Time

Produced by the Water Properties Group, IOS

WaterProperties.ca  
Version: 14 February 2013

This page is for any notes or observations

Note: Times are PDT not UTC.

1 FA = 1.829m

Missing raw files for Set 62 - Set 74. [FOUND 12 Nov 2015]

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month JUNE                                                                       |        |              |       | Year 2015  |           |            | Vessel NORDIC QUEEN |                        | Cruise ID    |              | Page 6 of 9  |                       |              |               |                 |                       |
|----------------------------------------------------------------------------------|--------|--------------|-------|------------|-----------|------------|---------------------|------------------------|--------------|--------------|--------------|-----------------------|--------------|---------------|-----------------|-----------------------|
| Event Number                                                                     |        | Station Name | Day   | Time (UTC) | Time Code | Event Type | Firing Method       | Positional Information |              | Bottom Depth | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned | Comments              |
|                                                                                  |        |              |       |            |           |            |                     | Latitude               | Longitude    |              |              |                       |              |               |                 |                       |
| 143                                                                              | Set 66 |              | JUN21 | 17:05      | PDT       | CTD        |                     | 50° 23. 205            | 125° 36. 941 | 27 FA        |              | -                     |              | 40m           | □□              |                       |
| 144                                                                              | ↓      | ↓            |       | 17:10      |           | NET        |                     | 50° 23. 205            | 125° 36. 949 | 26           |              | -                     | 0            | 40m           | □□              | ST 23075<br>EN 23302  |
| 148                                                                              | Set 69 |              | JUN22 | 07:07      |           | CTD        |                     | 50° 27. 710            | 126° 04. 630 | 154 FA       |              | -                     |              | 50m           | □□              |                       |
| 149                                                                              | ↓      |              |       | 07:11      |           | NET        |                     | 50° 27. 744            | 126° 04. 608 | 153          |              | -                     | 0            | ↓             | □□              | ST 23302<br>EN 23615  |
| 151                                                                              | Set 70 |              |       | 08:13      |           | CTD        |                     | 50° 28. 590            | 126° 00. 698 | 17 FA        |              | -                     |              | 30m           | □□              |                       |
| 152                                                                              | ↓      |              |       | 08:17      |           | NET        |                     | 50° 28. 604            | 126° 00. 686 | 17           |              | -                     | 0            | 20m           | □□              | ST 23615<br>EN 23765  |
| 155                                                                              | Set 72 |              |       | 13:16      |           | CTD        |                     | 50° 23. 302            | 125° 36. 738 | 37           |              | -                     |              | 50m           | □□              |                       |
| 156                                                                              | ↓      |              |       | 13:19      |           | NET        |                     | 50° 23. 311            | 125° 36. 757 | 37           |              | -                     | 0            | ↓             | □□              | ST 23765<br>EN 24090  |
| 158                                                                              | Set 73 |              |       | 16:09      |           | CTD        |                     | 50° 17. 157            | 125° 21. 525 | 22 FA        |              | -                     |              | 30m           | □□              |                       |
| 159                                                                              | ↓      |              |       | 16:13      |           | NET        |                     | 50° 17. 165            | 125° 21. 463 | 22           |              | -                     | 0            | ↓             | □□              | ST 24090<br>EN 24290  |
| 161                                                                              | Set 74 |              |       | 17:54      |           | CTD        |                     | 50° 10. 693            | 125° 20. 344 | 26           |              | -                     |              | 40m           | □□              |                       |
| 162                                                                              | ↓      | ↓            |       | 17:58      | ✓         | NET        |                     | 50° 10. 717            | 125° 20. 319 | 29           |              | -                     | 0            | ↓             | □□              | ST 24290<br>EN 24590  |
|                                                                                  |        |              |       | :          |           |            |                     | .                      | .            | .            |              | -                     |              |               | □□              |                       |
| 165                                                                              | Set 75 |              | JUN29 | 10:17      | PDT       | CTD        |                     | 50° 11. 334            | 125° 20. 399 | 35 FA        |              | -                     |              | 50m           | □□              |                       |
| 166                                                                              | ↓      |              |       | 10:21      |           | NET        |                     | 50° 11. 336            | 125° 20. 384 | ↓            |              | -                     | 10           | ↓             | □□              | ST 24590<br>EN 24600* |
| 168                                                                              | Set 77 |              |       | 10:43      |           | CTD        |                     | 50° 17. 419            | 125° 19. 141 | 36 FA        |              | -                     |              |               | □□              |                       |
| 169                                                                              | ↓      |              |       | 10:47      |           | NET        |                     | 50° 17. 434            | 125° 19. 089 | 34           |              | -                     | 20           |               | □□              | ST 24600<br>EN 25022  |
| 172                                                                              | Set 79 |              |       | 14:40      |           | CTD        |                     | 50° 21. 330            | 125° 24. 734 | 110          |              | -                     |              |               | □□              |                       |
| 173                                                                              | ↓      | ↓            |       | 14:55      | ✓         | NET        |                     | 50° 21. 326            | 125° 24. 766 | 110          |              | -                     |              | ↓             | □□              | ST 25022<br>EN 25400  |
| Event Type: LOOP = Sea Water Loop      Firing Method:      Time Code:      CTD = |        |              |       |            |           |            |                     |                        |              |              |              |                       |              |               |                 |                       |

## Event Type:

BOT = Bottle cast (no CTD)  
CTD = Standalone CTD  
ROS = CTD in Rosette  
SET = Fish Set

## LOOP = Sea Water Loop

MOR = Mooring  
NET = Plankton Net Haul  
DRF = Drifter  
=

## Bottle Firing Method:

US = Up / Stop (default)  
UN = Up / No stop  
DN = Down / No stop

## Notes:

## Time Code:

BE = Beginning Time of Cast  
BO = Bottom Time of Cast  
EN = End Time of Cast

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time  
MR = Messenger Release Time  
RE = Recover Mooring Time

Produced by the Water Properties Group, IOS

WaterProperties.ca  
Version: 14 February 2013

~~Missing raw CTD files for Set 62 - Set 74. (June 21-22). CTD 0334?~~

[FOUND 12 NOV 2015]

Note: Times are PDT not UTC

1 FA = 1.829 m

CTD 0334?

## DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month JUNE / JULY                                                                                      |              |        | Year 2015  |           |            | Vessel NORDIC QUEEN |                     |                       | Cruise ID    |              |                       | DEG DEP      |               | 2015-25         |                                  |
|--------------------------------------------------------------------------------------------------------|--------------|--------|------------|-----------|------------|---------------------|---------------------|-----------------------|--------------|--------------|-----------------------|--------------|---------------|-----------------|----------------------------------|
| Event Number                                                                                           | Station Name | Day    | Time (UTC) | Time Code | Event Type | Firing Method       | Positional Latitude | Information Longitude | Bottom Depth | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned | Comments                         |
| ✓ 175                                                                                                  | Set 80       | 29 JUN | 16:36      | PNT       | CTD        |                     | 50° 23.188          | 125° 36.969           | 26 FA        |              | -                     |              | 40m           | □□              |                                  |
| 176                                                                                                    | ↓            |        | 16:39      |           | NET        |                     | 50° 23.180          | 125° 36.936           | 27           |              | -                     | 10           | ↓             | □□              | ST 25400<br>EN 25715             |
| 178                                                                                                    | Set 81       |        | 20:03      |           | CTD        |                     | 50° 27.431          | 126° 09.866           | 16           |              | -                     |              | 30m           | □□              |                                  |
| 179                                                                                                    | ↓            | ↓      | 20:05      | ↓         | NET        |                     | 50° 27.428          | 126° 09.853           | 16           |              | -                     | 5            | 20m           | □□              | ST 25715<br>EN 25875             |
|                                                                                                        |              |        | :          |           |            |                     | °                   | °                     |              |              | -                     | -            | -             | □□              |                                  |
| 183                                                                                                    | Set 84       | 30 JUN | 07:42      | PNT       | CTD        |                     | 50° 28.651          | 126° 00.565           | 20           |              | -                     |              | 40m           | □□              |                                  |
| 184                                                                                                    | ↓            |        | 07:45      |           | NET        |                     | 50° 28.662          | 126° 00.555           | 19           |              | -                     | 5            | 30m           | □□              | ST 25875<br>EN 26125             |
| 186                                                                                                    | Set 85       |        | 11:18      |           | CTD        |                     | 50° 23.201          | 125° 36.951           | 26           |              | -                     |              | 40m           | □□              |                                  |
| 187                                                                                                    | ↓            |        | 11:24      |           | NET        |                     | 50° 23.287          | 125° 36.974           | 26           |              | -                     | 5            | 30m           | □□              | ST 26160<br>EN 26420 FINE FINE   |
| ✓ 190                                                                                                  | Set 87       |        | 14:52      |           | CTD        |                     | 50° 18.299          | 125° 19.919           | 40           |              | -                     | 5            | 50m           | □□              |                                  |
| 191                                                                                                    | ↓            | ↓      | 14:56      | ↓         | NET        |                     | 50° 18.307          | 125° 19.930           | ↓            |              | -                     | 30           | ↓             | □□              | ST 26420<br>EN 26865 SSKnet wind |
| ✓ 193                                                                                                  | Set 88       | July 6 | 9:57       | PNT       | CTD        |                     | 50° 10.887          | 125° 20.408           | 27           |              | -                     |              | 50            | □□              |                                  |
| 194                                                                                                    | ↓            | July 6 | 10:18      |           | NET        |                     | 50° 10.893          | 125° 20.402           | ↓            |              | -                     |              | 50            | □□              | ST 26865<br>END 27205            |
| ✓ 197                                                                                                  | Set 90       | July 6 | 12:20      |           | CTD        |                     | 50° 18.301          | 125° 20.044           | 38.4         |              | -                     |              | 50            | □□              |                                  |
| 198                                                                                                    | ↓            | July 6 | 12:27      |           | NET        |                     | 50° 18.276          | 125° 19.960           | ↓            |              | -                     |              | 50            | □□              | ST 27205<br>END 27600 # 12       |
| ✓ 201                                                                                                  | Set 92       | 6 Jul  | 16:19      |           | CTD        |                     | 50° 21.797          | 125° 39.149           | 59.8         |              | -                     |              | 50            | □□              | ST 27860<br>END 28205            |
| 202                                                                                                    | ↓            | 6 Jul  | 16:24      |           | NET        |                     | 50° 21.880          | 125° 39.130           | ↓            |              | -                     |              | 50            | □□              | ST 27860<br>END 28205 windy      |
| 205                                                                                                    | Set 94       | 6 Jul  | 21:11      |           | CTD        |                     | 50° 28.689          | 126° 00.613           | 20.2         |              | -                     |              | 30            | □□              |                                  |
| 206                                                                                                    | ↓            | 6 Jul  | 21:17      | ↓         | NET        |                     | 50° 28.689          | 126° 00.613           | ↓            |              | -                     |              | 30            | □□              | ST 28205<br>END 28500 windy      |
| Event Type: LOOP = Sea Water Loop    Bottle Firing Method:    Time Code:    CTD Temperature:    SSKnet |              |        |            |           |            |                     |                     |                       |              |              |                       |              |               |                 |                                  |

## Event Type:

BOT = Bottle cast (no CTD)  
CTD = Standalone CTD  
ROS = CTD in Rosette  
SET = Fish Set

## LOOP = Sea Water Loop

MOR = Mooring  
NET = Plankton Net Haul  
DRF = Drifter

## Bottle Firing Method:

US = Up / Stop (default)  
UN = Up / No stop  
DN = Down / No stop

## Time Code:

BE = Beginning Time of Cast  
BO = Bottom Time of Cast  
EN = End Time of Cast

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time  
MR = Messenger Release Time  
RE = Recover Mooring Time

## Notes:

Produced by the Water Properties Group, IOS

WaterProperties.ca  
Version: 14 February 2013

Note: Times are PDT not UTC. | FA = 1829m

Sets 88-94: Bottom depth taken from set sheet (approximate).  $\Rightarrow$  in FA.

## DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>JULY</u> |              |        |            | Year <u>2015</u> |            | Vessel <u>NORDIC QUEEN</u> |                        |             | Cruise ID <u>Depth (m) 2015-25</u> |              |                       |              |               |                 |                            |
|-------------------|--------------|--------|------------|------------------|------------|----------------------------|------------------------|-------------|------------------------------------|--------------|-----------------------|--------------|---------------|-----------------|----------------------------|
| Event Number      | Station Name | Day    | Time (UTC) | Time Code        | Event Type | Firing Method              | Positional Information |             | Bottom Depth                       | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned | Comments                   |
|                   |              |        |            |                  |            |                            | Latitude               | Longitude   |                                    |              |                       |              |               |                 |                            |
| ✓ 212             | Set 99       | Jul 7  | 8:15       | PDT              | CTD        |                            | 50° 22.6               | 126° 00.597 | 21.5 FA                            |              | -                     |              | 30            | □□              | Start 28500<br>END 28780   |
| 213               | ↓            | Jul 7  | 8:23       |                  | NET        |                            | 50° 28                 | ° 00.597    | ↓                                  |              | -                     |              | 30            | □□              |                            |
| ✓ 215             | Set 100      | Jul 7  | 10:32      |                  | CTD        |                            | 50° 22.028             | 125° 46.770 | 33.1                               |              | -                     |              | 50            | □□              |                            |
| 216               | ↓            | Jul 7  | 10:35      |                  | NET        |                            | 50° 22.028             | 125° 46.770 | ↓                                  |              | -                     |              | 50            | □□              | Start 28780<br>END 29120   |
| ✓ 218             | Set 101      | Jul 7  | 12:28      |                  | CTD        |                            | 50° 23.286             | 125° 36.952 | 27.4                               |              | -                     |              | 40            | □□              |                            |
| 219               | ↓            | Jul 7  | 12:31      |                  | NET        |                            | 50° 23.287             | 125° 36.922 | ↓                                  |              | -                     |              | 40            | □□              | Start 29120 *<br>END 29410 |
| ✓ 221             | Set 102      | Jul 7  | 15:35      |                  | CTD        |                            | 50° 18.288             | 125° 19.943 | 38.5                               |              | -                     |              | 50            | □□              |                            |
| 222               | ↓            | Jul 7  | 15:42      |                  | NET        |                            | 50° 18.307             | 125° 19.998 | ↓                                  |              | -                     |              | 50            | □□              | Start 29410 *<br>End 29590 |
| ✓ 226             | Set 105 ✓    | Jul 14 | 11:39      |                  | CTD        |                            | 50° 11.349             | 125° 20.371 | 34.5                               |              | -                     |              | 50            | □□              |                            |
| 227               | ↓            | Jul 14 | 11:44      |                  | NET        |                            | 50° 11.311             | 125° 20.273 | ↓                                  |              | -                     |              | 50            | □□              | Start 30500<br>END 30600 * |
| ✓ 229             | Set 106 ✓    | Jul 14 | 13:50      |                  | CTD        |                            | 50° 18.296             | 125° 19.937 | 39.5                               |              | -                     |              | 50            | □□              | Start 29500<br>END 29598   |
| 230               | ↓            | Jul 14 | 13:57      |                  | NET        |                            | 50° 18.297             | 125° 19.934 | ↓                                  |              | -                     |              | 50            | □□              | Start 29598<br>END 29930   |
| ✓ 232             | Set 107      | Jul 14 | 17:18      |                  | CTD        |                            | 50° 23.288             | 125° 36.940 | 30.1                               |              | -                     |              | 40            | □□              |                            |
| 233               | ↓            | Jul 14 | 17:20      |                  | NET        |                            | 50° 23.304             | 125° 36.940 | ↓                                  |              | -                     |              | 50            | □□              | Start 29930<br>End 30235   |
| ✓ 235             | Set 108      | Jul 14 | 20:55      |                  | CTD        |                            | 50° 27.428             | 126° 09.885 | 13 FA                              |              | -                     |              | 20            | □□              |                            |
| 236               | ↓            | Jul 14 | 20:59      |                  | NET        |                            | 50° 27.426             | 126° 09.883 | ↓                                  |              | -                     |              | 20            | □□              | Start 30235<br>End 30490   |
| ✓ 240             | Set 111      | Jul 15 | 08:18      |                  | CTD        |                            | 50° 28.640             | 126° 00.553 | 25                                 |              | -                     |              | 40            | □□              |                            |
| 241               | ↓            | Jul 15 | 08:21      | ✓                | NET        |                            | 50° 28.639             | 126° 00.540 | ↓                                  |              | -                     |              | 40            | □□              | Start 30490<br>End 30600 * |
|                   |              |        | :          |                  |            |                            | °                      | °           |                                    |              | -                     |              |               | □□              | flow water<br>after        |

## Event Type:

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DRF = Drifter

## Bottle Firing Method:

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DN = Down / No stop

## Notes:

## Time Code:

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BO = Bottom Time of Cast  
EN = End Time of Cast

## CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time  
MR = Messenger Release Time  
RE = Recover Mooring Time

Produced by the Water Properties Group, IOS

WaterProperties.ca  
Version: 14 February 2013

Note: Times are PST not UTC.

1 FA = 1.829m

Sets 99-111: Bottom depth taken from set sheet (approximate).  $\Rightarrow$  in FA

~~Missing row LTD files for Set 105 - Set 114. (Jul 14-15) cons# 226-249~~  
[FOUND 12 NOV 2015]

## DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>JULY</u> |              |        | Year <u>2015</u> |           |            | Vessel <u>NORDIC QUEEN</u> |                     |                       | Cruise ID <u>Depth(m) 2015-25</u> |                           |                       |              |               |                          |                                    |
|-------------------|--------------|--------|------------------|-----------|------------|----------------------------|---------------------|-----------------------|-----------------------------------|---------------------------|-----------------------|--------------|---------------|--------------------------|------------------------------------|
| Event Number      | Station Name | Day    | Time (UTC)       | Time Code | Event Type | Firing Method              | Positional Latitude | Information Longitude | Bottom Depth                      | Max Pressure              | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned          | Comments                           |
| ✓ 243             | Set 112      | JUL 15 | 12:17            | PDT       | CTD        |                            | 50°23.284           | 125°36.922            | 27.7FA                            |                           | -                     |              | 50            | <input type="checkbox"/> | CTD not turned off (off at 2:00pm) |
| 244               | ↓            | JUL 15 | 12:23            |           | NET        |                            | 50°23.341           | 125°36.895            | ↓                                 |                           | -                     |              | 50            | <input type="checkbox"/> | Start 30490<br>End 30672           |
| ✓ 246             | Set 113      | ↓      | 14:07            |           | CTD        |                            | 50°21.306           | 125°24.725            | 128                               |                           | -                     |              | 50            | <input type="checkbox"/> |                                    |
| 247               | ↓            | ↓      | 14:10            |           | NET        |                            | 50°21.295           | 125°24.624            | ↓                                 | 45° angle<br>let out + 5m | -                     |              | 50            | <input type="checkbox"/> | Start 30672<br>End 31112           |
| ✓ 249             | Set 114      | ↓      | 15:33            |           | CTD        |                            | 50°18.294           | 125°19.936            | 39.7                              |                           | -                     |              | 50            | <input type="checkbox"/> |                                    |
| 250               | ↓            | ↓      | 15:37            | ↓         | NET        |                            | 50°18.284           | 125°19.939            | ↓                                 |                           | -                     |              | 50            | <input type="checkbox"/> | Start 31112<br>End 31473           |
|                   |              |        | :                |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |
| = END OF SURVEY = |              |        |                  |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |
|                   |              |        | :                |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |
|                   |              |        | :                |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |
|                   |              |        | :                |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |
|                   |              |        | :                |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |
|                   |              |        | :                |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |
|                   |              |        | :                |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |
|                   |              |        | :                |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |
|                   |              |        | :                |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |
|                   |              |        | :                |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |
|                   |              |        | :                |           |            |                            | °                   | .                     |                                   |                           | -                     |              |               | <input type="checkbox"/> |                                    |

## Event Type:

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## Bottle Firing Method:

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## Notes:

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## CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time  
 MR = Messenger Release Time  
 RE = Recover Mooring Time

Produced by the Water Properties Group, IOS

WaterProperties.ca  
 Version: 14 February 2013

~~Missing raw CTD files for set 105-114. (July 14-15) [Found 12 Nov 2015]~~

Note: Times are PST not UTC. 1 FA = 1.829 m.

Sets 112-114: Bottom depths taken from 'Set sheets' (approximate)  $\Rightarrow$  in FA.