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**Primer-BLAST** » **JOB ID:i4FUOHMgfohZtmSzadNAgRPIUbM-20quPw**

Primer-BLAST Results

[Help](#)

**Input PCR template**

[MN184685.1](#) Charybdis japonica isolate Biosec714 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

**Range**

1 - 652

**Specificity of primers**

Primers may **not** be specific to the input PCR template as targets were found in selected database:Nucleotide collection (nt) ...[help on specific primers](#)

**Other reports**

[Search Summary](#)

Graphical view of primer pairs **+** **-**



Detailed primer reports **+** **-**

You can re-search for specific primers by accepting some of the unintended targets, check the box(es) next to the ones you accept and try again to re-search for specific primers

[Help](#)

### Primer pair 1

	Sequence (5'->3')	Template strand	Length	Start	Stop	Tm	GC%	Self complementarity	Self 3' complementarity
<b>Forward primer</b>	TTAATATACGGTCATTTGGTATGAGTATAGATC	Plus	33	457	489	59.49	30.30	5.00	4.00
<b>Reverse primer</b>	AAGTTTCGGTCTGTTAATAATATAGTAATAGCT	Minus	33	595	563	59.53	27.27	8.00	6.00
<b>Internal oligo</b>		Plus							
<b>Product length</b>	139								
<b>Product Tm</b>									
<b>Product Tm - min(OLIGO Tm)</b>									
<b>Exon junction</b>									
<b>Total intron size</b>									

Products on intended targets

>[MN184685.1](#) Charybdis japonica isolate Biosec714 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 457 ..... 489

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 595 ..... 563
```

Products on allowed targets

Products on allowed transcript variants

Products on potentially unintended templates

>[OL876973.1](#) Charybdis japonica voucher NSMK-MS-0024816 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 483 ..... 515

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 621 ..... 589
```

>[KX060214.1](#) Charybdis japonica isolate XDNA - 506 442 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 470 ..... 502

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 608 ..... 576
```

>[KT365716.1](#) Charybdis japonica isolate E173 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 458 ..... 490

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 596 ..... 564
```

>[KP976229.1](#) Gaetice depressus voucher ihb201306408 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 467 ..... 499

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 605 ..... 573
```

>[KP976228.1](#) Gaetice depressus voucher ihb201306410 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1   TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template        467 ..... 499

Reverse primer 1   AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template        605 ..... 573

```

>[KP976227.1](#) Gaetice depressus voucher ihb201306411 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1   TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template        467 ..... 499

Reverse primer 1   AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template        605 ..... 573

```

>[KP976226.1](#) Gaetice depressus voucher ihb201306412 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1   TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template        467 ..... 499

Reverse primer 1   AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template        605 ..... 573

```

>[KP976225.1](#) Gaetice depressus voucher ihb201306316 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1   TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template        467 ..... 499

Reverse primer 1   AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template        605 ..... 573

```

>[KP976224.1](#) Gaetice depressus voucher ihb201306317 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1   TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template        467 ..... 499

Reverse primer 1   AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template        605 ..... 573

```

>[KP976223.1](#) Gaetice depressus voucher ihb201306321 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1   TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template        467 ..... 499

Reverse primer 1   AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template        605 ..... 573

```

>[KP976222.1](#) Gaetice depressus voucher ihb201306323 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1   TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template        467 ..... 499

Reverse primer 1   AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template        605 ..... 573

```

>[KP976221.1](#) Gaetice depressus voucher ihb201306401 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1   TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template        467 ..... 499

Reverse primer 1   AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template        605 ..... 573

```

>[KP976220.1](#) Gaetice depressus voucher ihb201306405 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1   TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template        467 ..... 499

Reverse primer 1   AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template        605 ..... 573

```

>[KP976219.1](#) Gaetice depressus voucher ihb201306406 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1   TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template        467 ..... 499

```

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 605 .....

>[KP976218.1](#) Gaetice depressus voucher ihb201306407 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 467 .....

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 605 .....

>[KM377986.1](#) Charybdis japonica haplotype 14 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....

>[KM377985.1](#) Charybdis japonica haplotype 13 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....

>[KM377984.1](#) Charybdis japonica haplotype 12 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....

>[KM377983.1](#) Charybdis japonica haplotype 11 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....

>[KM377982.1](#) Charybdis japonica haplotype 10 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....

>[KM377978.1](#) Charybdis japonica haplotype 6 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....

>[KM377977.1](#) Charybdis japonica haplotype 5 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....

>[KM377976.1](#) Charybdis japonica haplotype 4 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....

>[KM377975.1](#) Charybdis japonica haplotype 3 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 ..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..... 565

```

>MW446892.1 *Charybdis japonica* mitochondrion, complete genome

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 500 ..... 532

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 638 ..... 606

```

>HQ848917.1 Uncultured Jiaozhou Bay zooplankton clone JC76 cytochrome oxidase subunit 1 (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 264 ..... 296

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 402 ..... 370

```

>HM180588.1 *Gaetice depressus* voucher NSMK:MS-000662 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 484 ..... 516

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 622 ..... 590

```

>HM237603.1 *Charybdis japonica* haplotype hap7 cytochrome oxidase subunit I-like (COI) gene, partial sequence; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 458 ..... 490

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 596 ..... 564

```

>HM237602.1 *Charybdis japonica* haplotype hap6 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 ..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..... 565

```

>HM237601.1 *Charybdis japonica* haplotype hap5 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 ..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..... 565

```

>HM237600.1 *Charybdis japonica* haplotype hap4 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 ..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..... 565

```

>HM237599.1 *Charybdis japonica* haplotype hap3 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 ..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..... 565

```

>HM237598.1 *Charybdis japonica* haplotype hap2 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 ..... 491

```

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..... 565

>HM237597.1 *Charybdis japonica* haplotype hap1 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 ..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..... 565

>EU586120.1 *Charybdis japonica* cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 193 ..... 161

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 55 ..... 87

>EU284142.1 *Charybdis variegata* voucher LRC04 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 484 ..... 516

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 622 ..... 590

>FJ460517.1 *Charybdis japonica* mitochondrion, complete genome

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 500 .....G.... 532

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 638 .....C 606

>MZ393897.1 *Charybdis affinis* isolate CBD15 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....C..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....G... 565

>MT803340.1 *Charybdis japonica* voucher C1910SM-11 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 363 .....C..... 395

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 501 .....G... 469

>MT219311.1 *Charybdis japonica* isolate 118371 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 399 .....C..... 431

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 537 .....G... 505

>MT219310.1 *Charybdis japonica* isolate 11837 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 427 .....C..... 459

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 565 .....G... 533

>OV281354.1 *Marasmarcha lunaedactyla* genome assembly, chromosome: 15

product length = 3373  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 20958847 .....A..A..... 20958815

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 20955475 .....A..A..... 20955507

>MT278110.1 *Charybdis japonica* voucher CC-C1901SB-07 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 392 .....A.....C..... 424

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 530 .....G.....G... 498

```

>[MZ393912.1](#) *Charybdis natator* isolate CBD21 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....T..C.....A.....C. 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 .....C..... 565

```

>[MT852946.1](#) *Pseudothelphusa sulcifrons* voucher CNCR 28922 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 416 .....T.....A..A.C..... 448

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 554 ..A..... 522

```

>[MT852945.1](#) *Pseudothelphusa belliana* voucher CNCR 19228 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 416 .....T.....A..A.C..... 448

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 554 .....G..... 522

```

>[MT852038.1](#) *Allacanthos pittieri* voucher INPA 1834 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 416 .....T.....A..A.C..... 448

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 554 ..A..... 522

```

>[MT852036.1](#) *Achlidon agrestis* voucher UCR-MZ 3214-01 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 416 .....T.....A..A.C..... 448

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 554 ..A..... 522

```

>[MW144286.1](#) *Charybdis natator* voucher ZSI/SRC C-168 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 437 .....T..C.....A.....C. 469

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 575 .....C..... 543

```

>[MH447071.1](#) *Charybdis natator* isolate CC cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 470 .....T..C.....A.....C. 502

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 608 .....C..... 576

```

>[MH447070.1](#) *Charybdis natator* isolate CR cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 440 .....T..C.....A.....C. 472

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 578 .....C..... 546

```

>[MT278106.1](#) *Charybdis natator* voucher C1903SM-04 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 392 .....T..C.....A.....C. 424

```



Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 530 .....C..... 498

>MN184693.1 *Charybdis natator* isolate Biosec741 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....T..C.....A.....C. 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....C..... 565

>MF285241.1 *Charybdis natator* mitochondrion, complete genome

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 500 .....T..C.....A.....C. 532

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 638 .....C..... 606

>KX060205.1 *Charybdis natator* isolate XDNA - 512 377 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 470 .....T..C.....A.....C. 502

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 608 .....C..... 576

>KX060204.1 *Charybdis natator* isolate XDNA - 338 299 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 470 .....T..C.....A.....C. 502

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 608 .....C..... 576

>MG742719.1 *Charybdis granulata* voucher CASMBGM-2CG cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....T..C.....A.....C. 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....C..... 565

>KT365719.1 *Charybdis natator* isolate FLMNH\_187-E06 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 458 .....T..C.....A.....C. 490

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 596 .....C..... 564

>KY055670.1 *Allacanthos pittieri* isolate R936-2 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 428 .....T.....A..A.C..... 460

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 566 ..A..... 534

>KX018513.1 *Charybdis variegata* strain MSCAS5 cytochrome oxidase subunit I gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....T..C.....A.....C. 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....C..... 565

>KX381797.1 *Charybdis natator* voucher PCMUZ CNC 02 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....T..C.....A.....C. 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 .....C..... 565

>KJ168053.1 *Charybdis variegata* voucher BTN44 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 484 .....T..C.....A.....C. 516

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 622 .....C..... 590

```

>[KF793328.1](#) *Charybdis natator* voucher Em2012-C1 cytochrome oxidase subunit I gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 270 .....T..C.....A.....C. 302

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 408 .....C..... 376

```

>[XR\\_007552323.1](#) PREDICTED: *Schistocerca gregaria* uncharacterized LOC126293624 (LOC126293624), transcript variant X3, misc\_RNA

```

product length = 1071
Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 1961 ..A.....A..... 1929

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 891 ..A.....A..C..... 923

```

>[XR\\_007552322.1](#) PREDICTED: *Schistocerca gregaria* uncharacterized LOC126293624 (LOC126293624), transcript variant X2, misc\_RNA

```

product length = 1071
Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 1961 ..A.....A..... 1929

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 891 ..A.....A..C..... 923

```

>[MZ393913.1](#) *Charybdis orientalis* isolate CBD16 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....T..T.....A..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 .G.....A..... 565

```

>[MT278109.1](#) *Charybdis orientalis* voucher C1903SM-03 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 392 .....T..T.....A..... 424

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 530 .G.....A..... 498

```

>[MW526598.1](#) *Aedes albopictus* isolate GJ\_05 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....A...GC.....T.C..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..A..... 565

```

>[MW526597.1](#) *Aedes albopictus* isolate GJ\_04 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....A...GC.....T.C..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..A..... 565

```

>[MW526596.1](#) *Aedes albopictus* isolate GJ\_03 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....A...GC.....T.C..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..A..... 565

```

>[MW526595.1](#) *Aedes albopictus* isolate GJ\_02 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....A...GC.....T.C..... 491

```

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..A..... 565

>MW526594.1 *Aedes albopictus* isolate GJ\_01 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....A...GC.....T.C..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..A..... 565

>OK165451.1 *Pseudothelphusa doenitzi* voucher CNCR 26190 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 428 .....T.....A..A.C.....C. 460

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 566 .....G..... 534

>MT852944.1 *Pseudothelphusa americana* voucher CNCR 25527 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 416 .....T.....A..A.C.....C. 448

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 554 .....G..... 522

>KT365743.1 *Monomia petrea* isolate FLMNH\_143-C04 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 458 ....C.....C.....C.....A.....C. 490

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 596 .....C..... 564

>NC\_060621.1 *Charybdis hellerii* mitochondrion, complete genome

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 500 .....C..C.....A.....C. 532

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 638 ..A.....G 606

>OM714505.1 *Monomia petrea* voucher MNHN-IU-2014-4071 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 416 .....C.....C.....A.....C. 448

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 554 .....C.....C..... 522

>OK383006.1 *Monomia petrea* voucher CMLREPS11 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 314 .....C.....C.....A.....C. 346

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 452 .....C.....C..... 420

>OK383005.1 *Monomia petrea* voucher CMLREPS7 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 314 .....C.....C.....A.....C. 346

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 452 .....C.....C..... 420

>MZ393906.1 *Charybdis hellerii* isolate CBD19 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....C..C.....A.....C. 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..A.....A 565

>[MW278654.1](#) *Charybdis hellerii* voucher UF:Invertebrate Zoology:45898-Arthropoda cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....C..C.....A.....C 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..A.....G 565
```

>[MT852034.1](#) *Neostrengeria macropa* voucher INPA 1556 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 416 .....T.....G..A.C..... 448

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 554 .G.....A 522
```

>[MT514358.1](#) *Charybdis hellerii* voucher DBS 008 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 405 .....C..C.....A.....C 437

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 543 ..A.....G 511
```

>[MK091840.1](#) *Charybdis hellerii* isolate 39A2 cytochrome c oxidase subunit I (COI) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 469 .....C..C.....A.....C 501

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 607 ..A.....G 575
```

>[MK091839.1](#) *Charybdis hellerii* isolate 39A1 cytochrome c oxidase subunit I (COI) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 469 .....C..C.....A.....C 501

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 607 ..A.....G 575
```

>[MK091838.1](#) *Charybdis hellerii* isolate 29A4 cytochrome c oxidase subunit I (COI) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 469 .....C..C.....A.....C 501

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 607 ..A.....G 575
```

>[MK091837.1](#) *Charybdis hellerii* isolate 29A2 cytochrome c oxidase subunit I (COI) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 469 .....C..C.....A.....C 501

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 607 ..A.....G 575
```

>[MK091835.1](#) *Charybdis hellerii* isolate 38A2 cytochrome c oxidase subunit I (COI) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 469 .....C..C.....A.....C 501

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 607 ..A.....G 575
```

>[MN184692.1](#) *Charybdis hellerii* isolate Biosec894 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```
product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....C..C.....A.....C 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..A.....G 565
```

>[MN811221.1](#) *Charybdis hellerii* voucher USNM1408295 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```
product length = 139
```

```

Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template       459 .....C..C.....A.....C. 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template       597 ..A.....G 565

```

>[MG729773.1](#) Potamon transcaspicum voucher SMF:24233 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template       440 .....T..T.....A.C..... 472

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template       578 .....A.....C 546

```

>[MF693858.1](#) Charybdis hellerii isolate NESEP09F02 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template       459 .....C..C.....A.....C. 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template       597 ..A.....G 565

```

>[KT365715.1](#) Charybdis hellerii isolate E070 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template       458 .....C..C.....A.....C. 490

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template       596 ..A.....G 564

```

>[KX060356.1](#) Charybdis hellerii isolate XDNA - 638 485 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template       380 .....C..C.....A.....C. 412

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template       518 ..A.....G 486

```

>[KX060355.1](#) Charybdis hellerii isolate XDNA - 638 484 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template       473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template       611 ..A.....G 579

```

>[KX060354.1](#) Charybdis hellerii isolate XDNA - 638 483 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template       446 .....C..C.....A.....C. 478

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template       584 ..A.....G 552

```

>[KX060352.1](#) Charybdis hellerii isolate XDNA - 638 463 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template       446 .....C..C.....A.....C. 478

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template       584 ..A.....G 552

```

>[KX060350.1](#) Charybdis hellerii isolate XDNA - 638 461 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template       443 .....C..C.....A.....C. 475

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template       581 ..A.....G 549

```

>[KX060339.1](#) Charybdis hellerii isolate XDNA - 1039 434 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template       473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33

```

Template 611 ..A.....G 579

>[KX060337.1](#) Charybdis hellerii isolate XDNA - 1039 426 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 443 .....C..C.....A.....C. 475  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 581 ..A.....G 549

>[KX060331.1](#) Charybdis hellerii isolate XDNA - 1039 419 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060328.1](#) Charybdis hellerii isolate XDNA - 1039 406 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 386 .....C..C.....A.....C. 418  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 524 ..A.....G 492

>[KX060325.1](#) Charybdis hellerii isolate XDNA - 506 366 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060322.1](#) Charybdis hellerii isolate XDNA - 1039 363 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060321.1](#) Charybdis hellerii isolate XDNA - 1039 362 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060319.1](#) Charybdis hellerii isolate XDNA - 1039 360 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060318.1](#) Charybdis hellerii isolate XDNA - 506 345 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060317.1](#) Charybdis hellerii isolate XDNA - 1039 344 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060316.1](#) Charybdis hellerii isolate XDNA - 1039 343 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 446 .....C..C.....A.....C. 478

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 584 ..A.....G 552

```

>KX060315.1 Charybdis hellerii isolate XDNA - 1039 342 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....A 579

```

>KX060314.1 Charybdis hellerii isolate XDNA - 1039 341 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G 579

```

>KX060313.1 Charybdis hellerii isolate XDNA - 1039 340 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G 579

```

>KX060312.1 Charybdis hellerii isolate XDNA - 377 322 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 446 .....C..C.....A.....C. 478

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 584 ..A.....G 552

```

>KX060311.1 Charybdis hellerii isolate XDNA - 377 321 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 470 .....C..C.....A.....C. 502

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 608 ..A.....G 576

```

>KX060309.1 Charybdis hellerii isolate XDNA - 367 316 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 452 .....C..C.....A.....C. 484

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 590 ..A.....G 558

```

>KX060308.1 Charybdis hellerii isolate XDNA - 367 315 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G 579

```

>KX060307.1 Charybdis hellerii isolate XDNA - 367 314 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G 579

```

>KX060306.1 Charybdis hellerii isolate XDNA - 367 313 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 443 .....C..C.....A.....C. 475

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33

```

Template 581 ..A.....G 549

>[KX060305.1](#) Charybdis hellerii isolate XDNA - 367 312 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 449 .....C..C.....A.....C. 481  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 587 ..A.....G 555

>[KX060304.1](#) Charybdis hellerii isolate XDNA - 367 311 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 446 .....C..C.....A.....C. 478  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 584 ..A.....G 552

>[KX060301.1](#) Charybdis hellerii isolate XDNA - 338 280 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 443 .....C..C.....A.....C. 475  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 581 ..A.....G 549

>[KX060299.1](#) Charybdis hellerii isolate XDNA - 338 278 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060296.1](#) Charybdis hellerii isolate XDNA - 338 275 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 383 .....C..C.....A.....C. 415  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 521 ..A.....G 489

>[KX060295.1](#) Charybdis hellerii isolate XDNA - 338 274 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060292.1](#) Charybdis hellerii isolate XDNA - 366 246 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 383 .....C..C.....A.....C. 415  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 521 ..A.....G 489

>[KX060289.1](#) Charybdis hellerii isolate XDNA - 316 223 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 446 .....C..C.....A.....C. 478  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 584 ..A.....G 552

>[KX060285.1](#) Charybdis hellerii isolate XDNA - 275 218 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 470 .....C..C.....A.....C. 502  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 608 ..A.....G 576

>[KX060284.1](#) Charybdis hellerii isolate XDNA - 275 217 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial



```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 449 .....C..C.....A.....C. 481

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 587 ..A.....G 555

```

>[KX060283.1](#) Charybdis hellerii isolate XDNA - 275 216 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 470 .....C..C.....A.....C. 502

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 608 ..A.....G 576

```

>[KX060282.1](#) Charybdis hellerii isolate XDNA - 275 215 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 470 .....C..C.....A.....C. 502

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 608 ..A.....G 576

```

>[KX060281.1](#) Charybdis hellerii isolate XDNA - 275 214 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 467 .....C..C.....A.....C. 499

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 605 ..A.....G 573

```

>[KX060280.1](#) Charybdis hellerii isolate XDNA - 275 212 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G 579

```

>[KX060279.1](#) Charybdis hellerii isolate XDNA - 275 211 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 449 .....C..C.....A.....C. 481

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 587 ..A.....G 555

```

>[KX060277.1](#) Charybdis hellerii isolate XDNA - 230 189 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 449 .....C..C.....A.....C. 481

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 587 ..A.....G 555

```

>[KX060276.1](#) Charybdis hellerii isolate XDNA - 230 188 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 467 .....C..C.....A.....C. 499

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 605 ..A.....G 573

```

>[KX060275.1](#) Charybdis hellerii isolate XDNA - 230 187 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 467 .....C..C.....A.....C. 499

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 605 ..A.....G 573

```

>[KX060271.1](#) Charybdis hellerii isolate XDNA - 230 180 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33

```

Template 611 ..A.....G 579

>[KX060270.1](#) Charybdis hellerii isolate XDNA - 230 179 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 449 .....C..C.....A.....C. 481  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 587 ..A.....G 555

>[KX060268.1](#) Charybdis hellerii isolate XDNA - 230 176 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 464 .....C..C.....A.....C. 496  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 602 ..A.....G 570

>[KX060266.1](#) Charybdis hellerii isolate XDNA - 229 172 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 449 .....C..C.....A.....C. 481  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 587 ..A.....G 555

>[KX060265.1](#) Charybdis hellerii isolate XDNA - 229 167 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 446 .....C..C.....A.....C. 478  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 584 ..A.....G 552

>[KX060263.1](#) Charybdis hellerii isolate XDNA - 197 143 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060260.1](#) Charybdis hellerii isolate XDNA - 229 166 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060259.1](#) Charybdis hellerii isolate XDNA - 229 164 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 470 .....C..C.....A.....C. 502  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 608 ..A.....G 576

>[KX060257.1](#) Charybdis hellerii isolate XDNA - 233 196 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 464 .....C..C.....A.....C. 496  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 602 ..A.....G 570

>[KX060255.1](#) Charybdis hellerii isolate XDNA - 208 156 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060252.1](#) Charybdis hellerii isolate XDNA - 208 152 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 464 .....C..C.....A.....C. 496

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 602 ..A.....G 570

```

>[KX060248.1](#) Charybdis hellerii isolate XDNA - 197 147 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 470 .....C..C.....A.....C. 502

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 608 ..A.....G 576

```

>[KX060247.1](#) Charybdis hellerii isolate XDNA - 197 146 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 449 .....C..C.....A.....C. 481

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 587 ..A.....G 555

```

>[KX060246.1](#) Charybdis hellerii isolate XDNA - 187 135 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 467 .....C..C.....A.....C. 499

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 605 ..A.....G 573

```

>[KX060245.1](#) Charybdis hellerii isolate XDNA - 187 134 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 464 .....C..C.....A.....C. 496

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 602 ..A.....G 570

```

>[KX060238.1](#) Charybdis hellerii isolate XDNA - 187 123 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G 579

```

>[KX060234.1](#) Charybdis hellerii isolate XDNA - 187 118 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G 579

```

>[KX060233.1](#) Charybdis hellerii isolate XDNA - 187 117 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G 579

```

>[KX060230.1](#) Charybdis hellerii isolate XDNA - 172 112 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G 579

```

>[KX060229.1](#) Charybdis hellerii isolate XDNA - 172 110 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 470 .....C..C.....A.....C. 502

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33

```

Template 608 ..A.....G 576

>[KX060226.1](#) *Charybdis hellerii* isolate XDNA - 172 107 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060225.1](#) *Charybdis hellerii* isolate XDNA - 172 106 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 470 .....C..C.....A.....C. 502  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 608 ..A.....G 576

>[KX060224.1](#) *Charybdis hellerii* isolate XDNA - 172 105 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060223.1](#) *Charybdis hellerii* isolate XDNA - 172 104 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 464 .....C..C.....A.....C. 496  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 602 ..A.....G 570

>[KU578956.1](#) *Neostrengeria macropa* isolate SMF20034 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 458 .....T.....G..A.C..... 490  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 596 .G.....A 564

>[KX018512.1](#) *Charybdis hellerii* strain MSCAS4 cytochrome oxidase subunit I gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....C..C.....A.....C. 491  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..A.....G 565

>[KP254353.1](#) *Charybdis hellerii* voucher FTP\_0071 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....C..C.....A.....C. 491  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..A.....G 565

>[MN184097.1](#) *Charybdis hellerii* voucher ULLZ13465 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....C..C.....A.....C. 491  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..A.....G 565

>[KF714930.1](#) Decapoda sp. BOLD:AA09264 voucher CrP52 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 467 .....C..C.....A.....C. 499  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 605 ..A.....G 573

>[KF870477.1](#) *Charybdis hellerii* voucher CHIpC1 cytochrome oxidase subunit I gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 421 .....C..C.....A.....C. 453

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 559 ..A.....G 527

```

>[KF793329.1](#) *Charybdis hellerii* voucher Em2012-C2 cytochrome oxidase subunit I gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....C..C.....A.....C. 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..A.....G 565

```

>[MW264448.1](#) *Charybdis hellerii* voucher MEGML10 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 463 .....C..C.....A.....C. 495

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 601 ..A.....G 569

```

>[MZ560548.1](#) *Chlorodiella corallicola* voucher USNM:1466898 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....C.....A....C...G.... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 .GA..... 565

```

>[MZ560506.1](#) *Chlorodiella corallicola* voucher USNM:1466900 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....C.....A....C...G.... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 .GA..... 565

```

>[ON849056.1](#) *Charybdis lucifera* voucher CAGL C2 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....T..C..C.....A..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 .....A.....G..... 565

```

>[MZ393909.1](#) *Charybdis lucifera* isolate PTU2 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....T..C..C.....A..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 .....A.....G..... 565

```

>[MW143522.1](#) *Charybdis lucifera* voucher ZSI/SRC C-180 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....T..C..C.....A..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 .....A.....G..... 565

```

>[MK561421.1](#) *Charybdis lucifera* cytochrome oxidase subunit I gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 424 .....T..C..C.....A..... 456

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 562 .....A.....G..... 530

```

>[MK530702.1](#) *Charybdis* sp. JP-2019 cytochrome oxidase subunit I gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 458 .....T..C..C.....A..... 490

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33

```

Template 596 .....A.....G..... 564

>[MT278107.1](#) Charybdis lucifera voucher C1803SM-10 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 392 .....T..C..C.....A..... 424  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 530 .....A.....G..... 498

>[MT852943.1](#) Ehecatusa mixtepsensis voucher CNCR 309 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 416 .....C.....C..A..A.C..... 448  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 554 .GA..... 522

>[LC537821.1](#) Sesarmops impressus SS63 mitochondrial COI gene for cytochrome oxidase subunit I, partial cds

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....A..T.A.....A.C..... 491  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..A.....A 565

>[LC537819.1](#) Sesarmops impressus S0m4 mitochondrial COI gene for cytochrome oxidase subunit I, partial cds

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....A..T.A.....A.C..... 491  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..A.....A 565

>[MK260144.1](#) Austrothelphusa sp. ww23252 cytochrome oxidase subunit I (CO1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 219 .....C..T.A.....A.C..... 251  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 357 .....A.....A 325

>[MK260141.1](#) Austrothelphusa sp. ww23249 cytochrome oxidase subunit I (CO1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 219 .....C..T.A.....A.C..... 251  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 357 .....A.....A 325

>[MK260137.1](#) Austrothelphusa sp. ww23240 cytochrome oxidase subunit I (CO1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 219 .....C..T.A.....A.C..... 251  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 357 .....A.....A 325

>[KX060343.1](#) Charybdis hellerii isolate XDNA - 506 443 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....C..C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060333.1](#) Charybdis hellerii isolate XDNA - 1039 422 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....G..C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060327.1](#) Charybdis hellerii isolate XDNA - 506 370 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....C..C.....A..C.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G.....G 579

```

>KX060320.1 *Charybdis hellerii* isolate XDNA - 1039 361 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....G..C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G.....G 579

```

>KX060300.1 *Charybdis hellerii* isolate XDNA - 338 279 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 443 .....C..C.....A.A.....C. 475

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 581 ..A.....G.....G 549

```

>KX060288.1 *Charybdis hellerii* isolate XDNA - 316 222 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 422 .....G..C..C.....A.....C. 454

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 560 ..A.....G.....G 528

```

>KX060287.1 *Charybdis hellerii* isolate XDNA - 275 221 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 383 .....G..C..C.....A.....C. 415

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 521 ..A.....G.....G 489

```

>KX060286.1 *Charybdis hellerii* isolate XDNA - 275 219 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 464 .....G..C..C.....A.....C. 496

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 602 ..A.....G.....G 570

```

>KX060274.1 *Charybdis hellerii* isolate XDNA - 230 186 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 467 .....G..C..C.....A.....C. 499

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 605 ..A.....G.....G 573

```

>KX060273.1 *Charybdis hellerii* isolate XDNA - 230 185 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 458 .....G..C..C.....A.....C. 490

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 596 ..A.....G.....G 564

```

>KX060256.1 *Charybdis hellerii* isolate XDNA - 233 197 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 473 .....G..C..C.....A.....C. 505

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 611 ..A.....G.....G 579

```

>KX060249.1 *Charybdis hellerii* isolate XDNA - 197 148 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 464 .....G..C..C.....A.....C. 496

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33

```

Template 602 ..A.....G 570

>[KX060244.1](#) *Charybdis hellerii* isolate XDNA - 187 130 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....G..C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[KX060235.1](#) *Charybdis hellerii* isolate XDNA - 187 119 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 470 .....G..C..C.....A.....C. 502  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 608 ..A.....G 576

>[KX060227.1](#) *Charybdis hellerii* isolate XDNA - 172 108 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 473 .....G..C..C.....A.....C. 505  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 611 ..A.....G 579

>[LC547019.1](#) *Sesarmops impressus* S0m7 mitochondrial COI gene for cytochrome oxidase subunit I, partial cds

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....A..T.A.....A.C..... 491  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..A.....A 565

>[OM714500.1](#) *Monomia argentata* voucher MNHN-IU-2014-10076 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 413 .....T..C.....A..G.....C. 445  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 551 ..A.....C..... 519

>[OK465141.1](#) *Aedes vexans* voucher IZBE0210183 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....A...C.....T.C.T..... 491  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..A.....A..... 565

>[OK465140.1](#) *Aedes vexans* voucher IZBE0210182 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 459 .....A...C.....T.C.T..... 491  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 597 ..A.....A..... 565

>[OK165449.1](#) *Tehuana lamothei* voucher CNCR 8812 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 416 .....T.....A..A.C.....C. 448  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 554 .G.....G..... 522

>[MT590670.1](#) *Ocypode macrocera* voucher Cr20 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

product length = 139  
 Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33  
 Template 454 .....A..C.....A.C.....C. 486  
 Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33  
 Template 592 .G.....A..... 560

>[MZ393879.1](#) *Monomia argentata* isolate MON4 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial



```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 .....T..C.....A..G.....C. 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..A.....C..... 565

```

>[MT075548.1](#) *Aedes vexans* isolate AT.p01.F06 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 418 .....A...C.....T.C.T..... 450

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 556 ..A.....A..... 524

```

>[MT852050.1](#) *Villalobosius lopezformenti* voucher CNCR 10034 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 416 .....AT.....A..A.C..... 448

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 554 ..A.....A..... 522

```

>[MT852942.1](#) *Pseudothelphusa pecki* voucher CNCR 16776 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 416 .....C.....A..A.C.....C. 448

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 554 .G.....G..... 522

```

>[MT001388.1](#) *Aedes vexans* isolate AT.p03.B03 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 418 .....A...C.....T.C.T..... 450

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 556 ..A.....A..... 524

```

>[MT001303.1](#) *Aedes vexans* isolate AT.p01.B06 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 418 .....A...C.....T.C.T..... 450

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 556 ..A.....A..... 524

```

>[MN184690.1](#) *Charybdis feriata* isolate Biosec737 cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 459 ....C.....C..T.....A..A..... 491

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 597 ..A..A..... 565

```

>[MN407152.1](#) *Phoridae* sp. isolate UGC0011557 cytochrome oxidase subunit I (cox1) gene, partial cds; mitochondrial

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 458 .....C.....T.C.T.T.... 490

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 596 ..A.....A..... 564

```

>[NC\\_040977.1](#) *Nanosesarma minutum* voucher NM mitochondrion, complete genome

```

product length = 139
Forward primer 1 TTAATATACGGTCATTTGGTATGAGTATAGATC 33
Template 500 .C.....A.....A.C.....C. 532

Reverse primer 1 AAGTTTCGGTCTGTTAATAATATAGTAATAGCT 33
Template 638 ..A.....T..... 606

```

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