

Summer 7-16-2021

The biodiversity of freshwater Crustaceans revealed by taxonomy and mitochondrial DNA barcodes

Adrian Amelio Vasquez
Wayne State University, adrian.amelio.vasquez@gmail.com

Brittany L. Bonnici
Wayne State University, eh5829@wayne.edu


Donna R. Kashian
Wayne State University, dkashian@wayne.edu

Jorge Trejo-Martinez
Corozal Junior College, jtrejo@cjcc.edu.bz

Carol J. Miller
Wayne State University, ab1421@wayne.edu

See next page for additional authors

Follow this and additional works at: https://digitalcommons.wayne.edu/physio_frp

 Part of the [Biodiversity Commons](#), [Molecular Genetics Commons](#), and the [Terrestrial and Aquatic Ecology Commons](#)

Recommended Citation

Vasquez, Adrian Amelio; Bonnici, Brittany L.; Kashian, Donna R.; Trejo-Martinez, Jorge; Miller, Carol J.; and Ram, Jeffrey L., "The biodiversity of freshwater Crustaceans revealed by taxonomy and mitochondrial DNA barcodes" (2021). *Physiology Faculty Research Publications*. 3.
https://digitalcommons.wayne.edu/physio_frp/3

This Dataset is brought to you for free and open access by the Department of Physiology at DigitalCommons@WayneState. It has been accepted for inclusion in Physiology Faculty Research Publications by an authorized administrator of DigitalCommons@WayneState.

Authors

Adrian Amelio Vasquez, Brittany L. Bonnici, Donna R. Kashian, Jorge Trejo-Martinez, Carol J. Miller, and Jeffrey L. Ram

Sequence supplement to:

The biodiversity of freshwater Crustaceans revealed by taxonomy and mitochondrial DNA barcodes

By Adrian A. Vasquez^{1,2*}, Brittany L. Bonnici^{1,2}, Donna R. Kashian³, Jorge Trejo-Martinez⁴, Carol J. Miller¹ and Jeffrey L. Ram²

¹Healthy Urban Waters, Department of Civil and Environmental Engineering, Wayne State University, Detroit, MI 48202 USA

²Department of Physiology, Wayne State University, Detroit, MI 48201 USA

³Department of Biological Sciences, Wayne State University, Detroit, MI 48202 USA

⁴Science Department, Corozal Junior College, San Andres Road, P.O. Box 63 Corozal, Belize, Central America

Cytochrome oxidase subunit I (COI) barcode sequences in this file were obtained from specimens collected by plankton net in western Lake Erie in 2012 & 2013, along with later specimens collected at various locations and times, including some collected in Belize in 2015. Methods and other details about these sequences are described in a paper by the same authors in a submitted publication (2021: URL to be given here when published). The right columns below contain additional notes on lengths of sequences, GenBank accession ID (when obtained), and a notation as to whether the sequence represents a new barcode for its genus or species taxon. According to our experience, a DNA identity of >96.5% with previous GenBank barcodes is a reliable range for determining a species level barcode for that morphospecies; a DNA identity of 90.5% to 96.5% with previous barcodes is sufficient to identify genus. DNA identities within these ranges are considered to be "barcode confirmations." Conversely, DNA identities outside of these ranges are considered to be new barcodes for that species or genus, respectively. Contradictions with previous GenBank sequences are discussed in the manuscript. The submitted manuscript includes the highest percentage identity to a previous sequence in GenBank as determined by BLASTN in June 2021. The FASTA file name given here begins with a RamLab ID number-location and date of collection with format varying somewhat between various collections/collectors but generally including several (usually three) location letters (e.g., BHL stands for Blue Heron Lagoon) and the date usually in a 6-character format of MMDDYY, and optionally a sample number for that date either preceding the location letters or following the date. Collection location abbreviations include the following: All sequences starting with PM, Toledo Harbor in western Lake Erie; LMUSK, Lake Muskoday, Belle Isle, Detroit; SCL, Saint Clair River; BHL, Blue Heron Lagoon, Belle Isle; LE, Lake Erie; LSC, Lake St. Clair; MMLE; Metzgers Marsh, Lake Erie; MM, Metzgers Marsh; LP, Leonard Preserve, Manchester, Michigan; HR, Huron River Drive, Ypsilanti, Michigan; LCL, Little Cedar Lake, Orion, MI; HLE, Harbor Lake Erie; LHLE, Lorain Harbor Lake Erie; BZEB1P, Cenote in Shipstern Reserve, Corozal, Belize, Central America.

Sequence in FASTA format	Length	GenBank ID, when available	New barcode (as of June 2021), or confirmation
>1-4LHE05302017_Acanthocyclops americanus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial AACTTTGTATTTATTAGCTGGTCTTGAGCCGGAATAGTGGGACAGGCTAAGAATAATTATTCGTTTAGAATTAGGGCAGCCTGGTCTTTAATA GGAGATGATCAAAATTTAATGTAATTTTACCGCTCATGCTTTTATTATAATTTTTTATAGTAATGCCAATTTAATTTGGAGGGTTTGGAAACTG ATTGGTCCCTAATACTAGGATCTCCGACATAGCATTCTCGGATAAACAACATAAGATTTTATTGATTTTATGTCAGCCCTTTATGCTTTTAAAC TAGGTCCTGGTAGAAAGTGGAGCCGGAACAGGGTGAACAGTGTATCCCCCTTAAGAAGAAATATCTCTCATGGGGTGGCTTCTGTGGATTACG CTATTTTTCTCTGATTTAGCCGGGTTTCTTCTATTTAGGGGCTGTAATTTTATTAGAATTTAGGAAATATGCGTACATTGCGTATGTTTTAG ATCGCATGCTCTATTTGCTTGGGCTGTGCTTATTACAGCAATTTACTGCTTCTTCTTACCAGTTTTAGCCGGGAGCGATTACAATACTTCTAACAG ATCGAAATCTTAATACTTCGTTTTATGACCTAGGGGGGAGGAGACCAATTTTATATCAACACTGT	658		Confirmation (1)
>2-6HLE05302017_Acanthocyclops americanus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial AACTTTGTATTTATTAGCTGGTCTTGAGCCGGAATAGTGGGACAGGGCTAAGAATAATTATTCGTTTAGAATTAGGGCAGCCTGGTCTTTAAT AGGAGATGATCAAAATTTAATGTAATTTTACCGCTCATGCTTTTATTATAATTTTTTATAGTAATGCCAATTTAATTGGAGGGTTTGGAAACT GATTTGGTCCCTAATACTAGGGTCCCGGACATAGCATTCTCGAATAAATAACATAAGATTTTATTGATTTTATGTCAGCCCTTTATGCTTTTAA ACTAGTCCCTAGTAGAAAGTGGAGCCGGAACAGGGTGAACAGTGTATCCCCCTTAAGAAGAAATATCTCTCATGGGGTGGCTTCTGTGATTAC GCTATTTTTCTCTGATTTAGCCGGGTTTCTTCTATTTAGGGGCTGTAATTTTATTAGAATTTAGGAAATATGCGTACATTGCGTATGTTTTA GATCGCATGCTCTATTTGCTTGGGCTGTGCTTATTACAGCAATTTACTGCTTTTATCTTACCAGTTTTAGCCGGGAGCGATTACAATACTTCTAAC GATCGAAATCTTAATACTTCGTTTTATGACCTAGGGGGGAGGAGACCAATTTTGTATCAACACTGT	658		Confirmation
>LE090914514_Acanthocyclops americanus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GCTGGNGCTTGAGCCGGATAGTGGGACAGGGCTAAGAATAATTATTCGTTTAGAATTAGGGCAGCCTGGTCTTTAATAGGAGATGATCAAAAT TATAATGTAATTTGTAACGGCTCATGCTTTTATTATAATTTTTTATAGTAATGCCAATTTAATTGGAGGGTTTGGAAACTGATTTGGTCCCTAATA CTAGGATCTCCGGACATAGCATTCTCGAATAAACAACATAAGATTTTATTGATTTTATGTCAGCCCTTTATGCTTTTAACTAGTCCCTAGTAAA AAGTGGGGCCGGAACAGGGTGAACAGTGTATCCCCCTTAAGAAGAAATATCTCTCATGGGGTGGCTTCTGTTGATTATGCGATTTTTCTCTGCAT TTAGCCGGGTTTCTTCTATTTAGGGGCTGTAATTTTATAAACTTTAGGAAATATGCGTACATTGCGTATGTTTTAGATCGCATGCTCTATTT GCTTGAGTGTGCTTATTACAGCAATTTACTGCTTTTATCTTACCAGTTTTAGCCGGGAGCGATTACAATACTTCTAACAGCCGAAATCTTAATACT TCGTTTTATGACCTAGGGGGTGGAGGGGACCAATTTTGTATCNACTGT	641		Confirmation
>5-10MM07142017_Acanthocyclops brevispinosus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TACACTTTATTTATTAGCTGGGCATGAGCTGGGACTGGGCTAATAAATGATTATTCGCTAGAGCTGGTGGGAGGCTGGGAGGCTCCCTAAT GGGGGACGACCAATTTAATGTTGGTGAACGGCTCACGCTTTATTATAATTTTTTATAGTAATACCAATTTAATTGGGGGTTTGGAAAT TGACTAGTCTTTAATATTAGGCTCCTGACATGGCCTTCTCGAATAAATAAATAAGATTTTGGTTTTAGTACCTGCTCTTTTATACCTTTAA CTAGTTCATTTGTTGAAAGGGGGCAGTACGGGTTACTCTCTTTAAGAAGAAACGTTTCTCATGGTGGGCTCGGTTGATTATG CCATTTTTCTACATCTGGCCGGGGTGTGCTATTTTAGGGGCGTAAATTTATTAGAATTTGGGGAATATGCGTACTTTTGGAAATTTTTG GATCGTATGCTCTTTGCTTGGGCTGTTAATACGGCAATTTACTTTTGTCTCTACCGGTTTATGCTGGAGCATTACTATGTTAATA GATCGTAAATTTAACAATCTTCGTTTTATGACCCGAGTGGAGGGGGGACCAATTTTATACCACCTATTT	658		New for species
>LH1006145K_Acanthocyclops robustus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GGCTTGANCGGGGAGGTGGGACGGCTGATTTAATTATTCGAGTTGAATTATGGCAGCCTGGGCTTTAATGGGAAATGACGACATTATAATGT TATGGTTACNGCGATGCTTTGATTATGATTTTTTATANTNNAGCAATTTAATTGGGGGTTTGGAAATGGATAGTGGCCTAATGCTAGGT TCTCTGATATGGAGTTCTCTAATAAATAGTATAAANATTTGGTTTTACTTCTGCCCTTTTATGCTTTTGACAAGATCTTTGGNCAAGAGGA GCAGGGGTTGGTGAACGTTTACCCTCCTANTAAAACTATTTCTCATGGAGGGGCGGTGAGAGCTGGATTTTTTTCTTTTCAATTTACCTG GGATTTCTCATCTTGGAGCAGGAAATTTATTATTTAAGAAATTTGCAACGTTTGGAAATTTTTTNAATCTTATACCANTTTTTGCCTNAG CANGTTTAGTTCGNTANTNGCTCTNNTANNNTTACTGTGNNNGTGGAGCGACNCATATGTCGCTGAC	560		New for species (2)
>LP041615SJ_Acanthocyclops sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TGGGATAGTTGGGACAGGCCTAANAATAATTATTCGCTTGAGTTAGGTCAGCCTGGGCTCTTATAGGGGACGATCAAAATTTAATGTAATTTG AACTGCTCATGCTTTATCAATAATTTTTTATGGTTATGCCATTTCTCATGGGGGATTGGTAAATGGTTAGTCCCCCTAAAAGTCTCTGGA CATANCTTTCTCGAATAAACAATAAAGATTTGATTTTTAGTCCCTGCTTTTTATGTTGTTAAACAAGTTCTTTTCAAAAGGAGANCTGGAA CTGGGTGAACGGTCTACCTCCCTAATAAAGAAATTTCTCATGGGGGAGCTTCTGATGATTGCTATTTTTCTTCTTATTANCGGGGTTTCT TCTATTTAGGGGCGGTGAATTTATTANNACATTTGGGAAATANGCNACTTTNGGTANATTTTTAAATCNAAGGCTTTGTTGNNNGNCCCGT ACTAATACCAATTTNATTTATCTTTCGNGGNTACTGGGCTATTACAATTTGCTAAGTGGAGCAATTTAATACTTCTTTTATNA CCATAGGGGGGGGGAATCNGANTNATACCANCTTATTT	628		Confirmation of genus

<p>>LP041615SH_Acanthocyclus venustoides cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GCTGGAGCTTGAAGCAGNNAATGGAAACAGGGCTCAGAATAATTATTCGATTAGAAATAGGGGAGCCAGGGTCTTTAATGGGGATGACCAGAT CTATAACGTTGAGTACTGCCATGCTTTTATTATGATTTTTTATAGTTATACCAATCTAATTTGGGGGGTTGGAAATGACTAGTGCCTCTAAT ACTAGGGTCTCCAGATATGGCTTTCTCCGCATAAACAATAAAGATTTTGGATTTTACTACCCGCGTTAATATATTACTTTCTAGATCTTTGGTTGA AAGAGGAGCGGGCAGGGTGAACAGTTTTTCCACCTCTTAGAAGTAAACATTTCTCATGGGGGAGCTTCTGGACTACGCTATTTTTCTTACAC CTAGCCGGAGTCTCTCAATCTAGGGGCTGTAATTTTATAAACTTTGGGGAATACGCACATTCGGAATATTTTTAAACCGGATACCCCTATT TGCTGAGCTTTTTAGTAACAGCTATTTTACTGCTTTTATCCCTCCTGCTTGGCCGGGGCTTACAATACTTCTAAGTACCCGAACTTAAACAC ATCTTTTATGATCTAGGGGAGGGGGACCAATTTCTACCAACACTTATT</p>	641		New for species
<p>>HR0320155B_Acanthocyclus vernalis cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GGGAGCTTGAAGCAGNNAATGGAAACAGGGTGAACAGTTTTTCCACCTCTTAGAAGTAAACATTTCTCATGGGGGAGCTTCTGGACTACGCTATTTTTCTTACAC CTAGCCGGAGTCTCTCAATCTAGGGGCTGTAATTTTATAAACTTTGGGGAATACGCACATTCGGAATATTTTTAAACCGGATACCCCTATT TGCTGAGCTTTTTAGTAACAGCTATTTTACTGCTTTTATCCCTCCTGCTTGGCCGGGGCTTACAATACTTCTAAGTACCCGAACTTAAACAC ATCTTTTATGATCTAGGGGAGGGGGACCAATTTCTACCAACACTTATT</p>	639		New for species
<p>>LCL090914S10_Acanthocyclus vernalis cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GGGAGCATGGGAGGATAGTGGGCACAGGGTTAAGAGATAAATTATTCGTTGGAGTTAGGGCAACCGGGCTTTAATAGGGGATGACCAAAAT TTATAATGTATTGTGACGGCAGTGCATATCATCAATTTTTTATGGTTATGCCTATCTGATTGGGGGTTGGAAATGGTTAGTTCCATTGA TGTAGTTCTCCGGATATAGCTTTTCCCTCGGATAAATAACATGAGGTTTTGATTTTTAGTCCCGCTTTTTATATTGCTAACTAGTTCTCTAGTAA AAGAGGTGCGAGGACTGGTGAACAGTCTATCCCTCTAAGAGCAATATTTCTCATGAGGGGCTCAGTGGACTATGCAATTTTTCTTTGC ATTTACTGGGGTTTCTTATTTGGGGGAGTAAATTTTATAGAATCTTGGTAATATGCGGACCTTGGAAATTTTTAAATCGGATGCTTTAT TGCTTGGGAGTAACTACCGCTATTTTGGCTTTTACCTTACCTTCTGCTTGGCAGGGGATTACCACTTCTAACAACCGGATCTTAAAT ACTTCTTTTATGACCAAGAGGGGAGGGGACCAATTTGTACCAGCACTTATT</p>	641		New for species
<p>>1BZEB1P22215_Apocyclops dimorphus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GACTTTATATTTGCTAGTGGCTATGGGCTGGGATAATGGGACAGGACTGAGTATTTGATTGCTGAGAACTAGGACAACCCGGAGCATTAT AGGGGAGCGTCAAATTTACAATGATTTTCCGCGCATGCTTATGATTTTTTATAGTAATACCTATTTAATCGGGGATTGGTAAT GACTAGTCCCTTAACTTGGGGTCCAGATATGGCTTCCCTCGTATGAATAATAAGATTTTGGTTTTTATTACCAGCTTTTTCATATTACTTTT CAGGGCTTTGGTGGAGAGGGGCTGGCAGGGATGAACAGTTTACCTCCGTTGAGAAAGAAACATCGCGCATAGGGGTTCTCCGGGATTATG CTATTTTTCTTACACTAGCAGGATCTTCTATTTAGGAGCAGTTAACTTTATAGAATCTTGGGCAATCTTCAAACTTGAATACATTTTG AGCGAACTCCTTTGTTGATGCTGTTTATAATACCGCAGTCTGTTATTATTCTTGCCTGTGTAGCTGGTGAATTAATGTTATTGACAG ATCGAACTTAAATCTTCTTTTACGATCCTAGGGGGGAGGAGACCTATTTTATACCAACATTTATT</p>	658		New for genus (4, 5, 6)
<p>>1PMV07021251_Bosmina sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial ATATTTGTTTTGGGGTCTGATCGGGCATGGTGGTACTGCACTTGAATGCTTATCCGATTGAGCTGGGTCAAGCCGGTAGTCTTATTGGCGA CGACCAGATTTACAATGTTATTGTAAGTCTCATGCTTTTATTATGATTTTTTATGGTTATACCAATATAAATGGAGGCTTCGGAAATGGTTAGT CCCTTAAATGTTAGGGGCTCCGGACATAGCTTTCCCCGATTAATAAATTAAGTTTCTGGCTTCCCTCCAGCGTTAAACACTTCTTCAATTGGAGG GGCTGTAGAGAGAGGGGCTGTACCGGTTGACGGTGTATCCACTCTCTGTCAGGACTAGGTACGCGGGGCTCAGTGCAGCTTAAAGATTT TTTTCTCCATTTAGCAGGTGATCCTTATTTAGGGGCGTCAATTTTACTACTATCAATATAACGGGGGGAAGGCTGTGCTGTTAGACCGG ATTACCTTTTGGTTGAGCTGTAGGAATACAGCAGCTTTTACTTCTTACTGTTACCTGACTAGCAGGAGCTATTACTATGCTCCTGACCGATCGA AATTTAAATCTTCTTCTCGATCCAGCGGGGAGGGGATCCCATCTATATCAACATTTGTTT</p>	652		Contradiction
<p>>1PMV07021252_Bosmina sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial ATATTTGTTTTGGGGTCTGATCGGGCATGGTGGTACTGCACTTGAATGCTTATCCGATTGAGCTGGGTCAAGCCGGTAGTCTTATTGGCGA GACCAGATTTACAATGTTATTGTAAGTCTCATGCTTTTATTATGATTTTTTATGGTTATACCAATATAAATGGAGGCTTCGGAAATGGTTAGT CCCTTAAATGTTAGGGGCTCCGGACATAGCTTTCCCCGATTAATAAATTAAGTTTCTGGCTTCCCTCCAGCGTTAAACACTTCTTCAATTGGAGG GGCTGTAGAGAGAGGGGCTGTACCGGTTGACGGTGTATCCACTCTCTGTCAGGACTAGGTACGCGGGGCTCAGTGCAGCTTAAAGATTT TTTTCTCCATTTAGCAGGTGATCCTTATTTAGGGGCGTCAATTTTACTACTATCAATATAACGGGGGGAAGGCTGTGCTGTTAGACCGG ATTACCTTTTGGTTGAGCTGTAGGAATACAGCAGCTTTTACTTCTTACTGTTACCTGACTAGCAGGAGCTATTACTATGCTCCTGACCGATCGA AATTTAAATCTTCTTCTCGATCCAGCGGGGAGGGGATCCCATCTATATCAACATTTGTTT</p>	652		Contradiction
<p>>2PMU05301256_Calanoida sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TGCTGGGGCTTGGTCAAGTATAGTTGGGACTGGATTGAGAATAATTATCGAATAGAATGGGGCAGGCGGGCTCATTAAATGGAGATGATCAGG TTTATAATGATGTTAAGCGCCATGCTTTTATTATAATTTTTTATAGTTATACCTATTTAATTTGGGGGATTGGAAATGATTAGTACCTTTAA TATTAGGTGCAAGAGATAGCTTTCCCTCGAATAAATAAATAAAGATTTTGAATTTTAAATCCAGCCAGTATATTATATCTAGGCTTTAGTAG AGAGTGGGCGAGAACGGGTTAAGACGTTTATCTCCACTATCAAGAAATATTGCGCATGCAGGCAGATCGGTTGATTTGCTATTTTTCTACTAC ATTTGGCAGGGGTTAGTTCAATTTAGTGCAGTAAATTTTATTAGGACTTTGGGAAATTCGAGCTTTTGGAAATAATCTTGTGCAATACCAT ATTTGATGGGCTGTCTTACTGCACTTTTATTGTTGCTCTATTACTGTTTTAGCAGGAGCGATTACAATACTACTACAGATCGAAATTTAA ATTCTAGGTTTTATGATGCTGGGCTGGAGGGGATCCCATCTATATCAACATTTTATT</p>	643		Confirmation
<p>>2PMU05301258_Calanoida sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TGCCGGGCTGATGCTGGGATAGTGGGTACAGTTTAAAGAATAATTATCGTATAGAGCTGGGGCAGGCGGGGCTTTGATCGGGGATGACCAG ATTTACAACGTAGTGGTTACCGCCACCGCTTTATTATGATTTTTTATGGTTATACCTATTTAATCGGCGGTTTTGGAAACTGGCTGGTGCCTTTG ATATTAGGCGAAGGGACATGGCTTTCCCGAATAAATAAATAAAGTTTTGGTTTCTAGTTCTGCTTACTATTACTATTCCAGTCTTTAGT AGAGAGGGGAGCAGGAGCGGTTGAACGTGTATACCCCGCTTTCAAGAAATATCGCGCAGCGGGGAGGTCGGTTGACTTTGCTATTTCTCTCT CCATCTGGCGGGGTTAGTCAATTTAGTGCAGTAAATTTTATTAGGACTTTGGGAAATTCGAGCTTTTGGAAATAATCTTGTGCAATACCAT CTTATTTGCTGGGAGTGTAAATCACGGCTGTGTTGTTATGTTATCATTACCTGTTTTAGCGGAGCAATTAATGCTTCTACGGATCGAAATC TAAACTCTAGATTTTATGATGCGGGGAGGGGGACCTATTTTATATCAACACTGTTCT</p>	643		Confirmation
<p>>2PMD07021252_Calanoida sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TGCTGGGCTTGAATGAGTATAGTTGGGACTGGTTGAGAATAATTATCGAATAGAATAGGGCAGGCTGGCTCATTAAATGGAGATGACCAGG TTTATAATGATGTTAAGCGCCATGCTTTTATTATAATTTTTTATAGTTATACCTATTTAATTTGGGGGATTGGAAATGATTAGTACCTTTAA TATTGGGAGCAAGAGATAGCTTTCCCTCGAATAAATAAATAAAGATTTTGAATTTTAAATCCAGCTCTAGTTATATTATCTAGGCTTTAGTA GAGAGTGGGCGAGAACGGGTTAAGACGTTTATCTCCGTTATCAAGAAATATCGCGCATGCAGGCAGATCGGTTGACTTTGCTATTTTTTCAATTA CATTTGGCAGGAGTATAGTCAATTTAGTGCAGTAAATTTTATTAGGACTTTGGGAAATTTGCGAGCTTTTGGAAATAATCTTGTGCAATACCAT TATTTGATGGGCTGTGCTTACTGCACTTATTGTTACTTTTACTTCTTACTGTTTTAGCAGGAGCGATACAATACTACTACAGATCGAAATTTAA ATTCTAGGTTTTATGATGCTGGAGGTTGGGGGATCCCATTTTATATCAACATTTATT</p>	643		Confirmation

<p>>2PMD08091252_Ceriodaphnia dubia cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TATTTTTTTTTGGAGTTTGATCAGGAATGGTGGAACTGCTCTGAGTATACTAATTCGTGCTGAGTTAGGACAATCGGGCAGACTTATTGGTGACG ATCAAATTTATAATGTAATGTTACGGCTCACGCTTTTGAATAATTTTTTTATGTTATACCAATTAATAATGGGGGATTGGAAACTGGTTAGTTC CTTTGATACTAGGGGGCGCTGACATGGCTTTCCCGCTGAAATAATTTAAGTTTTGATTGCTACCTCCAGCTTTAACTCTTACTTGTAGGTGGG GCTGTGCAAAAGAGGTGACAGTACTGGATGAACTTTTACCTCTCTATCGGAGGATTGCTCATGCAAGGACTCTGTAGATTGGAAATTTTT CTTTACATCTTGACGGATTCTTCAATTTAGGAGCTGTAACCTCATTACCCTATTATTAATACGTTCTCAAGGAATAACTCTGATCGAATTC CCTTATTTGTTGAGCTGAGGAATCTGCTTTTGTATTACTAGTTTACCTGTTTACGAGGAGCTTACTATGCTTCAACAGATCGGAAT TAAACTCTCTTTTTGATCTCGGGGAGGGGGGATCCTATTTTATATCAACACTTTTT</p>	651		Confirmation
<p>>1PMW060212510_Cyclopoida sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial AGCTGGTCTGAGCCGATAGTGGGACAGGCTAAGAATAATATTGTTAGAATTAGGGCAGCCTGTTCTTAAATAGGAGATGATCAAAT TATAATGTAATTTGACGGCTCATGCTTTTATAAATTTTTTATAGTAATGCCAATTTAATTGGAGGGTTGGAAACTGATTGGTCTCAATA CTAGGATCTCCGGACATAGCATTCTCGAATAAACAACAATAAGATTGATTTTTAGTGCCAGCCTCTTATGCTTTAACTAGTCCCTAGTAGA AAGTGGAGCCGGAACAGGGTGAACAGTGTATCCCTTTAAGAAGAAATCTCTCATGGGGTCTTGTGGATTACGCTATTTTTCTCTGCAT TTAGCCGGGTTTCTTATTTAGGGGCTGTAATTTTTATAAACTTTAGGAAATATGCGTACATTGCGCATGTTTTAAATCGCATGCCTTATTT GCTTGGGCTGTGCTTATACAGCAATTTACTGCTTCTATCTTACCAGTTTTAGCGGGAGCGATTACAATCTTCAACAGATCGAAATCTAATAC TTGTTTTATGACCCCTAGAGGGGAGGACCAATTTTATCAACACTGTTT</p>	642		Confirmation of family
<p>>2BZEB1P22215_Cyclopoida sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GACTTTATATTTGCTAGTGGCTTATGGGCTGGGATAATGGGACAGGACTGAGTATTTGATTGCGGTAGAACTAGGACAACCCGGAGCATTTAT AGGGGACGATCAAAATTTACAATGATAGTTTACGCGCATGCTTTTATTGATTTTTTATAGTAATACCTATTTAATCGGGGATTTGTAAT GACTAGTCCCTTAACTTGGGGCTCAGATATGGCTTTCCCTCGTATGAATAATAAGATTTGGTTTTTATTACCAGCTTTTTCATATTTACTTTT CAGGGCTTTGGTTGAGAGAGGGGCTGGCACGGATGAACAGTTTACCTCGTTGAGAAGAAACATCGCGCATAGGGGTTCTTCCGTGATTATG CTATTTTTTCTTACATCTAGCAGGATATCTTCTATTTTAGGAGCAGTTAATTTATGAAGACTGTGGGCAATCTTGAACCTTTGGAAATACATTTG AGCGAATCTTTGTTGCTGATGTTTAAATTAATTAACGGCAGCTTGTATTATTACTTCTGCTGTTAGCTGGCAATTAATACTGTTATTGACAG ATCGAAACTTAAACTCTTTTTACGATCTAGGGGGGAGGAGACCTATTTTATACCAACTTTATTT</p>	658		New for family
<p>>2PMD08091251_Daphnia lumholzi cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial ATACCTTATATTTGGTATTTGATCGGGCATAGTAGGAAGCTTTGAGTATACTTCCGAGCTGAAGTGGTGGGATTTGGGATTTGATTAGT TGACAGATTTAATGTAATTTGCACTGGCCATGCAATTTATAAATTTTTTATGTTATTAATTTGGGATTTGAAATTTGAAATTTGAAATTTG CCCTTAAATATTAGGGCTCCTGATATAGCTTTCCCTCGTTAAACAATTTAAGCTTTGATTTTTACCCCGCCCTGACTCTTTACTTGTGGTGGG GCTGTAGAAGAGGGGGGGGACCGGGTGGACTGTCTATCCTCCCTTTCAGCTGGAATTTGCTCATGCTGGGGCTTCTGTAGATTAAAGTATTTT TCTGTCAATTTGGCTGGGAAATTTCTCAATTTTGGGTGGGTTAATTTTATTACAATTAATTAATACGATCTTCCGGTATAACTTTAAATCGTATT CCTTTATTTGTTGGGCTGCGGATCACAGCACTTTACTTCTTTGAGTCTCCCTGTGCTAGCAGGAGCTATCAACAATCTTTAACAATCGTAAT TTGAACACCTCTTCTCGATCCGGCGGGGGAGGAGATCTATTTTGAACCAACTTATTT</p>	652		Confirmation
<p>>2PMU05301254_Diaphanosoma sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TCCGGGATAGTTGGAAACAGCCTAAGTATACTATTCGAGCTGAAGTTAGGGCAGTGGGACAGACTATTGGTGATGACCAATTTATAANGTTAT TCGTAACCGCTCANGCTTTNGTTATAATTTTTTATAGTTATGCTATTTCTATTGGTGGCTTTGGCAATTTGGCTGGTCCCTTAACTAGGTGCC CTGATATGGCTTTTCTCGTTAAATAATTTAAGTTTTGAATATTACCCCTTCTTAACTCTTCTTTGGTTGGAAGGGCAGTTGAAAGGGGTGCT GGAACAGTTGAAGTGTACCCCTCTTCTGTTACAATTTGCTATGCGGGGACATCTGATAGTTGAGAATTTTTCTCTTCTTCCGCGGAT TTCTTCAATTTAGGTGACGTAATTTTCTACTGTGTTAAATATACGTAATAAGGACTACTTTAAATCGAATTTCTTATTTGTTGGTCTGTT GGGATTACAGCTTATTGCTTTACTTACTGCTTCCGGTGTAGCAGGGGCTAATCTACTGTTACTAAGTAACTGACCGTAATTTAAATACCTCTTTTTGAT CCAGCAGGTGGTGGTACCCCTTTTTATCAGCATTTTT</p>	632		Confirmation of genus
<p>>2PMB06021256_Diaphanosoma sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TTTTGGTGGTATCTGGTATAGTAGGGACGGCTAAGTATGTTAATTCGTGCTGAGTTAGGACAATGTCAGTCTAATGGGGATGACCAGAT TTAATAGTCAATTTACAGCTCAGCATTTATCATAATTTTTTATAGTCATACCCATTTAATTTGGGGGTTGGGAATTTGTTGGTCCCTCAT ATTGGGTCCCTGACATGGCTTTCCGCGCTTAATAATTTAAGTTTTGATTTTTACCTCCTTACATTAATTTGCTGTAGGGAGGGCGGTGG AAAGTGGCGCAGGTACAGGCTGACTGTTTACCACCTTCTCGGGTACTATTGCTCATGCAAGGGCCTCAGTTGATTTAAAAATTTTTCTTTACAT TTAGCTGGGATTTCTTATTTAGGGGAGTAAATTTTATCCAGGTTAATAATACAATCTAAAGTTTAACTTTAAATCGAGCACCATTGTT GTTTGGGCTGTGGGTATTACTGCTTACTACTTTTGGGCTTCCGTTTTANCGAGGGCAATCACAATGTTAATTAAGTATGCTAATTTGAATAC GTCAATTTTTGATCCGGCTGGGGGAGGGATCCTATTTTGTATCAGCAATTTGTT</p>	643		Confirmation of genus
<p>>2PMN06021252_Diaphanosoma sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GGTGGCTGATCTGGTATAGTAGGGACGGCTAAGTATGTTAATTCGTGCTGAGTTAGGACAATGTTGGTACTAATGGGGATGACCAGATTTAT AATGTCATTTACAGCTCAGCATTTATCATAATTTTTTATAGTCATACCCATTTAATTTGGGGGTTGGGAATTTGTTGGTCCCTCATATTG GGTCCCTGACATGCTTTCCGCGCTTAATAATTTAAGTTTTGATTTTTACCCCTTACATTAATTTGCTGTAGGGAGGGCGGTGGAAAG TGGCGCAGGTACAGGCTGACTGTTTACCACCTTCTCGGGTACTATTGCTCATGCAAGGGCCTCAGTTGATTTAAAAATTTTTCTTTACATTTAG CTGGGATTTCTTATTTAGGGGACGTAATTTTATCCAGGTTAATAATACAATCTAAAGTTTAACTTTAAATCGAGCACCATTGTTGCTTT GGGCTGTGGTATTACTGCTTACTACTTTTGGGCTTCCGTTTTANCGAGGGCAATCACAATGTTAATTAAGTATGCTAATTTGAATACGTC ATTTTTGATCCGGCTGGGGGAGGGATCCTATTTTGTATCAGCAATTTGTT</p>	639		Confirmation of genus
<p>>LE082614_Homocyclops ater cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GCAGGTGATGAGCCGATTAATGGAAGTGGTTAAGGATAATTTATCGTCTGAAGTGGGCAACCCGGGCTTTAATAGGAGATGATCAAAT TTTTAATGATAGTACAGCTCATGCTTTTATAAATTTTTTATGTAATACCAATTTAATTTGGAGGGTTGGAAATTTGATTAGTGCCTTAAATA TTAGGATCCCTGATATAGCATTCCCGGAATAAATAACATAAAATCTGATTTTTGTTGCTGCTTAAATATACTTTTATAGGGCCTTATTAGAG AGGGGAGCTGGAACAGGATGAACAGTTTACCCCAATTAAGAAGAAATATTGCTCACTGCGGTCATCTGTTGATTATGCAATTTTTCTTCTTATT AGCTGGGTTTCTATTTTAGGAGCAGTCAATTTTATAGTACTTAAAGTAACTACGAACATTTGGAATAACTGGAGACCGGCTACCTTATTG CTTGACGATTTAATTAAGTGGGCTGCTTACTTATCGTTACTGTTACTGTTAGGCAATTAATGCTAATTAAGTATGCTAATTAAGTATGCTAAT AGATTTTATGACCTAGAGGTGGGGGACCTAATCTTTACCAACTTTATTT</p>	642		New for species
<p>>SCL061614_Leptodiptomus sicilis cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GCTGAGCTTGTATGATAGTGGGACAGGTTAAGGATAATTTATCGTATAAGAATTTAGGACAAGCTGGTCACTTATTGGGGACGACCAAAAT TATAATGATGTTTACTGCCATGCAATTTATAAATTTTTTATAGTTATACCTATTTGATTGGGGGTTGGTAATTTGGTGGTCTCTTATG TTAGGGGCAAGAGATATAGCATTCCACGATAAATAATAAGCTTTGATTTTTAGTCCAGCTTATGATTATTGTTATCAAGATCGCTAGTAGA AAGAGGGGCGGGAACAGGCTGAACAGTTTATCTCCGCTCTAGAAATTTGCCATGCCGCGAGACTGTAGATTGCTATTTTTCTTCTTATT TAGCAGGGTAAAGTCTATTTTAGGAGCAATAATTTTATAGTACCTTAGGAAACCTTCGAGCCTTTGAAATAATTTTAGACGATACCTGTTGTT TGCTGAGCTGATTAATCACAGCTGTGCTTATTACTCTCTTACCAGTTTGGCTGGAGCAATTAATGTTGTTAACTGACCGAAATCTAAT CAAGGTTTTACAGTGCAGGGGAGGGGGATCCTATTTTATATCAACACTTGT</p>	641		Confirmation

<p>>2PMN08131351_Leptodiaptomus siciloides cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial ATTCGAATAGAATTAGGGCAGGCTGCTCATTAAATGGAGATGACCAGGTTATAATGAGTGTGTAACGGCCATGCTTTTATTATAATTTTTTTTAT AGTTATACCTATTTAATTGGGGGATTTGGAAATTTGATTAGTACCATTAAATTTGGGAGCAAGAGATATAGCTTTCCCTCGAATAAATAATATAAGA TTTTGATTTTAAATCCAGCTCTAGTTATATTATCTAGGCTTTAGTAGAGAGTGGGGCAGGAACGGGGTGAACAGTTTATCCTCCGTTATCAA GAAATATCGGCATGCGAGCAGTCCAGGATCGTTGACTATTTTTTTCATTACATTTGGCAGGAGTTAGGTCAAATTTTAGGTGACAGTAAATTTTATTAG GACTTTGGGAAATTTGCGAGCTTTTGGAAATAATTCTGTATGCAATACCATTATTTGCATGGGCTGTCTTACTGCAGTCTATTGTTACTTTTATT ACCTGTTTACGAGGAGCATACAATACTACTTACAGATCGAAATTTAAATTTAGGTTTTATGATGCTGGAGGTGGGGGGATCCAATTTTATAT CAACATTTATT</p>	597		Confirmation
<p>>2PMS060212_Leptodiaptomus siciloides cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GCTGGGCTTGATCAGGTATAGTTGGGACTGGTTGAGAATAATTATCGAATAGAATTAGGGCAGGCTGCTCATTAAATGGAGATGACCAGGT TTATAATGATGTTGTAACGGCCATGCTTTTATAAATTTTTTTATAGTTATACCTATTTAATTTGGGGGATTTGGAAATTTGATTAGTACCATTAAAT ATTGGGAGCAAGAGATATAGCTTTCCCTCGAATAAATAATATAAGATTTTGATTTTAAATCCAGCTCTAGTTATATTATCTAGGCTTTAGTAG AGAGTGGGGCAGGAACGGGGTGAACAGTTTATCCTCCGTTATCAAGAAATATCGCGCATGCGAGCAGATCGGTTGACTTTTCTATTCTTAC ATTTGCGAGGATTTAGTCAATTTTAGGTGACAGTAAATTTTATTAGGACTTTGGGAAATTTGCGAGCTTTTGGAAATAATTCTGTATGCAATACCATT ATTTGCATGGGCTGTCTTACTGCGTCTATTGTTACTTTTATTACCTGTTTACGAGGAGCATACAATACTACTTACAGATCGAAATTTAA ATTTAGGTTTTATGATGCTGGAGGTGGAGGGGACCAATTTTATCAACATTTATT</p>	642		Confirmation
<p>>LE082614_Macrocyclus albidus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial CTGGGGCTTGGGCGGACTGGTCGGAACAGGCTTAAAGAATAATTATCGTTAGAGTTAGGTCACAGGAGACTTTTAGGTGATGACCAATTT ATAATGTTGTTGATCAGCACATCTTTGTAATAATTTTTTATAGTTATACCTATTTAAATGGCGAATTTGGGAAATTTGGTTCCTCTAATAT TAGGTTCTCTGATATAGCTTTCCCGGCTTAAATAAATTTTTTATAGTTTATACCAGCTTTGATTTTATTATCAAGAGCTTTAGTGGAGT CTGGGGCTGGAAGCTGGTCAACAGTACCCCATTAAGAAAAATTTAGCCATTCTGGTCTCAGTGCATATGCTATTTTTCTCTCATTTA CCCCGGGTTTCTTACTTTGGAGCTGTAATTTTTTAAAACTATGGGTAATTTGCGTACTTTTGGAAATGACAGGGGACCGCTCCCTTTTTGC TTGGGCTGTTTTAATCACTGCTATCTCTCTTACTATCTTACCATTCTAGCGGGGCCATTACTACTTCTTACTGATCAAAATTTAAATACAAC TTTTATGACCTANAGGAGGGGGGACCGATTTTATCAACACTTATT</p>	641		New for species
<p>>2PMS061212_Mesocyclops edax cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GCTGGAGTCTGAGCAGGATAATGGAATGGAATTAAGAGTAATATCCGTCTAGAGCTAGGTCAGCCTGGTCTTTAATGGGGATGATCAAAATTT ACAAATGTAGTGACAGCTCAGCTCCTTTGTAATAATTTTTTATAGTTATACCTATTTAATTTGGTGGATTTGGAAATTTGACTAGTTCTTTAATAC TAGGCTCTCTGATATAGCATTCTCCGGATAAATAATAAGTTTTGATTTTTAATCCAGCTCTGTTTACTCTTAAACAGTTCTTTAGTAGAAA GAGGGGAGGAAACAGGATGAACTGTACCTCCTTAAAGAAATTTTATCTCATTGGGATCTTCAAGTATGCTATTTTTCTCTACATTTA GCTGGAGTACTTCTATTTTAGGACTGTAAATTTTATTAGGACTGTGGCAATATACGCACTTCAAGAAATTTTGGGCAACTCTTTATTGCT CTGATCTGTTTTAATCTGCTATTTTACTACTATCTTACTGCTACTAGTGGGCTATTACCATTTAATGACCGGAAATTTAAATACTTCT TTCTAGACCCAAGAGGGGGGAGACCTATTTTATCAACACTTATT</p>	641		New for species (9)
<p>>LSC091317-1137_Neogasilus sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TACCTTATATCTTATCACAGGAGCTTGAGCAGGACTTATCGGCACTGCCCTTAGATTTATATCCGGCTAGAACTAGGCCAAGCAGGGTCTTTAAT GGGGATGACCAGATTTACAATGTTATTGTTACTGCTCATGCTTTTATTATAATTTTTTATAGTTATACCTATTTAATTTGGAGGGTTGGTAATTGA CTTGTCCTCTCATGTTAGGGGCTCAGACATGCTTTCCCGCTTAAACAACATGAGATATTGATTTTTAGTCCAGCTTTGATTTTACTATTAGTA AGAAGATTAGTAGAATCTGGGCTGGTACCGGCTGGACGGTGTACCTCCATTAAGGAGAAATATTGCTCATTGGGGGCTTCTGTAGATTTAGCT ATTTTTCTCTACACTAGCTGGTATTCTCCCTCTAGGAGCAGTAAATTTTATTAGAATATTGGCAATCTACGAGTTTTAGGAATTTTTAGAC CGAATGCCTCTTTTTGTTGATCTGTTTTAATACGGCTGTTTTAATCTTTTATCCTTACCAGTACTAGCAGGTGCTATTACTATATTACTGACAGATC GAAATTTAAATACTCTTTTTATGACCCAAGAGGTGGAGGGGACCAATTTTATACCAACACTTATT</p>	658		Confirmation of genus
<p>>LSC091317-1238_Neogasilus sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TACCTTATATCTTATCACAGGAGCTTGAGCAGGACTTATCGGCACTGCCCTTAGATTTATATCCGGCTAGAACTAGGCCAAGCAGGGTCTTTAAT GGGGATGACCAGATTTACAATGTTATTGTTACTGCTCATGCTTTTATTATAATTTTTTATAGTTATACCTATTTAATTTGGAGGGTTGGTAATTGA CTTGTCCTCTCATGTTAGGGGCTCAGACATGCTTTCCCGCTTAAACAACATGAGATATTGATTTTTAGTCCAGCTTTGATTTTACTATTAGTA AGAAGATTAGTAGAATCTGGGCTGGTACCGGCTGGACGGTGTACCTCCATTAAGGAGAAATATTGCTCATTGGGGGCTTCTGTAGATTTAGCT ATTTTTCTCTACACTAGCTGGTATTCTCCCTCTAGGAGCAGTAAATTTTATTAGAATATTGGCAATCTACGAGTTTTAGGAATTTTTAGAC CGAATGCCTCTTTTTGTTGATCTGTTTTAATACGGCTGTTTTAATCTTTTATCCTTACCAGTACTAGCAGGTGCTATTACTATATTACTGACAGATC GAAATTTAAATACTCTTTTTATGACCCAAGAGGTGGAGGGGACCAATTTTATACCAACACTTATT</p>	658		Confirmation of genus
<p>>MMLE081817-1035_Neogasilus sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TACCTTATATCTTATCACAGGAGCTTGAGCAGGACTTATCGGCACTGCCCTTAGATTTATATCCGGCTAGAACTAGGCCAAGCAGGGTCTTTAAT GGGGATGACCAGATTTACAATGTTATTGTTACTGCTCATGCTTTTATTATAATTTTTTATAGTTATACCTATTTAATTTGGAGGGTTGGTAATTGA CTTGTCCTCTCATGTTAGGGGCTCAGACATGCTTTCCCGCTTAAACAACATGAGATATTGATTTTTAGTCCAGCTTTGATTTTACTATTAGTA AGAAGATTAGTAGAATCTGGGCTGGTACCGGCTGGACGGTGTACCTCCATTAAGGAGAAATATTGCTCATTGGGGGCTTCTGTAGATTTAGCT ATTTTTCTCTACACTAGCTGGTATTCTCCCTCTAGGAGCAGTAAATTTTATTAGAATATTGGCAATCTACGAGTTTTAGGAATTTTTAGAC CGAATGCCTCTTTTTGTTGATCTGTTTTAATACGGCTGTTTTAATCTTTTATCCTTACCAGTACTAGCAGGTGCTATTACTATATTACTGACAGATC GAAATTTAAATACTCTTTTTATGACCCAAGAGGTGGAGGGGACCAATTTTATACCAACACTTATT</p>	658		New for genus
<p>>LE080317-727_Neogasilus japonicus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TACCTTATATCTTATCACAGGAGCTTGAGCAGGACTTATCGGCACTGCCCTTAGATTTATATCCGGCTAGAACTAGGCCAAGCAGGGTCTTTAAT GGGGATGACCAGATTTACAATGTTATTGTTACTGCTCATGCTTTTATTATAATTTTTTATAGTTATACCTATTTAATTTGGAGGGTTGGTAATTGA CTTGTCCTCTCATGTTAGGGGCTCAGACATGCTTTCCCGCTTAAACAACATGAGATATTGATTTTTAGTCCAGCTTTGATTTTACTATTAGTA AGAAGATTAGTAGAATCTGGGCTGGTACCGGCTGGACGGTGTACCTCCATTAAGGAGAAATATTGCTCATTGGGGGCTTCTGTAGATTTAGCT ATTTTTCTCTACACTAGCTGGTATTCTCCCTCTAGGAGCAGTAAATTTTATTAGAATATTGGCAATCTACGAGTTTTAGGAATTTTTAGAC CGAATGCCTCTTTTTGTTGATCTGTTTTAATACGGCTGTTTTAATCTTTTATCCTTACCAGTACTAGCAGGTGCTATTACTATATTACTGACAGATC GAAATTTAAATACTCTTTTTATGACCCAAGAGGTGGAGGGGACCAATTTTATACCAACACTTATT</p>	658		New for species (7, 8)
<p>>LE080317-828_Neogasilus japonicus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TACCTTATATCTTATCACAGGAGCTTGAGCAGGACTTATCGGCACTGCCCTTAGATTTATATCCGGCTAGAACTAGGCCAAGCAGGGTCTTTAAT GGGGATGACCAGATTTACAATGTTATTGTTACTGCTCATGCTTTTATTATAATTTTTTATAGTTATACCTATTTAATTTGGAGGGTTGGTAATTGA CTTGTCCTCTCATGTTAGGGGCTCAGACATGCTTTCCCGCTTAAACAACATGAGATATTGATTTTTAGTCCAGCTTTGATTTTACTATTAGTA AGAAGATTAGTAGAATCTGGGCTGGTACCGGCTGGACGGTGTACCTCCATTAAGGAGAAATATTGCTCATTGGGGGCTTCTGTAGATTTAGCT ATTTTTCTCTACACTAGCTGGTATTCTCCCTCTAGGAGCAGTAAATTTTATTAGAATATTGGCAATCTACGAGTTTTAGGAATTTTTAGAC CGAATGCCTCTTTTTGTTGATCTGTTTTAATACGGCTGTTTTAATCTTTTATCCTTACCAGTACTAGCAGGTGCTATTACTATATTACTGACAGATC GAAATTTAAATACTCTTTTTATGACCCAAGAGGTGGAGGGGACCAATTTTATACCAACACTTATT</p>	658		New for species

<p>>LE080317-929_Neogasilus japonicus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TACCTTATATCTTATCACAGGAGCTTACGAGGACTTATCGGCACTGCCCTTAGATTTATATCCGGCTAGAACTAGGCCAAGCAGGGTCTTTAATT GGGGATGACCAAGATTACAATGTTATTGTTACTGCTCATGCTTTCATTATAATTTTTTTATAGTTATACCTATTTAATTGGAGGGTTGGTAATTGA CTTGTGCCTCTCATGTTAGGGGCTCCAGACATGGCTTTCCCGCTTAAACAACATGAGATATTGATTTTTAGTCCAGCTTTGATTTTACTATTAGTA AGAAGATTAGTAGAATCTGGGGCTGGTACCGGCTGGACGGTACCCTCCATTAAGGAGAAATATTGCTCATTGGGGGCTTCTGTAGATTTAGCT ATTTTTCTCTACACTAGCTGGTATTCTCCCTCTAGGAGCAGTAAATTTTATTAGAATCTAGGCAATCTACGAGTTTGGAAATATTTTGGAC CGAATGCCTCTTTTTGTTGATCTGTTTAAATACGGCTGTTTTATTACTTTTATCCTTACCAGTACTAGCAGGTGCTATTACTATATTACTGACAGATC GAAATTTAAACTCTTTTTATGACCAAGAGGTGGAGGGGACCAATTTATACCAACTTATTT</p>	657		New for species
<p>>LE080317-626_Neogasilus japonicus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TACCTTATATCTTATCACAGGAGCTTACGAGGACTTATCGGCACTGCCCTTAGATTTATATCCGGCTAGAACTAGGCCAAGCAGGGTCTTTAATT GGGGATGACCAAGATTACAATGTTATTGTTACTGCTCATGCTTTCATTATAATTTTTTTATAGTTATACCTATTTAATTGGAGGGTTGGTAATTGA CTTGTGCCTCTCATGTTAGGGGCTCCAGACATGGCTTTCCCGCTTAAACAACATGAGATATTGATTTTTAGTCCAGCTTTGATTTTACTATTAGTA AGAAGATTAGTAGAATCTGGGGCTGGTACCGGCTGGACGGTACCCTCCATTAAGGAGAAATATTGCTCATTGGGGGCTTCTGTAGATTTAGCT ATTTTTCTCTACACTAGCTGGTATTCTCCCTCTAGGAGCAGTAAATTTTATTAGAATCTAGGCAATCTACGAGTTTGGAAATATTTTGGAC CGAATGCCTCTTTTTGTTGATCTGTTTAAATACGGCTGTTTTATTACTTTTATCCTTACCAGTACTAGCAGGTGCTATTACTATATTACTGACAGATC GAAATTTAAACTCTTTTTATGACCAAGAGGTGGAGGGGACCAATTTATACCAACTTATTT</p>	658	(COX1) gene, partial cds; mitochondrial	New for species
<p>>2PMV06021251_Ostracoda sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TCTACCTAATCTTCGGAGCTTGTAGCGCAACTACTAGGAACTGCTTAAAGAGTAATTTATCTGTCGAGAATAGGACAACAGGATCATAATTGGCAA CGATCAAACTATAAACAATGTAACAGCTCATGCAATTTGTTATAATTTTTTTATAGTTATACCTATTCTAATTGGAGTTTGGTAATTGATTAGT TCCTTTAATGTTAGGAGCCCTGATATAGCAATTCCTCGAATAAATAAATAAGATTCTGACTCTTCCCCATCTCTTACCTTAAAGGTTAGGAAT ATTAACCGAAAGAGGGGAGGAGCGGATGAACAGTATACCTCTTATCAAGAACTTATCACACTCAGGGGCAAGGGTTGATCTTCGATCTT CTCTTACACTAGCTGGGGCAGATCTATTAGGGGCCATTAATTTTTTACTACTATTGCAATATACGGGCAGCAAGAATACACTAGATCGAA TTCTTTAATGTTCTGATCTGATGATTAATGTTTATGCTTCTTCTGCTTACAGTCTTTCGAGGGCAATCAACAATACTACTACTGATCGTA ATCTAAATACAACATTTTTGACCCAGCTGGAGGGGGAGACCAATTTCTATACCAGCATCTATT</p>	653		Confirmation of class
<p>>1LMUSK061914_Skistodiaptomus pallidus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial ATCAGGGATAGTTGGAACAGGCTTAAAGAATAATTATCCGTATAGAATTAGGGCAAGCAGGGTATTGATCGGGGACGATCAAAATTTATAATGTAG TAGTTAGTCCCATGCAATTTAATAATTTTTTTATGTTTATGCTTATTTAAATGGGGGTTTGGAAATGGTTAGTGCCTTAAATAGGCGCCA GAGATATGGCATTCCCGCAATAAATAATAAGATTTGGTTCTAATTCCTGCTTAGTTAGTCTTCTAGATCTTATAGTGGAAAGAGGGCGCA GGTACAGTTGAAACAGTTTATCCTCGTTATCCAGTAATATCGCCCATGCTGGCAGTTCCGTTGGATTTGCTATTTTTTCACTACATTTAGCCGGAGT GAGCTAATTTCTGGAGCTGTAACCTTTAATAAATCTAGGAAATTTGCGAGTGTGGAAATTTAGACCGAAATACCACCTTTGCTGAGCT GTTTTAATCACCGGGTTTTACTACTTTTACTTCTGCTGCTGCTGGGCTATTACAATACTTTAACAGATCGAAATTTAAATTTCTAGTTCTATG ACCGAGGGGAGGAGGATCCTATTTATACCAACTTATTT</p>	631		Confirmation
<p>>2LMUSK061914_Skistodiaptomus pallidus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial AACGGGGCTAAGAATAATTATCCGGATAGAGTTGGGACAAGCAGGATCTTAAATGGAGATGATCAAAATTTATAATGTGGTTGTTACTGCTCATGC TTTTATTATAATTTTTTTATGTTATGCCTATTTAATTGGAGGGTTTGGAAATGACTAGTACCTTAAATTTGGGGCTAGGGATATAGCTTTCC CACGAATAAATAATAAGGTTTTGATTTTTAATTCCTGCTTAGTAATGCTTTATCTAGATCGATAGTAGAGAGGGGTCAGGCACCGGCTGAAC CGTTATCCCGCTAACAAGAAATTTGCTCATGCCGGAGGCTGTGGATTTGCTATTTTTCTACTACATTTAGCCGGAGTTAGGTTCTATTTAG GAGCAGTAAACTTTATCAGGACATTTAGGTAATTTACGAGTTTTGGTATAAATCTGATCGTATTCCTCTATTCCTAGATCTTTAGCCGGTTCTATCACGGCA GTTTTACTTTTATATCTTACTGTGCTAGCCGGAGCTATTACAATACTAATCAAGTGTGGAAATTTAGACCGAAATACCACCTTTGCTGAGCTGTTT GGGGGATCAATTTTATACCAACTTATTT</p>	616		New for species
<p>>3LMUSK061914_Skistodiaptomus pallidus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GGATAGTTGGAACAGGCTTAAAGAATAATTATCCGTATAGAATTAGGGCAAGCAGGGTATTGATCGGGGACGATCAAAATTTATAATGTAGTAGTT ACTGCCCATGCAATTTAATAATTTTTTTATGTTATGCCTATTTAATTTGGGGGTTTGGAAATGGTTAGTGCCTTAAATAGGCGCCAGAGA TATGGCATTCCCGCAATAAATAATAAGATTTGGTTCTAATTCCTGCTTAGTTAGTCTTCTAGATCTTATAGTGGAAAGAGGGCGCAGGTA CAGGTTGAACAGTTTATCCTCGTTATCCAGTAATATCGCCCATGCTGGCAGTTCCGTTGGATTTGCTATTTTTCTACTACATTTAGCCGGGAGT TCAATTTCTGGAGCTGTAACCTTTAATAAATCTAGGAAATTTGCGAGTGTGGAAATTTAGACCGAAATACCACCTTTGCTGAGCTGTTT AATCACCGCGTTTTACTACTTTTACTTCTTACTGCTGCTGCTGGGCTATTACAATACTTTAACAGATCGAAATTTAAATTTCTAGTTCTATGACGC AGGGGATCAATTTTATACCAACTTATTT</p>	626		Confirmation
<p>>BHL060614S2_Skistodiaptomus pallidus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial CTTGATCAGGGANAGTTGGAACAGGCTTAAAGAATAATTATCCGTATAGAATTAGGGCAAGCAGGGTATTGATCGGGGACGATCAAAATTTATAAT GTAGTAGTACTGCCATGCATTTATTATAATTTTTTTATGTTATGCCTATTTAATTTGGGGGTTTGGAAATGGTTAGTGCCTTAAATATTAGG CGCCAGAGATAGGCAATCCCGCAATAAATAATAAGATTTGGTTCTAATTCCTGCTTAGTTAGTCTTCTAGATCTTTAGTGGAAAGAG GCGCAGGTACAGGTTGAACAGTTTATCCTCGTTATCCAGTAATATCGCCCATGCTGGCAGTTCCGTTGGATTTGCTATTTTTCTACTACATTTAGCC GGAGTGAAGCTCAATTTCTGGAGCTGTAACCTTTAATAAATCTAGGAAATTTGCGAGTGTGGAAATTTAGACCGAAATACCACCTTTGCTGCT GAGCTGTTTTAATCACCGCGTTTTACTACTTTTACTTCTTACTGCTGCTGCTGGGCTATTACAATACTTTAACAGATCGAAATTTAAATTTCTAGTT TCTATGACGAGGGGAGGAGGATCCTATTTATACCAACTTATTT</p>	635		Confirmation
<p>>2PMP052113S2_Skistodiaptomus reighardi cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GCCTGATCCGGCATAGTAGGAACGGGGCTAAGAATAATTATCCGGATAGAGTTGGGACAAGCAGGATCTTAAATGGAGATGATCAAAATTTATAA TGTGTTGTTACTGCTCATGCTTTTATTATAATTTTTTTATGTTATGCCTATTTAATTTGGAGGGTTTGGAAATGACTAGTACCTTAAATATTGGG GGCTAGGGATAGCTTTCCACGAATAAATAATAAGGTTTTGATTTTTAATTCCTGCTTAGTAATGCTTTTATCTAGATCGATAGTAGAGG GGTGCAGGCACCGGCTGAACCGTTTATCCCGCTTATCAAGAAATATTGCTCATGCCGGGAGGCTGTGGATTTGCTATTTTTCTACTACATTTAGC CGGAGTTAGGCTATTTAGGAGCAGTAACTTTATCAGGACATTAGTAATTTACGAGTTTTGGTATAATCTTATGATCGATGCTCTTATCGCAT GAGCGGTTCTTATCACGGCAATTTACTTTTATTACTTTTACTGCTGCTAGCCGGAGCTATTACAATACTAATCAAGTACGACCGAAATTTAAATTTCAAGG TTTTATGACGAGGGGAGGGGGGATCCAATTTATACCAACTTATTT</p>	636		New for species
<p>>2PMN081313S2_Skistodiaptomus reighardi cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial TGATCCGCATAGTAGGAACGGGGCTAAGAATAATTATCCGGATAGAGTTGGGACAAGCAGGATCTTAAATGGAGATGATCAAAATTTATAATGT GGTTGTTACTGCTCATGCTTTTATTATAATTTTTTTATGTTATGCCTATTTAATTTGGAGGGTTTGGAAATGACTAGTACCTTAAATATTGGGGC TAGGGATATAGCTTTCCACGAATAAATAATAAGGTTTTGATTTTTAATTCCTGCTTAGTAATGCTTTTATCTAATCGATAGTAGAGAGGGT GCAGGCACCGGCTGAACCGTTTATCCCGCTTATCAAGAAATATTGCTCATGCCGGGAGGCTGTGGATTTGCTATTTTTCTACTACATTTAGCCGG AGTTAGGCTATTTAGGAGCAGTAACTTTATCAGGACATTAGTAATTTACAAGTTTTGGTATAATCTTATGATCGATGCTCTTATCGCATGAG CGGTTCTTATCACGGCAGTTTACTTTTATTACTTTTACTGCTGCTAGCCGGAGCTATTACAATACTAATCAAGTACGACCGAAATTTAAATTTCAAGGTTT ATGACGAGGGGAGGGGGGATCCAATTTTATACCAACTTATTT</p>	633		New for species

<p>>37 MM07142017_Thermocyclops crassus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GACTTTGACTTAATCGTTGGGCTGAGCAGGGATGATTGGCAGGGGATTAAGAGTAATTATTCGGCTGGAGTAGGGCAACCAGGATCTTTAA TGGGAGATGACCAGATTACAACGTTGATGACGGCCATGCGTTTATTATAATTTTTTTATAGTGTGCTATCCTCATTGGAGGGTTGGGAA TTGATTGGTTCCTTAATAATTGGCTCCCTGATATAGCTTCCCTCGTATAAATAATATGAGGTTTTGATTTTTTAATTCCTGCTCTATTATATTATTA ACAAGGCTTTGGTGGAAAGAGGGGCCGGGACAGGTTGAACGGTATATCCTCCTTGAGAAGGAATATGTCGCATTCTGGTCTTCAGTGGACTA CGTATTTTTTCTTGCATTAGCAGGAGTTTCATCAATTTAGGGGCAGTTAATTTATTAGGACCCTAGGAAACATACGAACACTGGGCATATTTT TAGATCGGACCCCTTATTTGCCTGAGCAGTGTGATTACGGCCATTTACTCTTTTATCACTACCTGTCTTAGCAGGAGCTATTACTATGTTATTA CAGATCGAAATCTAAATACTCTTTTTATGATCCAGAGCGGGGAGATCCTATTCTACCAGCATTATTC</p>	658		New for species (3)
<p>>48 MM07142017_Thermocyclops crassus cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GACTTTGACTTAATCGTTGGGCTGAGCAGGGATGATTGGCAGGGGATTAAGAGTAATTATTCGGCTGGAGTAGGGCAACCAGGATCTTTAA TGGGAGATGACCAGATTACAACGTTGATGACGGCCATGCGTTTATTATAATTTTTTTATAGTGTGCTATCCTCATTGGAGGGTTGGGAA TTGATTGGTTCCTTAATAATTGGCTCCCTGATATAGCTTCCCTCGTATAAATAATATGAGGTTTTGATTTTTTAATTCCTGCTCTATTATATTATTA ACAAGGCTTTGGTGGAAAGAGGGGCCGGGACAGGTTGAACGGTATATCCTCCTTGAGAAGGAATATGTCGCATTCTGGTCTTCAGTGGACTA CGTATTTTTTCTTGCATTAGCAGGAGTTTCATCAATTTAGGGGCAGTTAATTTATTAGGACCCTAGGAAACATACGAACACTGGGCATATTTT TAGATCGGACCCCTTATTTGCCTGAGCAGTGTGATTACGGCCATTTACTCTTTTATCACTACCTGTCTTAGCAGGAGCTATTACTATGTTATTA CAGATCGAAATCTAAATACTCTTTTTATGATCCAGAGCGGGGAGATCCTATTCTACCAGCATTATTC</p>	658		New for species
<p>>LE082614_Tropocyclops sp. cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial GCTGGGGCTGGGCAAGGTTTGTGGGCTGGGATAAGCATAATTATTCGTTTAGAGTAGGTCACCTGGAGTTTTATTGGGGGATGATCATCTT TACAATGTAATTGTGACTGCACATGCTTTTATAAATTTTTTTATGTTTATACCTAATTTAATGGGGGTTTGGTAATTGATTGGTCCCTTGATG TTAGGGGCCCGATATGGCCTTCCCGGAATAAATAACATAAAGGTTTTGATTTTTAGTTGCTTCAATCAATGTTGATGAGGCTTTAGTGGAA AAGAGGTGCTGGGACAGGGTGGACAGTGTACCTCCATTGAGAAGAAATATCGACATGGGGGAGATCAGTTGATTACGCAATTTTTCTACTGC ATTTGGCGGGGATCTTCTATTCTTGGGCTGTGAATTTATTAGGACGTTAAAAATCTCGCAAGGTTTGGCATAAAAGGGGATTGATTCCTTT ATTTGGGTGAGCTTTCTAATCACAGCTATTTTATTGTTATTATCATTACCTGTGTAGCAGGGGCAATTAATGTTATTGACAGACCGAAATTTAA ATACTAGATTCTATGACCTAGAGGGGGCGGAGACCTATTTATACCAACATTTGTTC</p>	642		New for genus

- Miracle, M. R., V. Alekseev, V. Monchenko, V. Sentandreu and E. Vicente (2013). "Molecular-genetic-based contribution to the taxonomy of the Acanthocyclops robustus group." *Journal of Natural History* 47(5-12): 863-888.
- Reid, J. W. and P. L. Hudson (2008). "Comment on "Rate of species introductions in the Great Lakes via ships' ballast water and sediments"." *Canadian Journal of Fisheries and Aquatic Sciences* 65(3): 549-553.
- Gutierrez-Aguirre, M. and E. Suarez-Morales (2000). "The Eurasian *Thermocyclops crassus* (Fischer, 1853) (Copepoda, Cyclopoida) found in southeastern Mexico." *Crustaceana* 73: 705-713.
- Ruber, E. (1968). "Description of a salt marsh copepod *Cyclops* (*Apocyclops*) *spartinus* n sp and a comparison with closely related species." *Transactions of the American Microscopical Society* 87(3): 368-375.
- Elias-Gutierrez, M., E. Suarez-Morales, M. Gutierrez-Aguirre, M. Silva-Briano, J. G. Granados Ramirez and T. Garfias Espejo (2008). "Cladocera y copepoda de las aguas continentales de Mexico. Universidad Nacional Autonoma de Mexico."
- Reid, J. W. and L. J. Hribar (2006). "Records of some Copepoda (Crustacea) from the Florida Keys." *Proceedings of the Academy of Natural Sciences of Philadelphia* 155: 1-7.
- Hudson, P. L. and C. A. Bowen (2002). "First record of *Neoergasilus japonicus* (Poecilostomatoida : Ergasilidae), a parasitic copepod new to the Laurentian Great Lakes." *Journal of Parasitology* 88(4): 657-663.
- Baek, S. Y., K. H. Jang, E. H. Choi, S. H. Ryu, S. K. Kim, J. H. Lee, Y. J. Lim, J. Lee, J. Jun, M. Kwak, Y.-S. Lee, J.-S. Hwang, B. A. Venmathi Maran, C. Y. Chang, I.-H. Kim and U. W. Hwang (2016) "DNA Barcoding of Metazoan Zooplankton Copepods from South Korea." *PLoS one* 11, e0157307 DOI: 10.1371/journal.pone.0157307.
- Coker R. 1943. *Mesocyclops edax* (S.A. Forbes), M. leuckarti (Claus) and related species in America. *J Elisha Mitchell Sci Soc.* 59(2): 181-200.